InfoSOSA™Series

Reference Manual

InfoSOSA
Version 2.1

Introduction

Thank you for purchasing Seedsware product.
This manual describes the functions of the InfoSOSA unit and the screen editing tool (InfoSOSA Builder).
Please read this manual and use the product correctly.

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Reference Documents

Please refer to the following documents if the contents are not described in this manual.

InfoSOSA Installation Guide

This is a manual for those using the InfoSOSA for the first time.
It describes the flow from drawing a screen to operation check.

InfoSOSA Builder Operation Manual

This describes how to operate the InfoSOSA Builder.

Host Communication Tester Manual

This describes how to operate the Host Communication Tester.

Note: Host Communication Tester is a software to check the communication with the InfoSOSA with a computer instead of a microcomputer device.

Table of Contents

1. Components of InfoSOSA

1.1　**List of Components**

InfoSOSA is made of the following components.
Please refer to each chapter for details.

Items	Descriptions	Chapters
Base Screen	Basis of each screen.	2. Screens
Pop-up Screen A	Screen that can be displayed on Base Screen.	
Pop-up Screen B	Screen that can be displayed on Base Screen and Pop-up Screen A.	
Parts	Function of InfoSOSA that is arranged on screens, such as buttons, lamps, etc.	3.Parts
Screen Memory	Memory that can only be operated inside each screen. Cannot be operated from different screens.	4. Memories
Global Memory	Memory that can be operated from whichever screen.	
Event	Event that notifies changes such as "touchscreen is pressed", "time is up", etc.	5. Events
Action	Action setting that moves with event as it's trigger such as switching of displayed screens, calculations, etc.	6. Actions
Subroutine	Multiple actions set together.	
Method	Special actions that are executed by Host Communication command.	7. Methods
String Resource	String that can be registered beforehand with InfoSOSA Builder. Multiple strings can be registered to one ID and the displayed strings can be switched all at once.	8. Resources
Image Resource	Image data that is used for screens, buttons, and switches. If you want to change the appearance of the parts you must register it beforehand to the image resource.	
Environment Variables	Information related to action and status of InfoSOSA unit such as backlight brightness.	10. Environment Variables

1.1.1　　Relation of Screens and Parts

To add functions to the InfoSOSA, arrange parts, such as buttons, lamps, etc. onto the screen.
Please refer to "3. Parts" for the types of Parts.

Part (Lamp)

Base Screen

Part (Button)
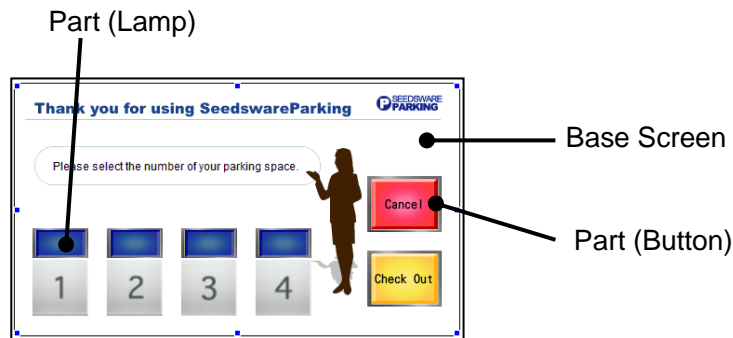
1.1.2　　Relation of Parts, Events, and Actions

Event is what is generated when touch operations and other operations are implemented, such as Press (pressed), and Release (released), etc.
When an event is generated, optional Actions (behaviors) are performed.
Actions can be registered to each event of Parts.
Please refer to "5. Events" for the details of events and "3. Parts" for events of each Part.
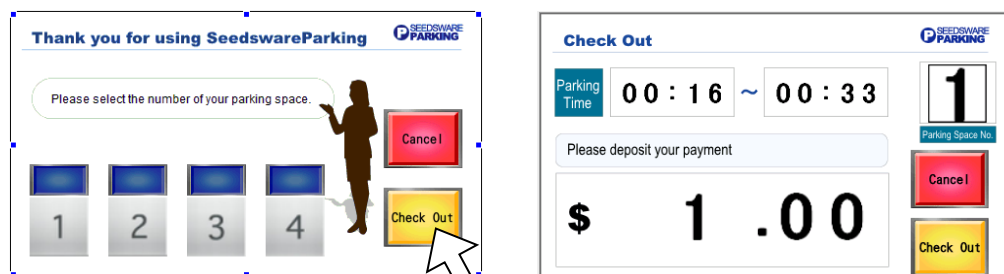
Press "Check Out" button

Perform "move to designated screen".

Event generated!

1.2 **IDs**

Screens, Parts, memories, and each resources used on the InfoSOSA are all categorized by a number called an ID.
This ID is used to specify actions and the Host Communication commands.

1.2.1　Default ID List

IDs are allocated automatically when Parts and memories, etc. are arranged.
There are two types of IDs, changeable IDs and unchangeable IDs.

Type	Name	ID	Changeable?
Screens	Base Screen	BAS00001 -	Yes
	Pop-up Screen A	POPA0001 -	Yes
	Pop-up Screen B	POPB0001 -	Yes
Parts	Button	BTN00001 -	Yes
	Transparent Button	TBN00001 -	Yes
	Change Screen Button	STB00001 -	Yes
	Switch	SWH00001 -	Yes
	Image Multi State Switch	MSI00001 -	Yes
	Color Multi State Switch	MSC00001 -	Yes
	Numeric Keypad	TEN00001 -	Yes
	Lamp	LMP00001 -	Yes
	Image Multi State Lamp	MLI00001 -	Yes
	Color Multi State Lamp	MLC00001 -	Yes
	Label	LBL00001 -	Yes
	Character Display Parts	CHI00001 -	Yes
	Number Display Parts	NMI00001 -	Yes
	Telop	TLP00001 -	Yes
	Time Display Part	TIM00001 -	Yes
	Frame	FRA00001 -	Yes
	Simple Graph	GRH00001 -	Yes
	Trend Graph Graph Body	TGRH0001 -	Yes
	Trend Graph Operation Panel	TGP00001 -	Yes
	Bar Meter	BAR00001 -	Yes
	Picture Box	PIC00001 -	Yes
	Line Parts	LIN00001	Yes
	Arrow Parts	ARW00001	Yes
	Rectangle Parts	REC00001	Yes
	Table Parts	GRD00001	Yes
Memories	Screen Memory	MEM00001 -	Yes
	Global Memory	GME00001 -	Yes
	Global Memory Group	GRP00001 -	Yes
Resources	Image Resource	IMG00001 -	Yes
	String Resource	STR00001 -	Yes

Type	Name	ID	Changeable?
Logging	Log Data	DATA0001 -	Yes
Others	String Resource Set	STM00001 -	No
	Subroutine	SUB00001 -	Yes
	Sheet Key LED	XLED01 -	No
	Sheet Key SW	XSW01 -	No

1.2.2   ID Changing Rules

When changing the ID, please follow the rules below.
- (1)   Use 1 to 8 characters.
- (2)   Alphanumeric characters (only capital letters), "-"(hyphens), and "_" (underscores) can be used.
- (3)   First character must be an alphabet.
- (4)   If the first three characters are "OSD", it will be invalid. "OSD" is a reserved ID.
- (5)   The same ID cannot be used in the same screen or category.

1.3   **Property**

The Property holds information, such as setting values of Parts and memories.
Functions and appearance of Parts can be changed by changing the values in the Property by
Action or Host Communication commands.

Setting and Changing Properties

With the InfoSOSA Builder, the property can be set by "Property Area" or "Advanced Properties
Dialog" of each Part.
A part of the property can be changed by Action or Host Communication while the InfoSOSA is
operating.

Property Area

The Property Area, located on the screen of the Builder, is an area for setting the properties.
It allows you to quickly change the properties common to many Parts.
If you select multiple Parts, it is possible to change their properties all at once.
For the properties not displayed in the Property Area, please make the changes via "Advanced
Properties Dialog".
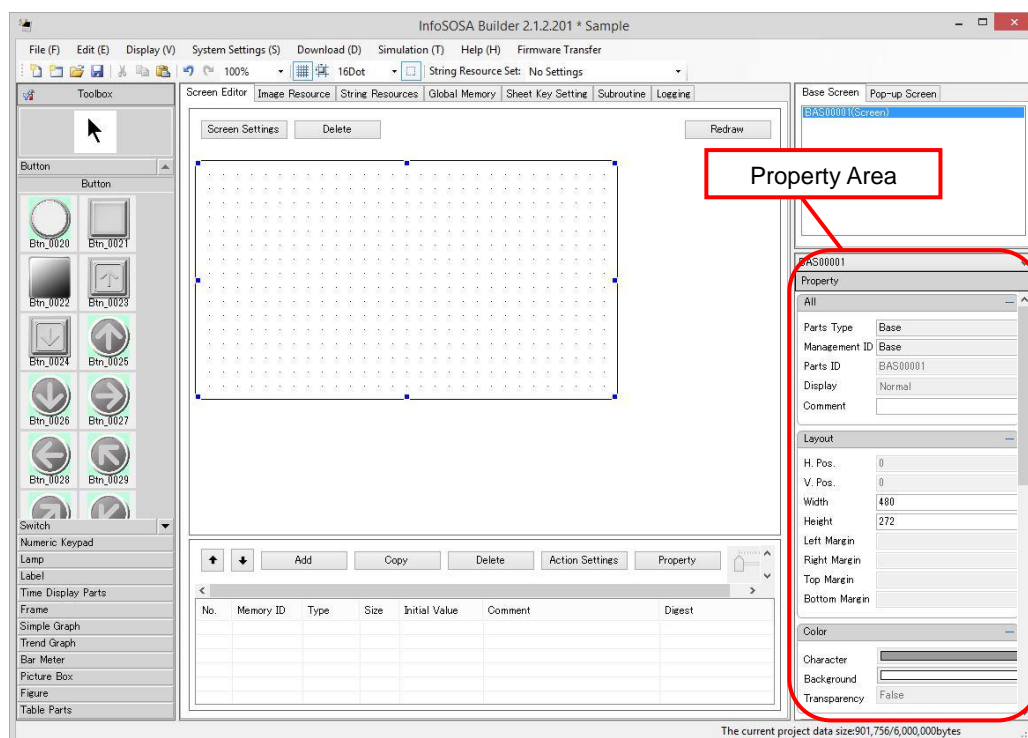
Advanced Properties Dialog

The "Advanced Properties Dialog" is a screen that allows you to set the properties that have
been prepared for each Part.
Properties that can be set vary according to each Part.
"Advanced Properties Dialog" can be displayed by double clicking on the Part or by right clicking
on the Part and choosing "Advanced Properties".

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1.4　Local and Global Data

The InfoSOSA has Local Data and Global Data.

Local data is the data that belongs to a screen (Base Screen, Pop-up Screen).
You will not be able to set nor refer to the Local Data other than the ones belonging to the screen currently displayed. In addition, it will be initialized each time the corresponding screen is displayed.

The Global Data can be referred to and set up regardless of the screen displayed.

Data Type	Data Name	Accessibility	Data Initialization
Local Data	- Screen properties and Part properties arranged one the screen (display setting, enable setting, blink setting, etc.) - Screen Memory *1	Only when related screen is displayed.	Initialized to set value by Builder when related screen is displayed. Value is retained only when related screen is displayed.
Global Data	All data other than Local Data E.g. - Global Memory - String Resource - Image resource - Environmental Variables	Always accessible	Initialized to value set by Builder when power is turned ON. Values changed are retained when power is ON*2

*1.　When initial action of timer Screen Memory is set to "Start", only the related screen display will operate.
*2.　Data that is battery backed up will be retained even after power is turned OFF.
　　　Please refer to "12.7 SRAM Save (Battery Backup)" for details.

2. Screens

2.1   **Screens**

There are 3 types of Screens: Base Screen, Pop-up Screen A, and Pop-up Screen B.

Create the functions and operations of InfoSOSA by arranging the parts on the screen.

Base screen, and Pop-up screen A/B are in layer structure and are possible to display up to three screens at the same time.

The layer will be structured with the base screen at the bottom and Pop-up Screen A and Pop-up Screen B on top in that order.

Touch operation can be performed only on the screen displayed as the top layer.

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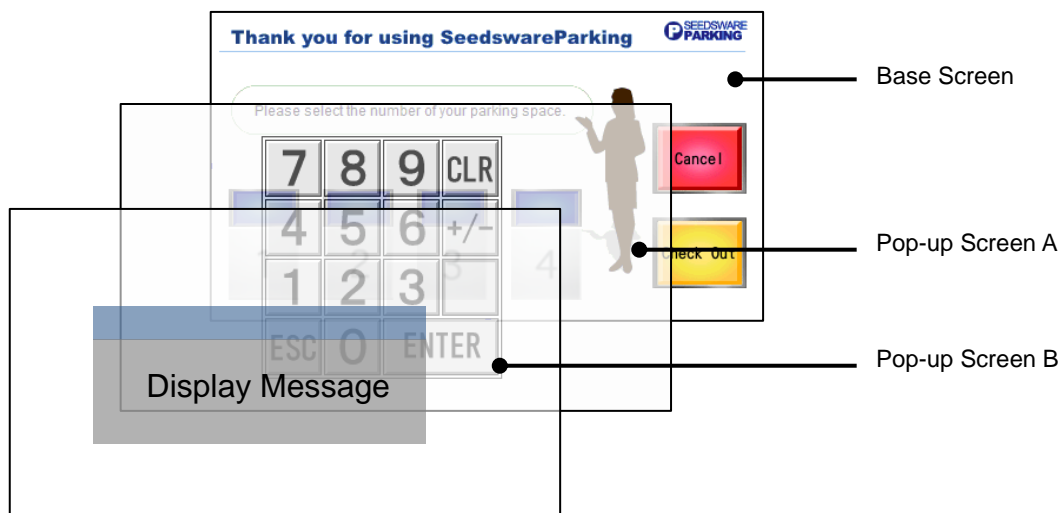
2.2　**Base Screen**

Located at the most back, it will be the basis for arranging the parts.

The default size is the same as the LCD screen resolution.

Properties

Category	Property Name	Property ID	Default Value	Change after Download	
				Host Communication	Action
Layout	Width	-	Width Resolution	×	×
	Height	-	Height Resolution	×	×
Color	Background Color	BCOLOR	White	○	×
Image	Normal	-	-	×	○

* When Background Color and Image are set simultaneously, Image will be given priority.

Events

Event	Description
On Display	Generated when screen display is complete
On Load	Generated once after screen is called and before it is displayed.

* Please refer to "5. Events" for details.

Notices

- Screen Properties and events are specified as [Screen ID] and [Property/Event ID].

  E.g.：PA01,BAS00001.BCOLOR,0-240-0[CR]

  　　　PA04,BAS00001.ON_DISPLAY[CR]

Please refer to "13.13 The Parameters of the Communication Command" for details.

2.3 **Pop-up Screen A/B**

These are screens overlying the Base Screen.
Pop-up B will be displayed on top of Pop-up A.
They can be displayed on whichever Base Screen of Action and/or Host Communication.
The default size is the same as the LCD resolution. Make any size changes necessary.

Properties

Category	Property Name	Property ID	Default Value	Change after Download	
				Host Communication	Action
Layout	Width	-	Width Resolution	✕	✕
	Height	-	Height Resolution	✕	✕
Color	Background Color	BCOLOR	White	○	✕
Image	Normal	-	-	✕	○

* When both Background Color and Image are setup, Image will be given priority.

Events

Event	Description
On Display	Generated when screen display is complete
On Load	Generated once after screen is called and before it is displayed.

* Please refer to "5. Events" for details.

Notices

- Screen Properties and Events are specified as [Screen ID] and [Property/Event ID].
    E.g.: PA01,POPA0001.BCOLOR,0-240-0[CR]
        PA04, POPA0001.ON_DISPLAY[CR]
Please refer to "13.13 The Parameters of the Communication Command " for details.

3. Parts

3.1　**Parts**

There are Parts that generate events and display states, texts, and numbers.
Screens are created by arranging and setting these Parts with the InfoSOSA Builder.

Each Part has a property.
Setting of Parts can be done by changing the values of the property.
Parts property can be changed only when screen is displayed.
The initial value is always read at screen change.

*　　"On Display" or "On Load" event is generated at screen change. Re-setup is possible with this event as the trigger.

Actions can be set for Parts that can generate events.
InfoSOSA Action Setting can be done by setting behavior to the events generated.
Please refer to "5.3 List of Events Generated by Parts/ Memories" for details.

3.2   List of Parts that can be Used on InfoSOSA

Below is the list of parts that can be used on the InfoSOSA.

Please refer to the description of each part for details.

* Parts that can be used vary according to Models.

Part Name	Description	Model	
		IS7	IS9
[Buttons] Momentary switch for generating touch event. ON / OFF state is not retained.			
Button	Various expressions possible by pasting images.	○	○
NoImage Button	Simple Part that allows color to be specified. Possible to suppress increase of project data size since it does not use image data.	○	○
Touch Screen Button	Button that is not displayed on InfoSOSA. Can be used as hidden button.	○	○
Change Screen Button	Button that allows screen change action to be set easily. Various expressions are possible by pasting images.	○	○
[Switches] Alternate switch for generating a touch event by state. ON / OFF state is retained.			
Switch	Various expressions are possible by pasting images.	○	○
Image Multi State Switch	Switch that allows multiple state setting. Image can be set to each state.	○	○
Color Multi State Switch	Switch that allows multiple state setting. Color can be set to each state.	○	○
[Numeric Keypads] Used for entering numbers. Used as a set with number displaying Parts.			
Numeric Keypad	2 sizes.	○	○
[Lamps] Displays state such as ON and OFF.			
Lamp	Various expressions can be made by pasting image.	○	○
NoImage Lamp	Simple part allows color to be specified. Possible to suppress increase of project data size since it does not use image data.	○	○
Image Multi State Lamp	Lamp that allows multiple states setting. Image can be set to each state.	○	○
Color Multi State Lamp	Lamp that allows multiple states setting. Color can be set to each state.	○	○
[Labels] Displays numbers and characters.			
Label	Used to express static characters that do not change such as menus and descriptions.	○	○
Character Display Parts	Used to express dynamic characters that change such as status display.	○	○
Number Display Parts	Used to display numeric memory such as to display counters, clocks, etc.	○	○
Telop	Used to display characters that cannot be displayed on screen. Characters are displayed by scrolling from right to left.	○	○
[Time Display Parts] Displays elapsed time.			

Part Name	Description	Model	
		IS7	IS9
Time Displaying Parts	Used to display elapsed time in form of hours/minutes/seconds. *Clock will be displayed linked to Environment Variables and Number Display Parts.	○	○
[Frame] Displays decorations and punctuations.			
Frames	Various expressions can be made by pasting the image.	○	○
NoImage Frame	Simple part that allows color specification. Possible to suppress the increase of project data size since it does not use image data.	○	○
[Simple Graph] Displays graph with simple functions			
Simple Graph	Stores data sent from host to internal memory of display device and displays it as polygonal line graph.	○	○
[Trend Graph] Displays/ operates trend graphs. * Can only be used with models with external storage available.			
Graph Body	Displays line graph the log data stored in the external storage by "logging function".	×	○
Operation Panel	Panel used to operate trend graph. Left to right scrolling/ time scale change/ show or hide of cursors can be done.	×	○
[Bar Meter] Displays the percentage by length of the bar.			
Bar Meters	Displays values as percentages.	○	○
[Picture Box] Displays images. Circles and rectangles can be drawn by Host Communication.			
Picture Box	Part that displays images. Simple drawings can be done by Host Communication.	○	○
[Figures] Expresses simple shapes.			
Line Parts	Lines	○	○
Arrow Parts	Lines with arrows	○	○
Rectangle Parts	Rectangles	○	○
[Table Parts] Displays tables.			
Table Parts	Create tables	○	○

3.3　Standard Properties of Parts

Below describes the standard properties, the common properties, of each Part.

3.3.1　Standard Properties List

Below is the list of the standard properties.

Properties vary according to Parts.

* Please refer to the descriptions of each Part for their extended properties.

Category	Property	Property ID	Description
General	Parts type	-	Category name in Toolbox (Cannot be modified)
	Management ID	-	Management ID indicating Part type (Cannot be modified).
	Part ID	NAME	Part control ID on Screen Refer to 1.2.2 ID Changing Rules when changing IDs.
	Display	-	Part display status in the Builder Choose from "Normal", "Movement", or "Cancel Function".
	Comment	-	Enter comments freely using 0 to 64 characters. Displayed after Part ID when setting Action and Links when editing with InfoSOSA and does not influence the display or movement on actual unit.
Layout *Set in units of pixels	H. Pos.	-	Distance from top left of Screen to top left of Part. Set horizontal resolution value from 0 to Part width.
	V. Pos.	-	Distance from top left of Screen to top left of Part. Set vertical resolution value from 0 to Part height.
	Width	-	Width of Part. Set value between 8 to maximum width resolution.
	Height	-	Height of Part. Set value between 8 to maximum height resolution.
	Left Margin	-	Left margin of string displayed on Part. Specify value from 0 to Part width.
	Right Margin	-	Right margin of string displayed on Part. Specify value from 0 to Part width.
	Top Margin	-	Top margin of string displayed on Part. Specify value from 0 to Part height.
	Bottom Margin	-	Bottom margin of string displayed on Part. Specify value from 0 to Part height.
Color	Character	FCOLOR	Color of string displayed on Part.
	Background	BCOLOR	Background color of Part.
	Transparency	-	True: Enable transparency. False: Disable transparency.
String	String	TEXT	String displayed on Part. Can be set under the following conditions. Number of characters: 0 to 64 characters. Character types: normal, wide. * Both Normal and Wide character string will be counted as 1 character. Newline is counted as 2.
	H. Position	-	Horizontal position of string in Part.

Category	Property	Property ID	Description
			Choose from "Left", "Center", and "Right"
	V. Position	-	Vertical position of string in Part. Choose from "Top", "Center", and "Bottom"
	Font Type	-	Choose from "System Font" or "Image Font"
	Font	-	Choose from fonts installed in the PC when "Image Font" is chosen. Can be set to each String Resource set.
	Size	-	Size of Font
Data	Value	VALUE	Value to display on Part. Displayed value is limited to value range of linked memory. Linkable memory can be chosen from "Screen Memory", "Global Memory", and "Envir. Variables".
	Display Digit	-	Digits of numbers to be displayed. Can be set between 1 to 64
Link Data	Memory Type	-	Memory type linked to string or value property. Settable memory type depends on Parts
	Memory ID	-	Set memory ID to be linked.
	Numeric Keypad	-	Set numeric keypad to coordinate when using numeric keypad to enter numbers. Only valid for parts that display numbers
Image	Action	-	Image when button is pressed.
	NORMAL	-	Image when button is not pressed.
	Disable	-	Image when button is disabled.
Movement	Enable Setting	ENABLED	Enable or disable Touch Input. True: Enable False: Disable
	Display Setting	VISIBLE	Display setting of Part True: Show False: Hide
	Blink Setting	BLINK	Blink setting of Part. True: Blink False: No blink
	Touch Sound	-	Sound Setting when Part is touched. Select 'None' or from Patterns 1-9.
	Event	-	Choose when to change screen: when pressed or released. Valid only for Screen Change button.
	Transition DST	-	Choose screen of transition destination. Valid only for Screen Change button
Number, Time Display	Display Type	-	Choose from "Screen Image", "System Font", and "Image Font"
	Normal/Wide	-	Choose to display values in normal or wide characters. *Valid only when "System Font" or "Image font" is chosen.
	NUM Image	-	Choose Image. *Valid only when Image is chosen.

[Notice]
* Same Parts ID cannot be used on the same screen.
* If the margin is too large, numbers and strings may not be displayed correctly.

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✳ The same color as the upper left pixel of the bitmap pasted on the part will become transparent if transparent setting is enabled.

✳ Both Normal and Wide characters are counted as one character. Wide characters means 2 bytes code characters such as Japanese, Chinese and Hangul.

✳ New line is counted as two characters.

✳ System font can be set by "System Font Settings" in the "System Settings" menu.

✳ Each image is selected from the default image or Image Resource.

✳ The default setting of touch sound can be changed from "H/W Setting" in the "System Settings" menu.

3.3.2   Basic Setting of Standard Properties

This section describes the basic method of setting the standard property.

* Please refer to each part for specific property of each.

Moving and Changing Size of Parts

Parts can be moved by dragging the mouse, using the cursor key, or directly specifying the property value.

Changing the size of Parts can be done by dragging the mouse or directly specifying the property value.

Name of properties to change and where they influence when moving or resizing are as described in below diagram.
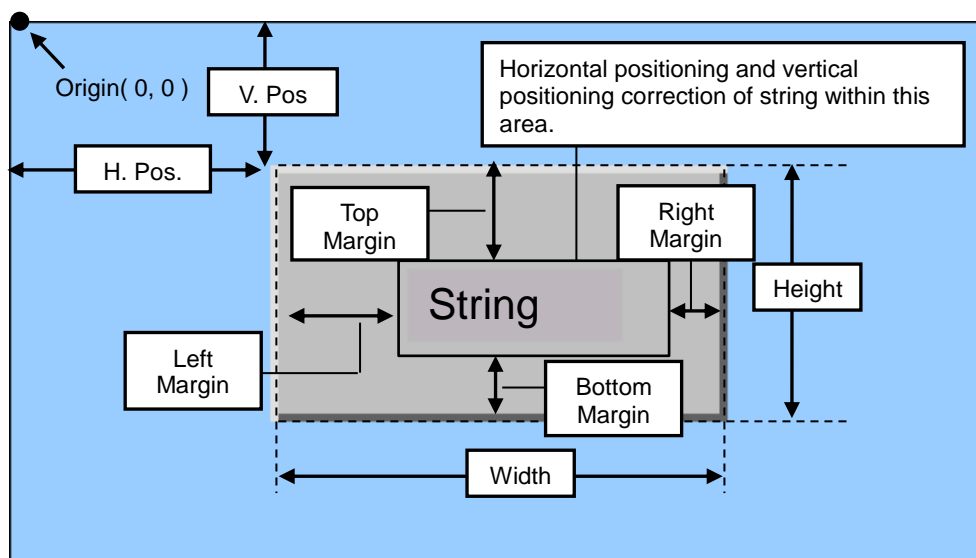
[Notice]

✳ When Parts protrude out of the screen with horizontal or vertical position specified, it will be corrected automatically to the position as follows:

E.G.1: Horizontal resolution 480, Part width 48 and horizontal position 480 are specified.

480-48 = 43 Horizontal position will be adjusted to 432

E.G.2: Vertical resolution 272, Part height 48 and vertical position 272 are specified.

272-48 = 224 Vertical position will be adjusted to 224

✳ Numbers and strings may not be displayed correctly if margin value is set too large.

Writing Characters to Parts

When writing characters to a Part, enter the character you want to write in the "String" in the "Property Area" and the "Advanced Properties Dialog".

| Property Area | Advanced Properties Dialog |

Enter characters here and it will appear on the Part.
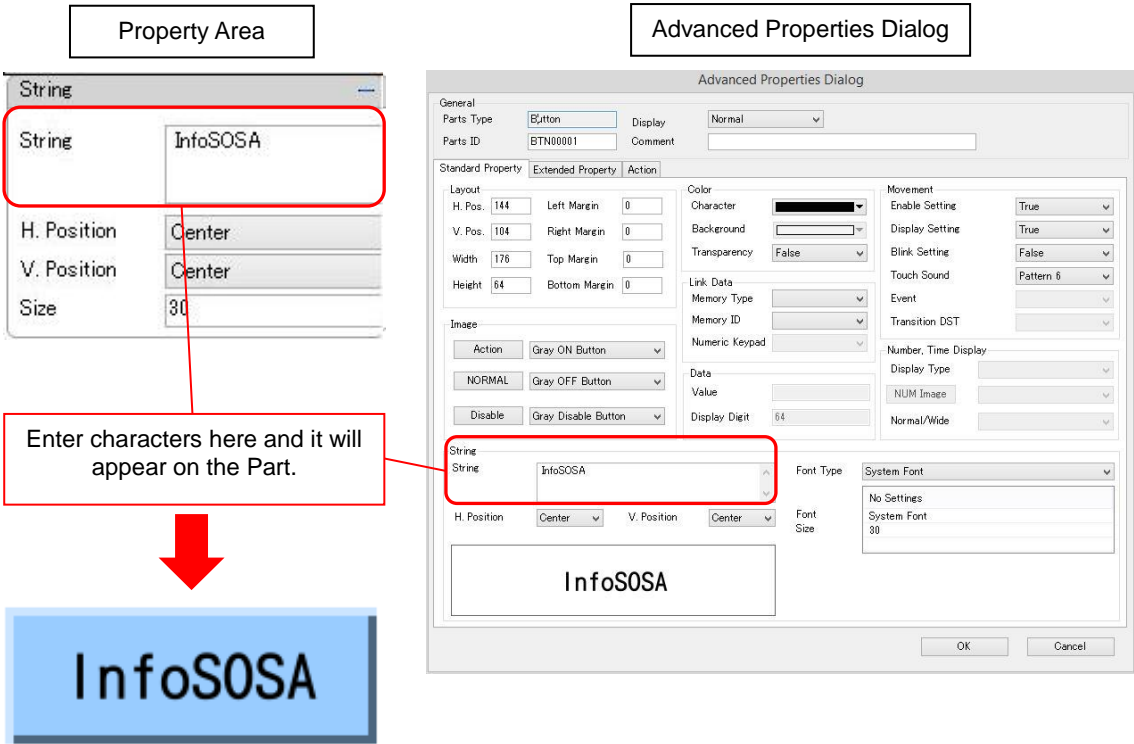
*Please refer to "9. Fonts" for font details.

Reflecting Memory Values to Parts

When you want to coordinate the memories and Parts, or if you want to display memory values and strings, link memory to "Link Data" in the "Property Area" and "Advanced Properties Dialog".

Property Area

Advanced Properties Dialog

Memory value is reflected to the Parts when Link Data is set.

Memory value is displayed on Parts that display numbers

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Changing Colors and Images of Parts

Change the "Color" or "Image" in the "Property Area" or the "Advanced Properties Dialog" to change the Base Screens or colors/images of Parts. When changing the image, be sure to take in the image resource before attempting to paste it to the Part.

Property Area

Advanced Properties Dialog

When color is changed or image is set, the appearance of the Part will change.
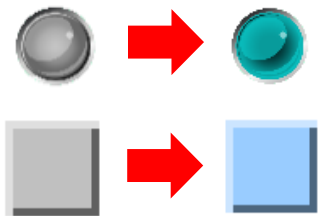
*When color and image is specified simultaneously, image will have priority.

Transparency of Parts

Some parts can be set to be transparent.

When Parts are set to be transparent, the color or images of parts behind the parts become invisible.

Areas that become transparent vary according to parts.

When Transparency is set, the color in the upper left corner of the part is determined to be transparent when part is displayed.

Please note, the part may not be displayed correctly depending on how the image is made.

Property Area
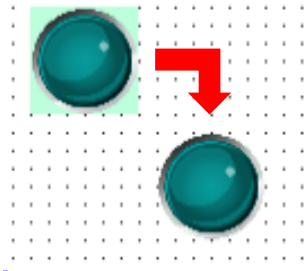
Advanced Properties Setting

When Transparency is set to "True", the background of the Part becomes transparent when displayed.

Enabling and Disabling of Part

To switch the Enable/Disable setting of the parts, change the "Enable Setting" of "Property Area" and "Advanced Properties Dialog". This property can also be changed with "Action" or with "Host Communication".
If this property is set to "False", Parts will be displayed but cannot be operated.

| Property Area | Advanced Properties Dialog |

True: Enable
False: Disable
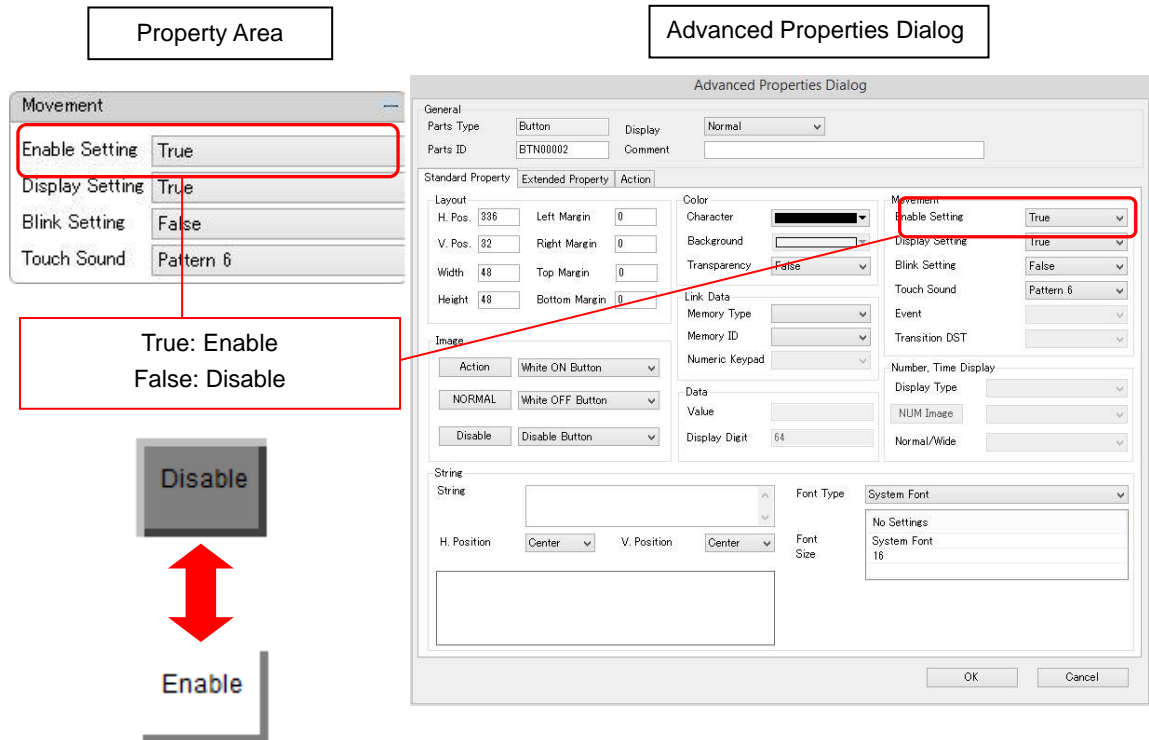
*Function Disabled Image will be displayed when set to Disable.

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Showing and Hiding of Parts

To switch the show/hide setting of the Parts, change the "Display Setting" of "Property Area" and "Advanced Properties Dialog". This property can also be changed with "Action" or with "Host Communication".
If this property is set to "False", Parts will not be displayed and cannot be operated.

True: Enable
False: Disable
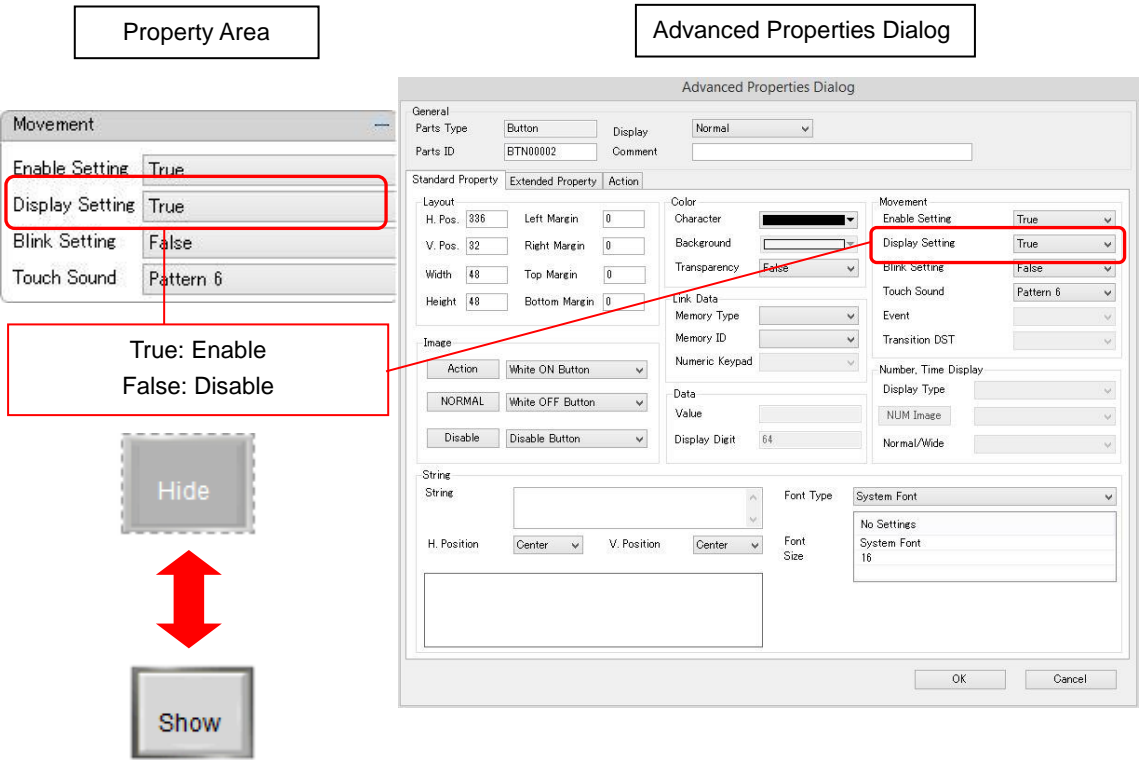
Blinking of Parts

To change the blinking setting of Parts, change the "Blink Setting" of "Property Area" or "Advanced Properties Dialog". This property can also be changed with "Action" or with "Host Communication".

Property Area

Advanced Properties Dialog

True: Blink
False: No Blink

On and Off state will be displayed alternately.
Character will blink on Labels

* Blink design will vary according to the Part.

Changing the Touch Sound of Parts

To change the touch sound, change the "Touch Sound" Setting of "Property Area" and
"Advanced Properties Dialog".

Property Area

Advanced Properties Dialog

Choose desired pattern.
The larger the number, the higher
the tone.

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3.4   **Pointer**

3.4.1   Pointer

The pointer is at the top area of the Toolbox.

It can be used to release Part Placement Mode, or moving, enlarging, and reducing of Parts arranged on the editing area, and calling property and action settings, etc.

* Part Placement Mode is the state where a part selected is active in the Toolbox. It is placed when you click on the Base Screen.

The cursor becomes a "+" and not an arrow when in Part Placement Mode.

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3.5 **Buttons**

The button is a momentary switch that generates touch events.

It does not maintain the ON/OFF state.

There are 3 types of buttons: NoImage, Touchscreen, and Change Screen buttons.

3.5.1 Button

Button appearance can be changed by pasting images to Action, NORMAL, and Disable Images.

Project data size will increase than using the NoImage buttons.

Properties

(1) Standard Property

Below described are the standard properties of the buttons.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Button	×	×
	Management ID	-	Button01～	×	×
	Parts ID	NAME	BTN00001～	Read only	×
	Display	-	Normal	×	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Character	FCOLOR	Black	○	×
	Transparency	-	FALSE	×	×
String	String	TEXT	(Blank)	○	○
	H. Position	-	Center	×	×
	V. Position	-	Center	×	×
	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Image	Action	-	-	×	×
	NORMAL	-	-	×	×
	Disable	-	-	×	×
Movement	Enable Setting	ENABLED	TRUE	○	○

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
	Display Setting	VISIBLE	TRUE	○	○
	Blink Setting	BLINK	FALSE	○	○
	Touch Sound	-	Pattern 6	×	×

(2)Extended Property

Below described are the Extended Properties of the buttons.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Holding Time	-	0	Time until LongPress event occurs.	×	×
Start Time	-	0	Time until RepeatPress event occurs.	×	×
Interval	-	0.2	Basic generated interval of RepeatPress Event	×	×
Minimum Interval	-	0.2	Minimum generated interval of RepeatPress Event	×	×
Step Up	-	0	Shortening time each time RepeatPress Event is generated.	×	×

* When using the LongPress Event, set the number of seconds to hold to 1 or more.
* When using the RepeatPress Event, set the Start time to 1 or more.
* Number of seconds for Long Press and the start time for Repeat Press cannot be set at the same time. (Either one must be 0)
* Please refer to "5.4 Events" for details of LongPress and RepeatPress events.

Events

Event	Description
Press	Generated when pressed
Release	Generated when released
Leave	Generated when slid and released from part
Long Press	Generated once when pressed and held down
Repeat Press	Generated when press is repeated

* Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

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Notices

Blink Action
Only String will repeat show/hide

Memory Type Settable to Link Data
String Type

3.5.2　NoImage Button

NoImage button has a simple appearance.

Images cannot be pasted, but the color can be changed.

It is possible to suppress the increase of project data size since it does not use image data.

Properties

(1)Standard Property

Below described are the standard properties of the NoImage button.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Button	×	×
	Management ID	-	Button99	×	×
	Parts ID	NAME	BTN00001～	Read only	×
	Display	-	Normal	×	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Font	FCOLOR	Black	○	×
	Background	BCOLOR	White	○	×
String	String	TEXT	(Blank)	○	○
	H. Position	-	Center	×	×
	V. Position	-	Center	×	×
	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Movement	Enable Setting	ENABLED	TRUE	○	○

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
	Display Setting	VISIBLE	TRUE	○	○
	Blink Setting	BLINK	FALSE	○	○
	Touch Sound	-	Pattern 6	×	×

(2) Extended Property

Below described are the extended properties.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Button Display Type	-	0	Choose from 3 types of Button display types	×	×

*Value of button display type and the image that will be displayed.

Display Image	Button Display Type		
	0	1	2
ON			
OFF			

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Holding Time	-	0	Time until LongPress event occurs.	×	×
Start Time	-	0	Time until RepeatPress event occurs.	×	×
Interval	-	0.2	Basic generated interval of RepeatPress Event	×	×
Minimum Interval	-	0.2	Minimum generated interval of RepeatPress Event	×	×
Step Up	-	0	Shortening time each time RepeatPress Event is generated.	×	×

∗ When using the LongPress Event, set the number of seconds to hold to 1 or more.

∗ When using the RepeatPress Event, set the Start time to 1 or more.

∗ Number of seconds for LongPress and the start time for RepeatPress cannot be set at the same time. (Either one must be 0)

∗ Please refer to "5.4 Events " for details of LongPress and RepeatPress events.

Events

Event	Description
Press	Generated when pressed
Release	Generated when released
Leave	Generated when slid and released from part
Long Press	Generated once when pressed and held down
Repeat Press	Generated once when pressed and held down and generated repeatedly while kept held down.

∗ Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

Notices

Blink Action
Only String will repeat show/hide

Memory Type Settable to Link Data
String Type

3.5.3　Touch Screen Button

Touch Screen Buttons have a transparent appearance.
It is visible on the Builder, but invisible on the InfoSOSA

Properties

(1)Standard Property

Below described are the standard properties of the Touch Screen Buttons.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Touch Screen Button	×	×
	Management ID	-	Touch Screen Button	×	×
	Parts ID	NAME	TBN00001〜	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
	Height	-	48	×	×
Movement	Enable Setting	ENABLED	TRUE	○	○
	Touch Sound	-	Pattern 6	×	×

(2) Extended Property

Below described are the extended properties.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Long Press Time	-	0	Time until LongPress event generates.	×	×

∗　When using LongPress Event, set the hold time to more than 1 second.

Events

Event	Description
Press	Generated when pressed
Release	Generated when released
Leave	Generated when slid and released from part
Long Press	Generated once when pressed and held down

* Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

3.5.4　Change Screen Button

Scr_0001

By simply setting the screen transition destination in its own property, it allows the screen to change when the button is either pressed or released.
Button displays can be changed by pasting images to Action, NORMAL, and Disable Images.
Project data size will increase than using the NoImage buttons.

Properties

(1) Standard Property

Below described are the standard properties of the Change Screen Button.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	ScreenTransitionButton	×	×
	Management ID	-	ScreenTransitionButton	×	×
	Parts ID	NAME	STB00001〜	Read only	×

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
	Display	-	Normal	×	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Character	FCOLOR	Black	○	×
	Transparency	-	FALSE	×	×
String	String	TEXT	(Blank)	○	○
	H. Position	-	Center	×	×
	V. Position	-	Center	×	×
	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Image	Action	-	-	×	×
	NORMAL	-	-	×	×
	Disable	-	-	×	×
Movement	Enable Setting	ENABLED	TRUE	○	○
	Display Setting	VISIBLE	TRUE	○	○
	Blink Setting	BLINK	FALSE	○	○
	Touch Sound	-	Pattern 6	×	×

By simply setting the below properties in the "Advanced Properties Dialog", it will allow you to change the screen when pressed or released.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Event	-	(Blank)	Choose when to change screen: when pressed or released	×	×
Transition DST	-	(Blank)	Choose screen change destination	×	×

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Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action
Only String will repeat show/hide

Memory Type Settable to Link Data
String Type

3.6 Switches

The switch is an alternate Button Part that maintains the ON/OFF state.

Separate events at ON state and OFF state are generated at touch input.

There are 3 types of switches: Switch, Image Multi State Switch, and Color Multi State Switch.

3.6.1 Switch

Optional images can be set to Action, NORMAL, and Disable Images.

When value is "0", NORMAL image, when value is other than "0", Action image is displayed.

If touched when value is "0", it will change to "1", and if touched when value is other than "0", it will change to "0".

Properties

(1) Standard Properties

Below described are the standard properties of the switch.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Switch	×	×
	Parts ID	NAME	SWH00001～	Read only	×
	Display	-	Normal	×	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Character	-	Black	×	×
	Transparency	-	FALSE	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Image	Action	-	White ON Switch	×	×
	NORMAL	-	White OFF Switch	×	×
	Disable	-	Disable Switch	×	×
Movement	Enable Setting	ENABLED	TRUE	○	○
	Display Setting	VISIBLE	TRUE	○	○
	Blink Setting	BLINK	FALSE	○	○
	Touch Sound	-	Pattern 6	×	×
Data	Value	VALUE	0	Read only	○
String	String	TEXT	(Blank)	○	○
	H. Position	-	Center	×	×
	V. Position	-	Center	×	×
	Font Type	-	System Font	×	×

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
	Font	-	-	✕	✕
	Size	-	16	✕	✕

(2) Extended Properties

Below described are the extended properties of the Switch.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
Long Press Event	Holding Time	-	0	✕	✕
Caption	Memory Type	-	(Blank)	✕	✕
	Memory ID	-	(Blank)	✕	✕

When string memory is set to the Caption, string set to string memory will be displayed on the Parts. Also, when Action or Host Communication of string of string memory is changed, string displayed on the Part will also change.

Events

Event	Description
On	Generated when switch value changes to ON when touched
Off	Generated when switch value changes to OFF when touched
Press	Generated when pressed
Release	Generated when released
Leave	Generated when slid and released from part
Long Press	Generated once when pressed and held down

∗ Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

Notices

Blink Action

Only String will repeat show/hide

Memory Type Settable to Link Data

Numeric Type

∗ Be sure to set the caption when displaying the value of the string memory.

3.6.2   Multi State Switch

This switch can switch the appearance and action according to the state.

There are two types. One is Image Multi State Switch which allows images to be set, and another is Color Multi State Switch which has a smaller byte size and displays colors instead of images.

Properties

(1)Standard Properties

Below described are the standard properties of the Image Multi State Switch and the Color Multi State Switch.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	MultiStateSwitchImage or MultiStateSwitchColor	×	×
	Parts ID	NAME	MSI00001～ or MSC00001～	Read only	×
	Display	-	Movement	×	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
	Value	VALUE	0	○	○
Movement	Display Setting	VISIBLE	TRUE	○	○
	Blink Setting	BLINK	FALSE	○	○
	Transparency	-	FALSE	×	×
	Enable Setting	ENABLED	TRUE	○	○
	Touch Sound	-	Pattern 6	×	×

(2)State Setting

Below described is the state setting of the Multi State Switch. (Refer to red frame below.)
Behaviors, such as "Display this when value is X and do this when the switch is touched", can be set .

Below described is the each state setting detail. Each item can be set according to each state condition.

Name	Description
State Conditions	Conditional expression to determine the state of switch. Maximum of 50 states can be set. Setting is done with conditional expression setting dialog. Conditions are as follows: When value matches *** When value is not *** When value is more than or equal to *** and less than or equal to ***. When value is less than *** or more than *** When value is more than or equal to *** When value is less than *** or equal too. "***" specifies any value from -2147483648 to 2147483647
NORMAL	Set image to display when effective setting of switch is True. Image from Image resource can also be used along with default images. Only Image multi-state is valid.
Disable	Set image to display when effective setting of switch is False. Image from Image resource can also be used along with default images. Only Image multi-state is valid.
Normal Color	Set color to display when effective setting of switch is True. Only Color multi-state is valid
Func. Disable	Set color to display when effective setting of switch is False. Only Color multi-state is valid
Character	Set color of font to display on switch.
String	Set string to display on switch Set with String Setting Dialog. (Details in below chart)
Value when pressed	Set value to enter to property of switch value when switch is pressed between values of -2147483648 to 2147483647. It is also possible to not make any settings.
Value when released	Set value to enter to property of switch value when switch released between values o-2147483648 to 2147483647. It is also possible to not make any settings.
Action	Set actions Press, Release, Leave to occur when state conditions are satisfied.

∗　ELSE is registered as default in the state condition. It cannot be deleted.

(3) String Setting Dialog of State Setting

Below described is the String Setting Dialog displayed at string setting of State Setting.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
Link Data	Memory Type	-	(Blank)	×	×
	Memory ID	-	(Blank)	×	×
Color	Font	-	Black	×	×
String	String	-	(Blank)	×	×
	H. Position	-	Left	×	×
	V. Position	-	Top	×	×
	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×

∗ String and String color can only be changed with the Builder.

∗ Link Data can only be set with the String Resource.

(4) Display

Below described is the display image (color) of the Multi-state Switch.

1) Evaluate in order the conditional expressions set at state condition in accordance to the current value.

2) "Normal Image (Color)" and "String" that satisfy the state conditions are displayed.
   * When the "Enable Setting" is False, "Cancel Function Image (Color)" is displayed.
   * When multiple conditions are satisfied, the conditions set at the first will have priority.

3) When none of the state conditions are satisfied, "Image (Color)" and "String" set in ELSE will be displayed.

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(5) Operation at Touch

Below described is the operation of the Multi State Switch in details when touched

1) Touch
2) State Condition "Value at Press" displayed will be set to Value Property of Multi State Switch.
3) Conditional expression set to state condition will be evaluated in order from top in accordance to the set "Value at Press".
4) Display will change to the "Image (Color)" and "String" that satisfies the conditions.
5) Action set to Press Event of "Action" state condition before touching will be implemented.
    *   If the Multi State Switch value is changed due to this action, then the conditional value will be evaluated again and only the display will change. (Action with the changed value will not be implemented.)
6) Common press event set with the "Action" tab will be generated.

    *   If the Multi State Switch value is changed due to this action, then the conditional value will be evaluated again and only the display will change. (Action with the changed value will not be implemented.)
7) Release finger.
8) "Value at Release" of valid state condition at time of finger release will be set to value property of the Multi-state Switch.
9) Evaluate in order the conditional expressions set to the state condition in accordance to the set "Value at Release".
10) Display will change to the "Image (Color)" and "String" that satisfies the condition.
11) The action set at state condition before finger release, "Release Event", will be implemented.
    *   Action set to Leave Event will be implemented for slide operation.
    *   If the Multi-State Switch value changes due to this action, the conditional expression is evaluated again and the only the display will change. (Value of action after change will not be implemented).
12) Common Release Event set at "Action" will be generated.
    *   Leave Event will generate the slide operation.

Events

Event	Description
Press	Generated when pressed
Release	Generated when released
Leave	Generated when parted from part by slide

* Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

Notices

Blink Action
Set String will repeat show/hide

Memory Type Settable to Link Data
Numeric Type

3.7   Numeric Keypad

3.7.1   Numeric Keypad
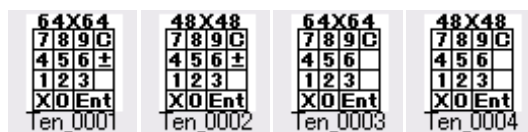
This is a Part for inputting numbers to the Number Displaying Parts.

It must be used in pairs with a number displaying part and cannot be used alone.

The Numeric Keypad can be used by setting the "Linked Numeric Keypad" of the number displaying parts.

The IDs and features in the toolbox for the Numeric Keypad are as below:

- Ten_0001：268×268pixels w/ "+/-" key
- Ten_0002：204×204pixels w/ "+/-" key
- Ten_0003：268×268pixels w/o "+/-" key
- Ten_0004：204×204pixels w/o "+/-" key

Properties

(1)Standard Properties

Below described are the Standard Properties of the Numeric Keypad.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	TenKey	×	×
	Parts ID	NAME	from TEN00001	Read Only	×
	Comment	-	(Blank)	×	×
Layout	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
Movement	Touch sound	-	Pattern 6	×	×

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(2) Extended Properties

Below described are the extended properties.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Auto Clear	-	False	Set if to automatically clear already input value at input. True: Valid False: Invalid	✕	✕
Num. key Setting	-	Always Display	Set display action of the numeric keypad. Choose from "Always Display" and "Display when Valid (While Input)"	✕	✕

∗ Value is cleared with Auto Clear only when the first key pressed is a value between 0 and 9 after number input becomes possible. ENTER or the ESC key cannot clear the value.

If "+/-" key is pressed in the beginning, the value cannot be cleared even if the values between 0 and 9 are pressed

Events

Event	Description
Enter	Generated when ENTER is pressed.
Cancel	Generated when ESC is pressed.

* Refer to "5. Events" for details.

Methods

There are no corresponding methods.

3.8 **Lamps**

Lamps are Parts that display states.

There are 4 types: Lamp, NoImage Lamp, Image Multi State Lamp and Color Multi State Lamp.

3.8.1 Lamp

Images can be pasted to the Lamps.

Normal images when the value is "0" and Action images when the value is other than "0" will be displayed.

Project data size will increase than using the NoImage Lamp.

Properties

(1)Standard Properties

Below described are the standard properties of the Lamps.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Lamp	×	×
	Parts ID	NAME	LMP00001 -	Read only	×
	Display	-	Normal	×	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Character	FCOLOR	Black	○	×
	Transparency	-	FALSE	×	×
String	String	TEXT	(Blank)	○	○
	H. Position	-	Center	×	×
	V. Position	-	Center	×	×
	Size	-	Small	×	×
	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×
Data	Value	VALUE	0	○	○
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Image	Action	-	-	×	×
	NORMAL	-	-	×	×
Movement	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○

(2) Extended Properties

Below described are the extended properties of the Lamps.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
Caption	Memory Type	-	(Blank)	×	×
	Memory ID	-	(Blank)	×	×

When string type memory is set to the caption, string set to the string memory will be displayed. Also, when string of the set string type memory's action or Host Communication is changed, the string displayed on the Parts will also change.

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action
Normal and Action image will be displayed alternatively

Memory Type Settable to Link Data
Numeric Type

∗   String type can be displayed by setting the caption.

3.8.2   NoImage Lamp

The NoImage Lamp is a lamp with a simple appearance. The color of the lamp can be changed freely.

The Background color will be displayed when the value is "0" and the Character Color will be displayed when the value is "1".

This will not increase the project data size when compared to lamps using images.

Properties

(1)Standard Properties

Below described are the standard properties of the NoImage lamps.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Lamp	✕	✕
	Parts ID	NAME	from LMP00001～	Read only	✕
	Display	-	Normal	✕	✕
	Comment	-	(Blank)	✕	✕
Layout *Set in units of pixels	H. Pos.	-	-	✕	✕
	V. Pos.	-	-	✕	✕
	Width	-	48	✕	✕
	Height	-	48	✕	✕
Color	Character (Action)	FCOLOR	Black	○	✕
	Background (NORMAL)	BCOLOR	White	○	✕
Data	Value	VALUE	0	○	○
Link Data	Memory Type	-	(Blank)	✕	○
	Memory ID	-	(Blank)	✕	○
Movement	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action
Normal and Action color will be displayed alternatively

Memory Type Settable to Link Data
Numeric Type

∗   Values other than 0 and 1 will all be treated as 1.

3.8.3   Multi State Lamp

The Multi State Lamp is a lamp that colors can be changed according to the state.
There are two types: one is Image Multi State Lamp that images can be set, and the other is the Color Multi State Lamp, a smaller byte lamp that displays colors instead of images.

Properties

(1) Standard Properties

Below described are the standard properties of the Image Multi State Lamp and the Color Multi State Lamp.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	MultiStateLampImage or MultiStateLampColor	×	×
	Parts ID	NAME	from MLI00001 or from MLC00001	Read only	×
	Display	-	Movement	×	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
	Value	VALUE	0	○	○
Movement	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○
	Transparency	-	False	×	×

(2)State Setting

Here described is the state setting of the Multi State Lamp. (Shown below in red frame)
In the state setting, behaviors of the Lamp, such as "when value is x, then display this" can be set.

Below described are the items that can be set for the Multi State Lamps.
Below items can be set according to the state conditions.

Name	Description
State Conditions	This is a conditional expression to determine the state of the lamp. Maximum of 50 states can be set. Setting is done with conditional expression setting dialog. Conditions are as follows: -When value matches the *** -When value is not *** -When value is more than or equal to *** and less than or equal to ***. -When value is less than *** or more than *** -When value is more than or equal to *** -When value is less than *** or equal to. "***" specifies any value from -2147483648 to 2147483647
NORMAL	Set image to display when state condition is satisfied. Image from Image resource can also be used along with the default images. Only Image Multi State is valid.
Action	Set image to display at blink Image from Image resource can also be used along with the default images. Only Image Multi State is valid
Normal Color	Set image to display at blink Image from Image resource can also be used along with the default images. Only Image Multi State is valid.
Action Color	Set color to display at blink. Only Color Multi Sate is valid
Character	Set string color to display on lamp.
String	Set string to display on lamp. Set with String Setting Dialog. (Refer below for details)

∗   State condition ELSE is registered as default and cannot be deleted.

(3) String Setting Dialog of State Setting

Below described is the String Setting Dialog displayed when string setting of state condition is set.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
Link Data	Memory Type	-	(Blank)	×	×
	Memory ID	-	(Blank)	×	×
Color	Color	-	Black	×	×
String	Color	-	(Blank)	×	×
	H. Position	-	Left	×	×
	V. Position	-	Top	×	×
	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×

* String and font color can only be changed with the Builder.
* Only String Resource can be set for Link Data.

(4) Display

Below described is the display image (color) of the Multi State Lamp.

1) Evaluate in order the conditional expressions set to the state conditions of the current value.
2) "Normal Image (Color)" and "String" of the State condition that satisfies the conditions will be displayed.
   * If multiple states are satisfied, the states set on top have priority.
3) If all state conditions are not satisfied, then "Image color" and "String" set to ELSE will be displayed.

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action
Normal and Action image will be displayed alternatively

Memory Type Settable to Link Data
Numeric Type

3.9　**Labels**

Labels are a Part that displays strings and numbers.
There are 4 types: Label, Character Display Parts, Number Display Parts, and Telop.

3.9.1　Label

This is a Part that displays fixed characters. Strings and String Resources set in the property are displayed on the label.
The label string cannot be changed dynamically when the created screen including the label is being used by the InfoSOSA unit; it can only be edited when creating with the Builder.
When changing the String with the InfoSOSA unit, please use a "Character Indicator Part".

Properties

(1)Standard Properties

Below described are the standard properties of the label.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Label	×	×
	Management ID	-	LabelString01	×	×
	Parts ID	NAME	from LBL00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	100	×	×
	Height	-	100	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Character	FCOLOR	Black	○	×
	Background	BCOLOR	White	○	×
	Transparency	-	True	×	×
String	String	TEXT	(Blank)	Read only	Read only
	H. Position	-	Center	×	×
	V. Position	-	Center	×	×
	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Movement	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action
Show/Hide of string will be alternated.

Memory Type Settable to Link Data
String Type

∗　　Only String Resource

3.9.2 Character Display Parts

Chr_0001

This Part displays strings.

Strings set in the Property or linked to string type memory can be displayed.

String of Character Display Parts can be changed with the InfoSOSA unit.

Properties

(1) Standard Properties

Below described are the standard properties of the Character Display Parts.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	CharIndicator	✕	✕
	Management ID	-	CharIndicator 01	✕	✕
	Parts ID	NAME	from CHI00001	Read only	✕
	Display	-	Normal	✕	✕
	Comment	-	(Blank)	✕	✕
Layout *Set in units of pixels	H. Pos.	-	-	✕	✕
	V. Pos.	-	-	✕	✕
	Width	-	48	✕	✕
	Height	-	48	✕	✕
	Left Margin	-	0	✕	✕
	Right Margin	-	0	✕	✕
	Top Margin	-	0	✕	✕
	Bottom Margin	-	0	✕	✕
Color	Character	FCOLOR	Black	○	✕
	Background	BCOLOR	White	○	✕
	Transparency	-	False	✕	✕
String	String	TEXT	(Blank)	○	○
	H. Position	-	Center	✕	✕
	V. Position	-	Center	✕	✕
	Font Type	-	System Font	✕	✕
	Font	-	-	✕	✕
	Size	-	16	✕	✕
Link Data	Memory Type	-	(Blank)	✕	○
	Memory ID	-	(Blank)	✕	○
Movement	Enable Setting	ENABLED	True	○	○
	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○
	Touch Sound	-	Pattern 6	✕	✕

(2) Extended Properties

Below described are the extended properties.

Property Name	Property ID	Default ID	Description	Change with Host Communication	Change with Action
Holding time	-	0	Time until LongPress Event is generated.	×	×

Events

Event	Description
Press	Generated when pressed
Release	Generated when released
Leave	Generated when parted from part by slide.
LongPress	Generated once when pressed and held down

∗ Please refer to "" for details.

Methods

There are no corresponding methods.

Notices

Blink Action
Show/Hide of string will be alternated.

Memory Type Settable to Link Data
String Type

3.9.3   Number Display Parts
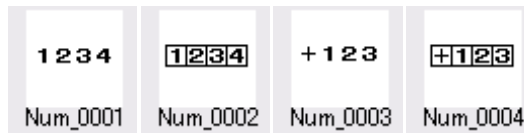
This is a Part that displays the numerical value.

You can choose from "font" or "image".

If the numeric keypad is set in the "linked numeric keypad" property, values can be entered with the numeric keypad to the Number Display Parts.

Num_0001 to Num_0002 of Toolbox are the standard Number Display Parts. Sign will be displayed immediately to the left of the value.

Num_0003 to Num_0004 of Toolbox is a Number Display Parts with sign area. Sign will always be displayed on the left edge.

Properties

(1) Standard Properties

Below described are the standard properties of the Number Display Part.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	NumberIndicator	×	×
	Parts ID	-	NumberIndicator 01	×	×
	Display	NAME	from NMI00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Character*	FCOLOR	(Invalid)	○	×
	Background	BCOLOR	White	○	×
	Transparency*	-	(Invalid)	×	×
String	H. Position	-	Left	×	×
	V. Position	-	Top	×	×
	Font type*	-	(Invalid)	×	×
	Size	-	(Invalid)	×	×
Data	Value	VALUE	12345	○	○
	Display Digits	-	10	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
	Numeric Keypad	-	(Blank)	×	×
Number, Time Display	Display Type	-	Screen Image	×	×
	NUM Image	-	Default	×	×
	Normal/Wide	-	(Invalid)	×	×
Movement	Enable Setting	ENABLED	True	○	○

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○
	Touch Sound	-	Pattern 6	✕	✕

∗　Numbers are valid only when display type is "Image".
∗　If value property is not linked to memory, the input value range is from -2,147,483,648　to 2,147,483,647 (Double word type).
∗　Numeric Keypad that can be linked are keypads placed on the same screen as the number indicator Parts.
∗　If wide fonts is specified but is not supported by the character font, it will be displayed as Window's default font.

(2) Extended Properties

Below described are the extended properties of the Number Display Parts.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Sign Display	-	False	Setting to add "+"(plus) sign in front of the numbers. True: Add False：Not add	✕	✕
Zero Suppression	ZEROSPRS	True	Setting to delete "0"(zero) in front of numbers. True：Delete False：Not delete	Read Only	✕
Digit Separator	-	False	Setting to add ","(comma)in front of the numbers. True: Add False：Not add	✕	✕
Decimal Position	-	0	Set values between 0 and 9 Decimal will not be shown when value is set to "0"	✕	✕
Holding Time	-	0	Time until LongPress Event is generated.	✕	✕

∗　With InfoSOSA, decimal fraction handling is fixed-point representation.
∗　Internal value is only an integer, and Number Indicator Parts itself retains the position of the decimal point.
∗　The Decimal point is pseudo. There is no difference in the value whether there is a decimal or not. Treat it as a way to display the numbers.
∗　The Decimal point is counted as one digit regardless of the presence or absence of the code area.

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∗   Below is an example of how the decimal will be displayed.

Decimal Position	Value	Display Result									
0	12345						1	2	3	4	5
	-12345					-	1	2	3	4	5
1	12345					1	2	3	4	.	5
	-12345				-	1	2	3	4	.	5
2	12345					1	2	3	.	4	5
	-12345				-	1	2	3	.	4	5
3	12345					1	2	.	3	4	5
	-12345				-	1	2	.	3	4	5

Events

Event	Description
Press	Generated when pressed
Release	Generated when released
Leave	Generated when parted from part by slide
LongPress	Generated when pressed and held down.

∗   Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

Notices

Blink Action
Show/Hide of numbers will be alternated

Memory Type Settable to Link Data
Numeric Type

NUM Image can be selected from "Default" bitmap or other image resources.
If registering from image resource, you will need to create a wide image with 17 images of the same size lined as shown below.

∗   Please note, if the size varies, it will not be displayed properly.

From the left:
"0, 1, 2, 3,4,5,6,7,8,9, blank, comma, minus, plus, point, error display, reserved".
"Reserved" is an extension area, but please be sure to register it.

3.9.4　Telop
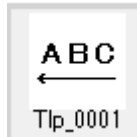
This is a Part for displaying Telop. Be sure to link it to String Type Global Memory.
By scrolling from right to left, it will allow strings wider than the Part to be displayed.
The space between the characters from the first letter to the last will be arranged.
Be sure to link the String Type Global Memory in a one-to-one relationship.
One Global Memory cannot be shared by multiple Telop Display Parts.
Only one Telop Display Part per screen, and 10 Parts* per project can be used. By changing the strings of Global Memory, it is possible to change the characters displayed on the InfoSOSA.

　*Varies according to the font size. Please refer to the Notice for details.

Properties

(1)Standard Properties

Below described are the Standard Properties of the Telop Display Parts:

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Telop	×	×
	Management ID	-	Telop01	×	×
	Parts ID	NAME	TLP00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
Color	Character	FCOLOR	Black	Read only	×
	Background	BCOLOR	White	Read only	×
String	Font Type	-	System Font	×	×
	Font	-	-	×	×
	Size	-	16	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Movement	Enable Setting	ENABLED	(Blank)	○	○
	Display Setting	VISIBLE	True	○	○
	Touch Sound	-	Pattern 6	×	×

(2)Extended Properties

Below described are the extended properties of the Telop Display Parts.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Moving Distance	-	1	Set pixels to move per second	×	×
Holding Time	-	0	Time until LongPress event is generated.	×	×

Events

| Event	Description
Press	Generated when pressed
Release	Generated when released
Leave	Generated when parted from part by slide
LongPress	Generated when pressed and held down.

*Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

Notices

- Telop cannot display Multi-lines. 2nd Row and after will not be displayed.
- Ten Telop can be registered per project, but must not exceed data size of 3MB. Any Telop exceeding 3MB will not be displayed.

Data Size Equation (Estimate)

Global Memory string length x (font size)^2 × 2 = Data size (bytes)

* Above is only an estimate. There may be Telop that cannot be displayed even if the calculation result is 3MB or less.

Memory Type Settable to Link Data

String Type

* Global Memory only.

3.10 Time Displaying Parts

3.10.1 Time Displaying Parts

This is Part that displays the elapsed time. Set "Value" in units of seconds.

Choose from "Font" and "Image".

* To display the clock, link separately the environmental variable for clocks to the Number Displaying Part.

Properties

(1) Standard Properties

Below described are the standard properties of the Time Displaying Part.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	TimeIndicator	×	×
	Management ID	-	TimeIndicator01	×	×
	Parts ID	NAME	from TIM00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	0	×	×
	Right Margin	-	0	×	×
	Top Margin	-	0	×	×
	Bottom Margin	-	0	×	×
Color	Character*	FCOLOR	(Invalid)	○	×
	Background	BCOLOR	White	○	×
	Transparency*	-	(Invalid)	×	×
String	H. Position	-	Left	×	×
	V. Position	-	Top	×	×
	Font Type*	-	(Invalid)	×	×
	Size*	-	(Invalid)	×	×
Data	Value	VALUE	0	○	○
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Number, Time Display	Display Type	-	Screen Image	×	×
	Number Image	-	Default	×	×
	Normal/Wide*	-	(Invalid)	×	×
Movement	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○

∗ Font Color, Transparency, Font Type, Size, Normal/Wide is valid when Display Type is set to "System Font" or "Image Font".
∗ *Number image is valid only when the Display Type is "Image Pics"
∗ *When value property is not linked to memory, the value range can be input between -2,147,483,648 and 2,147,483,647 (Double Word Type).
∗ *When "Wide" is selected for fonts and there are no corresponding fonts, it will be displayed with the Window's default font.

(2) Extended Properties

Below described are the Extended Properties of Time Displaying Parts.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Zero Suppression	ZEROSPRS	True	Setting to delete "0"(zero) in front of numbers. True：Delete False：Not delete	Read Only	×
Overflow	OVERFLOW	Save	Movement when maximum value is exceeded	Read Only	×
Upper Digits	-	4	Setting for highest digits.	×	×
Time Format	-	HMS	Setting format Choose from HMS/HM/MS/S	×	×

* The values may not be displayed depending on the setting of the significant digit number and time format, which if the case, the value will be displayed as "#".

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

| Blink Action |
| --- |
| Show/Hide of numbers will be alternated |

Memory Type Settable to Link Data
Numeric Type

Choose default image or image resource for image of numbers.
When registering to image resource, please make a wide image with 16 values of the same size lined up as shown below.

* It will not be displayed properly if the sizes vary.

From the left: "0,1,2,3,4,5,6,7,8,9,Blank,Error,H,M,S)

3.11 **Frames**

Frames are Parts for decorating. It can be used to separate Parts from each other on the screen, or simply to decorate.
There are two types: Frame and NoImage Frame.

3.11.1 Frames

Displays can be changed by using images.

Properties

(1)Standard Properties

Below described are the Standard Properties of the Frame.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Frame	×	×
	Management ID	-	Frame01	×	×
	Parts ID	NAME	from FRA00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	100	×	×
	Height	-	100	×	×
Color	Transparency	-	False	×	×
Image	NORMAL	-	-	×	×
Movement	Display Setting	VISIBLE	True	○	○

Event

There are no corresponding events.

Methods

There are no corresponding methods.

3.11.2 NoImage Frames

NoImage Frame is a frame with a simple appearance.

Images cannot be pasted, but the frame color and background color can be changed.

Font Color will be the frame color.

This frame will not increase the project data size when compared to the frame using images.

Properties

(1)Standard Properties

Below described are the Standard Properties of the NoImage.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Frame	✕	✕
	Management ID	-	Frame02	✕	✕
	Parts ID	NAME	from FRA00001	Read only	✕
	Comment	-	(Blank)	✕	✕
Layout *Set in units of pixels	H. Pos.	-	-	✕	✕
	V. Pos.	-	-	✕	✕
	Width	-	100	✕	✕
	Height	-	100	✕	✕
Color	Character (Frame)	FCOLOR	Black	○	✕
	Background	BCOLOR	White	○	✕
	Transparency	-	False	✕	✕
Movement	Display Setting	VISIBLE	True	○	○

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

When the transparency is valid, inside of the frames will become transparent.

3.12 **Simple Graph**

3.12.1 Simple Graph

This is Part to display a line graph with simple functions.

A Simple Graph is a Part that displays graphs based on data sent using the Host Communications.
X-axis does not have the concept of time and displays at regular intervals the sent data in order.

Sent data is stored in the Array Queue type memory.
Please always link the "Simple Graph Parts" and the Array Queue Type Memory registered as Screen Memory.

Properties

(1) Standard Properties

Below described are the Standard Properties of the Simple Graphs.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	TimeSeqGraph	×	×
	Management ID	-	TimeSeqGraph01	×	×
	Parts ID	NAME	from GRH00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	200	×	×
	Height	-	200	×	×
	Left Margin	-	10	×	×
	Right Margin	-	10	×	×
	Top Margin	-	10	×	×
	Bottom Margin	-	10	×	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
String	Size	-	16	×	×
Color	Background	BCOLOR	White	○	×
Image	NORMAL	-	-	×	×
Movement	Display Setting	VISIBLE	True	○	○

∗ Select String Queue Type Screen Memory for the Link Data.

∗ If both the background image and color is specified, then the image will have priority.

∗ The font size will be the same as the scales of the Y-axis. The maximum value is fixed so the scales do not overlap by the height of the Part and the setting of the Y-axis. (Minimum value:8)

(2)Extended Properties (Line Graph Data Setting)

Below described are the settings of the graph and the auxiliary lines.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
CH Number	-	8	Number of lines to display on the graph Choose from 1 to 8	×	×
Graph Line	GL_COL01 to 08	-	Color of lines (Can be set to each CH)	○	×
Display Setting	GL_VIS01 to 08	True	True：Show lines False：Hide lines	○	○
Comment	-	(Blank)	Comments will not show on graph	×	×
AUX Line	AL_COL01 to 03	-	Color of auxiliary lines	○	×
Display Setting	AL_VIS01 to 03	False	True：Show lines False：Hide lines	○	○
Value	AL_VAL01 to 03	0	Location to show auxiliary lie Set values between -2,147,483,647 to 2,147,483,647	○	×
Comment	-	(Blank)	Comments will not show on graph	×	×
Graph Point Size	PNTSIZE	1	Size of points on graph	○	×
Axis Scale	-	Black	Color of scale and X and Y axis	×	×
Letter	-	Black	Color of scale numbers	×	×

(3)Extended Properties (Line Graph Operation Setting)-Grid Lines

Below described are the settings and confirmation of the properties of the Grid lines.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Line Color	-	Black	Color of Grid on Graph	×	×
Display Type	-	X-Axis & Y-Axis	Choose from -Y axis and X asix -Y axis only -X axis only -no axis	×	×

(4)Extended Properties (Action Setting of Line Graph)-Action Setting

Below described are the settings of the graph actions.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Display Update	-	Scroll	Choose how to draw graph Choose from "Scroll" or "Redraw From Left"	×	×
Scroll Direction	-	From Left	Valid only when Display Update is set to "Scroll". Set scroll direction of graph. Choose from "From Left" or "From Right"	×	×
Background	-	Fixed	Valid only when Display Update is set to "Scroll". Set movement of background when graph is scrolled. Currently it is fixed.	×	×
Blank Interval	-	0	Valid only when Display Update is set to "Redraw from Left". Set interval of old graph line and new graph line.	×	×

(5)Extended Properties (Action Setting of Line Graph)-X Axis Setting

Below described are the settings of the X-Axis.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Display area	-	False	Fixed to False Scale interval display area of this part is fixed to "False".	×	×
Area Height	-	0	Fixed to "0"	×	×
Scale Style	-	Outside	-Outside Show scale outside axis -Inside Show scale inside axis -None Hide scale	×	×
Scale Unit	-	1	Scale interval of X axis	○	○
No. of Data	-	4	Number of data lines to display in X axis direction	○	○

(6)Extended Properties (Action Setting of Line Graph)-Y Axis Setting

Below described are the settings of the Y-Axis.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Display Area	-	True	-True Show Y axis scale display area, scale, and scale value. -False Hide Y axis scale display area and scale value. Scale will be shown.	×	×
Area Width	-	30	Area Size (Width) In units of pixel only	×	×
Scale Style	-	Outside	-Outside Show scale outside axis -Inside Show scale inside axis -None Hide scale (Scale value will not be shown also)	×	×
Scale Unit	-	10	Value display interval of Y axis	○	○
Scale Interval	-	5 Scale Each	Scale interval of Y axis	○	○
Characters	-	5	Digit displayed of Y axis scale Anything over this digit will not show.	○	○
Lower Limit	-	0	Minimum value displayed of Y axis	○	○
Upper Limit	-	100	Maximum value displayed of Y axis	○	○

Events

There are no corresponding events.

Methods

The Simple Graph creates a graph based on the data sent via Host Communication.

Below described are the communication commands to create a graph.

Method ID	Action Description
ADDLAST	Add data to end of graph data
ADDDATA	Add data to multiple lines
ALLCLR	Clear all data
DRAWAXIS	Change number of data to display and lower/upper display limit
GETAXIS	Obtain number of data to display and lower/upper display limit

  * Please refer to "13.12 Communication Command Detail" for details.

Notices

- Link to the "Array Queue Type Memory" registered on the same screen as the Simple Graph itself.
- The number of the graph line to be displayed on the graph is the same as the CH number of Array Queue Type Memory linked to the Graph Parts.
- If Array Queue Type Memory's "Size" property is smaller than the Simple Graph Part's "No. of Data" property, the line will not be drawn to the right end.

Memory type settable to Link Data
Array Queue Type (Display Memory only)

3.13 Trend Graph

3.13.1 Graph Body

This Part displays in line graph the log data stored in the external storage by "Logging Function".
X axis will display the "date time" (Year, Month, Day, Hour, Minute, Second), and the Y axis will display the "data value".

Historical View Function
This function allows scrolling display from the oldest log data to the most recent up-to-date data.
The display range within a screen can also be changed.
* The default display location is "time of newest data".

Cursor Function
A cursor that can be touch operated can be displayed within the graph.
The cursor moves accordingly to the touch of the graph display area, and if a log data exists in the cursor position, the data value will pop-up and be displayed.
It is also possible to output the data value of the cursor to the memory.

Ideal Curve Display Function
The ideal curve can be displayed along with the log data.
The above can be done by registering beforehand, to the external storage the Ideal curve as a file and the ideal curve to the graph data.

Properties

(1) Standard Properties

Below described are the Standard Properties of the graph.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	TrendGraph	×	×
	Management ID	-	TrendGraph01	×	×
	Parts ID	NAME	from TGRH0001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	200	×	×
	Height	-	200	×	×
	Left Margin	-	10	×	×
	Right Margin	-	10	×	×
	Top Margin	-	10	×	×
	Bottom Margin	-	10	×	×
String	Size	-	8	×	×
Color	Background	BCOLOR	White	○	×
Image	NORMAL	-	-	×	×
Link Data	Memory Type	-	(Blank)	×	×
	Memory ID	-	(Blank)	×	×
Movement	Display Setting	VISIBLE	True	○	○
	Touch Sound	-	Pattern 6	×	×
	Operation panel	-	(Blank)	×	×
	Operation time-out	-	False	×	×
	Time-Out Time (s)	-	5	×	×
Cursor Position	Reflect DEST MEM	-	(Blank)	×	×
	Reference Memory	-	(Blank)	×	×
	Cursor color	-	Red	×	×

* If both the background image and color is specified, the image will have priority.

* The font size will be the same as the scales of the Y-axis. The maximum value is fixed so the scales do not overlap by the height of the Part and the setting of the Y-axis. If the value is larger than the Maximum value, it will automatically be sized so the scales do not overlap (Minimum value: 8).

- **Link Data**

    By linking the Numeric Type Memory, it is possible to hold the operation state of the graph. When linked, the initial operation state of the graph will be in corresponding state to the linked memory value

    Also, the linked memory value will be updated to a value corresponding to the status each time operation state is changed.

    *After the graph has been displayed, the operation state of the graph will not change with the change of linked memory value.

Corresponding Values and Operation State

Value	Operation State	Description
0	Real Time Display	Continuously display current log data When newly logged, it will be added in location after added log data.
1	History Display	Mode to display log history data. Possible to scroll from left to right display range within range where data is present. Current display position is kept even after new loggings.
2	History Display(Cursor)	Mode to display cursor with history. Cursor can move by touching graph display area.

・**Operation Panel**

By linking Operation Panel Part, more specified operations than Historical Display Mode and Historical Display (Cursor) Mode become available.

Button Types of Operation Panel

Button	Function
←	Left scroll graph
→	Right scroll graph
＋	Enlarge time scale by one stage (Hour to Day)
－	Reduce time scale by one stage (Day to Hour)
Cursor	Switch between history display and history (cursor) display.
×	(Show or Hide cursor)

・**Operation Time Out**

When in History Display Mode and History Display (Cursor) Mode, it is possible to automatically return to the Real Time Display if the Part is not operated for a certain amount of time.
If Operation Time-Out is set to "True", it will automatically return to the Real Time Display if the Graph Part goes un-operated during the Operation Time Out Time (in seconds).

Transition of Operation State

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│          ┌──────────────────────────────────┐                        │
│          │        Real-Time Display         │◄──────────┐            │
│          └──────────────────────────────────┘           │            │
│            ▲                       ▲                      │            │
│       ┌─────────┐      ┌──────────────────────┐          │            │
│       │ Tap Part│      │ "X" of Operation panel│          │            │
│       │         │      │ or Operation Time Out │    ┌──────────────────┐
│       └─────────┘      └──────────────────────┘    │ "X" of Operation │
│            ▼                       ▲               │ panel or          │
│          ┌──────────────────────────────────┐     │ Operation Time Out│
│          │         History Display           │     └──────────────────┘
│          └──────────────────────────────────┘                         │
│            ▲                       ▲                                   │
│  ┌──────────────────┐   ┌──────────────────────┐                      │
│  │ Tap outside Graph│   │  Operation Panel     │                      │
│  │ Display Area and │   │  "Cursor" Button     │                      │
│  │ Indicator Area.  │   └──────────────────────┘                      │
│  └──────────────────┘             ▼                                   │
│            ▼                                                           │
│          ┌──────────────────────────────────┐                        │
│          │     History Display (Cursor)      │─────────┘            │
│          └──────────────────────────────────┘                        │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```
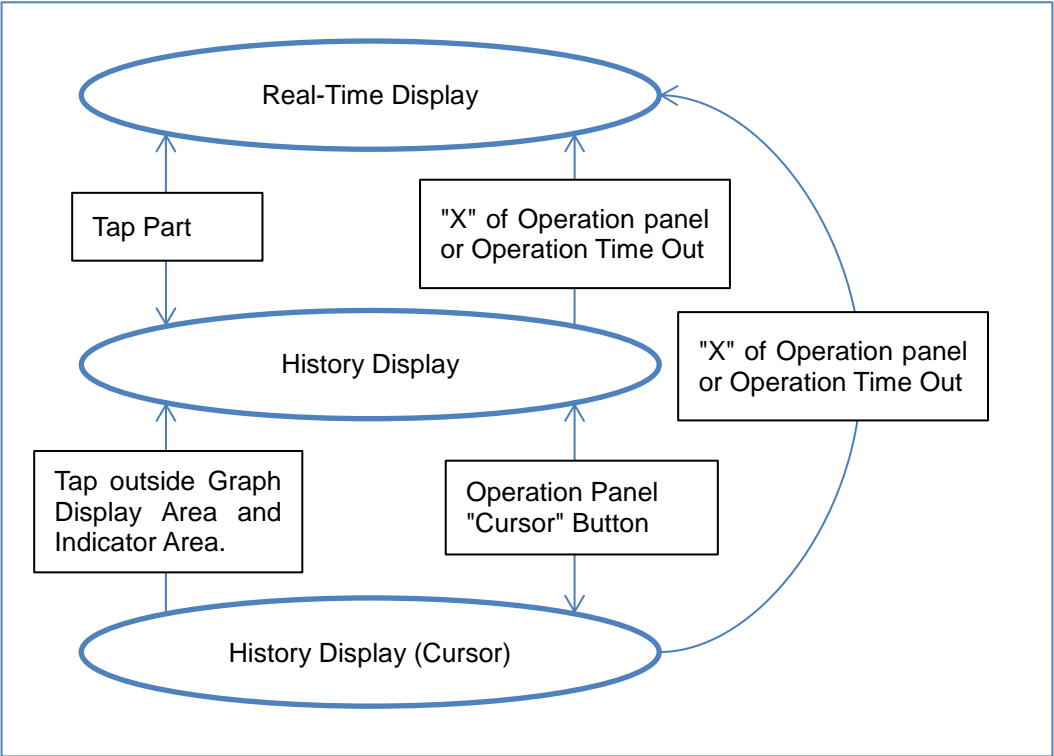
- **Cursor Location**

  By linking the Numeric Type Memory, reading of cursor's initial location / memory output of cursor is possible.

  By linking the Reflect DEST MEM, memory cursor location is output each time the cursor moves.

  By linking the Reference Memory, only when the initial operation state of the graph is set to "Historical Display (Cursor), the initial position of the cursor is read from the memory. No other operations needed if in other operation state.

Cursor Location

Description of Value	Time elapsed (seconds) from January 1, 2000

"Link Data" and "Cursor Position" are functions mainly for "transiting the initial display status of graph part (A) to graph part (B) placed on a separate screen". In such cases, it can be done by registering the link data of graph part A and B to a common memory, which can be done by registering "cursor position reflected destination memory of graph part A" and "cursor position reference memory of graph B" to a common memory.

・**Scroll Direction**

Scroll Direction and Corresponding Value

Value	Scroll Direction
0	Left Scroll (return)
1	Right Scroll (proceed)

・**Time Scale**

Time Scale and Corresponding Value

Value	Time Scale
0	Time Display
1	Day Display

(2) Extended Properties (Data Setting)

Below described are the settings of graph and auxiliary lines.

Graph Lines

Property Name		Property ID	Default Value	Description	Change with Host Communication	Change with Action
CH Number		-	8	Number of lines to display on graph Choose from 1 to 8	×	×
CH	Color	GL_COL01 to 08	-	Color of Graph line	○	×
	Data Type	-	Log Data	Log Data: Display log data. Ideal Curve: Display ideal curve	×	×
	Data ID	-	(Blank)	Log data : Decide from log data When data type selected from Log Data ID is the Ideal curve Specify ideal curve ID	×	×
	Destination of Cursor Value	-	(Blank)	Choose from numeric value registered to Global Memory	×	×
	Display Setting	GL_VIS01 to 08	True	True: Show line False: Hide line	○	○
	Comment	-	(Blank)	Comment will not show in graph	×	×

Auxiliary Lines

Property Name		Property ID	Default Value	Description	Change with Host Communication	Change with Action
No	Color	AL_COL01 to 03	-	Color of Auxiliary line	○	×
	Display Setting	AL_VIS01 to 03	False	True: Show line False: Hide line	○	○
	Value	AL_VAL01 to 03	0	Location to show Auxiliary line Set between value from -2,147,483,647 to 2,147,483,647	○	×
	Comment	-	(Blank)	Comment will not show in graph	×	×

• **Log Data ID**
   Specifies the log data ID that was setup in "11.3 Logging Function ".
• **Ideal Curve ID**
   Specifies as ID the folder name with the ideal curves.
   E.G) If the folder is "IDEAL001", the ID "IDEAL001" will be specified.
   Please refer to "11.4 Ideal Curve " for details.

Please refer to "11.3 Logging Function " for Setting of Log data ID, Log data, file format of the ideal curve, and the folder hierarchy inside the storage.

(3)Extended Properties (Axis Setting) - Common Setting of Grid, X and Y Axis

The property value of the Grid and the X and the Y axis can be set and confirmed.

Axis Setting

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Axis Scale	-	Black	Color of X and Y axis and scale lines	×	×
Letter	-	Black	Scale value displayed on X and Y axis and time and data value of string display color on cursor	×	×

Grid Line

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Line Color	-	Sky-blue	Color of grid displayed on graph area	×	×
Style Of X-Axis Grid	-	Yes	• Yes Show grid line • None Hide grid line	×	×
Style Of Y-Axis Grid	-	Yes	• Yes Show grid line • None Hide grid line	×	×

X-Axis Setting

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Display Area	-	TRUE	• True Show X axis time display area, scale and scale value. • False Hide X axis time display area and scale value. Scale will be displayed.	×	×
Area Height	-	30	Area Size (height) Specify in units of pixel	×	×
Scale Style	-	Outside	• Outside Show scale outside of axis • Inside Show scale inside of axis • None Hide scales (Scale value will not be displayed)	×	×

Y-Axis Setting

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Display Area	-	True	• True Show Y-axis time display area, scale and scale value. • False Hide Y-axis time display area and scale value. Scale will be displayed.	×	×
Area Width	-	30	Area Size (Width) Specify in units of pixel	×	×
Scale Style	-	Exterior	• Outside Show scale outside of axis • Inside Show scale inside of axis • None Hide scales (Scale value will not be displayed) • Outside	×	×
Auto Adjust Scale	-	True	* Fixed to True "Scale interval" and "Scale value Interval" will automatically be set.	×	×
Scale Interval	-	-	* Cannot be Set Scale will be made on axis according to this interval.	×	×
Scale Value Interval	-	-	* Cannot be Set Scale value will be made to scale by this scale interval set.	×	×
Auto ADJ UP LMT	-	True	* Fixed to True Change dynamically the display of upper limit value according to log data value in display area	×	×
Auto ADJ LOW LMT	-	True	* Fixed to True Change dynamically the display of lower limit value according to log data value in display area	×	×
Upper Limit	-	100	Default value of display upper limit value If log data does not exist, this value will be the upper limit	×	×
Lower Limit	-	0	Default value of display lower limit value If log data does not exist, this value will be the lower limit	×	×
Zero Display	-	True	When True: Adjust so 0 (=X-axis) is	×	×

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
			always displayed at auto adjust of the upper and lower limit value		
Fixed Decimal	-	0	Add fixed decimal to log data	×	×
Decimal Point DISP	-	False	• True Hide digits following fixed decimal point (rounded off). • False Show digits following fixed decimal point	×	×

- **Display Upper Limit and Lower Limit**
  Automatically calculates the upper and lower limit value from the value of the log data in the display range and adjusts so that it can be displayed in the graph area. The setting of the display upper/lower limit value is only used as the default value when there is not one data in the display range.
  If "Zero Absolute Display" is True, the upper/lower limit value will be adjusted so 0 (=X axis) will be displayed in the graph area regardless of the range of the log data value.

- **How to Use Fixed Decimal**
  Log data supported by this product is only the integer type, but it is possible to perform a pseudo-point display by adding a fixed point to the displaying part.
  The value specified in the "Fixed Decimal" will be the setting of the fixed decimal point position of this part.
  In the case where the "Decimal Point DISP" to False, the decimal, and displays only the integer part.

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(4)Extended Properties(Time Scale Setting) -Setting of Display Range of X-axis

Below described are the settings of the display range (time scale) of the X-axis.

X-axis Time Scale

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Time Scale	-	Time Basis to Time Basis	Set time range to display on one screen Left value is largest time scale(display range is small) set value; Right value is smallest time scale (display range is big) set value	×	×
Default Time Scale	-	Time Display	Set time scale right after screen display	×	×
Time Format	-	HH:mm	Set format of time display	×	×
Date Format	-	yyyy/mm/dd	Set format of date display	×	×

・**Time Scale**

Set Value	Description
Time Basis	Set time intervals in units of hours Displays time data set in the "Display section" of "time display" E.G) If Set value is 8, then 8 hour display Scroll will be conducted every hour.
Daily Basis	Displays 1day data with left end of graph 0:00, as right end is 24:00. Scroll will be conducted every day.

・**Time Format**

Format	Display Example
HH 時 mm 分	12 時 34 分
HH:mm	12:34

・**Date Format**

Format	Display Example
yyyy 年 MM 月 dd 日	2000 年 1 月 1 日
yyyy 年 MM 月 dd 日 (曜日)	2000 年 1 月 1 日 (土)
yyyy/MM/dd	2000/1/1
yyyy/MM/dd (Week)	2000/1/1 (Sat)
MM/dd/yyyy	1/1/2000
(Week) MM/dd/yyyy	(Sat) 1/1/2000

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Time Display

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Point Size Of Graph	-	1	1 to 3 Points Specify point size of graph	×	×
Display Section	-	1	1 to 24 Specify display range in units of hour	×	×
Scale Interval (m)	-	30	Specify scale interval Scale will be drawn on X-axis with specified interval	×	×
Time INT (scale)	-	0	Specify time interval Time will be drawn on scale of X-axis with specified interval Time will be hidden when value is "0"	×	×

1 Day Display

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Point Size Of Graph	-	1	1 to 3 points Specify point size of graph	×	×
Scale Interval (time)	-	1	Specify scale interval Scale will be drawn on X-axis with specified time interval	×	×
Time INT (scale)	-	0	Specify time interval Time will be drawn on scale of X-axis with specified time interval Time will be hidden when value is "0"	×	×

(5) Extended Properties (Indicator Setting)-Setting of Indicator Display

Below describes the setting of the indicator display.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Display Of Area	-	True	• True Display indicator area • False No indicator area and will not show.	×	×
V. Width Of Area	-	10	Area Size (Vertical Width) Specify in units of pixels	×	×
Body Color	-	Black	Color of whole indicator	×	×
ACT Region Color	-	Green	Color of active area within indicator	×	×

・**Display and Operation of Indicator**

The indicator indicates the time location currently displayed of the overall log data.

The very left is the oldest log data time and the very right is the most recent log data time.

If the indicator of graph display is tapped at Historical Display Mode or Historical Display (Cursor) Mode, it will jump to the time tapped.

Active Area
=Range currently displayed

Whole Range
= Whole range where log data exists

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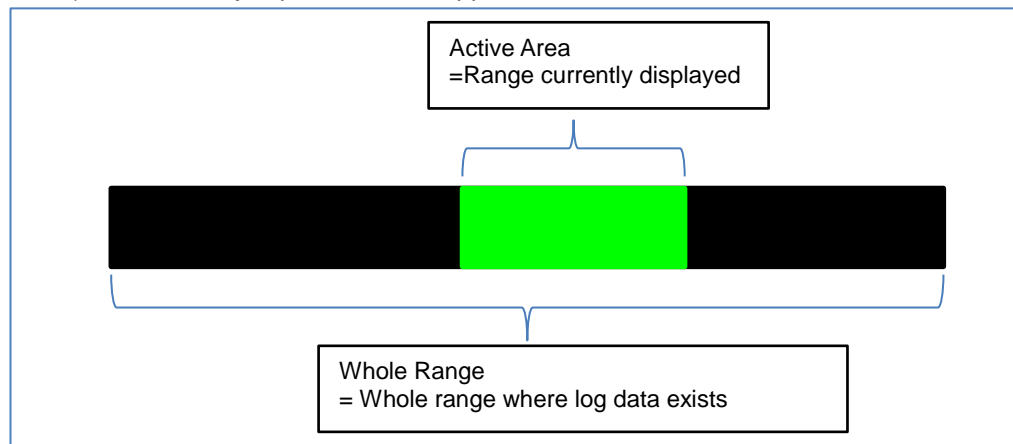
Events

There are no corresponding events.

Methods

Hanging and acquiring of operation state, scrolling, setting and obtaining of time scale by communication command.

| Method ID	Description
SETOP	Change operation state
GETOP	Obtain operation state
SCROLL	Scroll Graph
SETTSA	Set time scale (absolute value)
SETTSB	Set time scale (relative value)
GETTS	Obtain time scale

*   Please refer to <u>13.12Communication Command Detail</u>

Notices

● Log data that can be displayed is from 2000/1/1, 00:00:00 to 2037/12/31, 23:59:59.

Memory Type Settable to Link Data
Numeric Type

3.13.2 Operation Panel
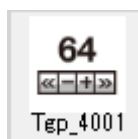
This is a Part to operate the Trend Graph.
It can be used by linking to the Trend Graph.

Properties

(1) Standard Properties

Below described are the Standard Properties of the Operation panel.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	TrendGraphPanel	×	×
	Management ID	-	from TrendGraphPanel01	×	×
	Parts ID	NAME	fromTGP00001	Read Only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	(Fix to each part)	×	×
	Height	-	(Fix to each part)	×	×
Movement	Touch Sound	-	Pattern 6	×	×

(2) Extended Properties

Below described are the Extended Properties of the Operation panel.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
Operation Panel Display Setting	-	Always Display	- Always show Always show panel even if panel is not valid. - Show only when valid (during input) Hide when panel is not in valid mode	×	×

Events

There are no corresponding events.

Methods

There are no corresponding methods.

3.14 Bar Meters

3.14.1   Bar Meters

This is a Part that displays the rates of the scale value.

Please link to a Numeric Type Memory when using.

Properties

(1) Standard Properties

Below described are the Standard Properties of the Bar meter.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	BarMeter	×	×
	Management ID	-	BarMeter01	×	×
	Parts ID	NAME	from BAR00001	Read only	×
	Comment	-	(Blank)	×	×
Layout Layout	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
	Left Margin	-	10	×	×
	Right Margin	-	10	×	×
	Top Margin	-	10	×	×
	Bottom Margin	-	10	×	×
Color	Initial Color	-	White	×	×
	Background	BCOLOR	White	○	×
Link Data	Memory Type	-	(Blank)	×	○
	Memory ID	-	(Blank)	×	○
Image	NORMAL	-	(Blank)	×	×
Movement	Display Setting	VISIBLE	True	○	○

*   If the margin value is too large, it may not be displayed properly.

(2) Extended Properties (Data)

Below described are the settings related to the display of the Bar meter.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Number Of Division	-	5	Number of bars Choose between 1 to 200	×	×
Direction	-	Top to Bottom	Direction to proceed Choose from vertical (top to bottom, bottom to top), or horizontal (left to right, right to left)	×	×
Display Interval	-	3	Display interval of bars Choose from 0 to the resolution of width.	×	×

(3) Extended Properties (Settings)

Below described are the settings related to the operations of the Bar meter.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
DISP UP Limit	-	2147483647	(for extension) *Currently this property is not used.	×	×
DISP LOW Limit	-	-2147483648	(for extension) *Currently this property is not used.	×	×
Bar Frame	-	With Frame	Set to show or hide the frame of each bar. Choose from "With Frame" or "Without Frame"	×	×
Rounding	-	Round Down	Decide value and method of lighting of each bar. Choose from round up, round down or rounding.	×	×

* Make sure that Display upper limit is larger than Display lower limit.

(4) Extended Properties (Bar Color List)

Below described are the settings of each bar color when lit.
You will be able to configure and confirm the bar color when values are input.
There are 2 ways to make the setting; by choosing from the pallet, or by directly entering the color code.

Setting Procedure

Below described are the settings procedure of the Bar meter.

(1) Setting of Numeric Memory

The numeric memory is used to display the Bar meter.
You will need to create a numeric memory with the screen or the Global Memory when using the Bar meter.

(2) Setting of Bar Meter Parts

Open the "Advanced Properties Dialog" of the Bar meter and link it with the numeric memory set above.
Set the bar and background color, the direction the bar will precede, and the division number of the bar.

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Memory Type Settable to Link Data
Numeric Type

Calculation formula for number of bars to light
Value/ ((Maximum value of Link Memory – Minimum value of Link Memory) / Division number) = Numbers to light

* Link memory is a memory set in the link data.
* If the calculated result is bigger that the division number, all bars will light.
* If the calculated result is a negative number, than all bars will light off.
* If not an integer, the lighting number will be based on the value rounding setting.
* The link memory set first will be used for the maximum value and minimum value used in the calculation to determine the lighting number. The maximum and minimum value will not change with the change of link memory by "Link Data Setting" of "Action".

3.15 **Picture Box**

3.15.1 Picture Box

Pbx_0001
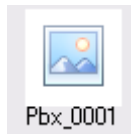
This is a Part for the campus of drawing figures, such as lines, arrows, and rectangles.
It can draw dots, lines, rectangles, circles, and image resources by Host Communication Commands.
It can also be drawn from "Action".

Properties

(1) Standard Properties

Below described are the Standard Properties of the Picture Box.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Picture Box	×	×
	Management ID	-	PictureBox01	×	×
	Parts ID	NAME	from PIC00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
Color	Background	BCOLOR	White	○	×
Image	NORMAL	-	-	×	○
Movement	Display Setting	VISIBLE	True	○	○

*   If image and background color is set simultaneously, image will have priority.

Events

There are no corresponding events.

Methods

Dots, lines, rectangles, circles and images from image resources can be drawn with the Host Communication of the Picture Box.
Below listed are the communication commands that can be used:

| Method ID	Action Description
DPOINT	Draw a pixel on the specified coordinate
DLINE	Draw an angle or line between the specified two coordinates,
DCIRCLE	Draw a circle around the specified coordinate.
LPICTURE	Draw an image registered in the image file to the specified coordinates.

*   The upper left of the Part is the coordinate origin (0, 0).

*   Please refer to "13.12Communication Command Detail " for details.

3.16 **Figures**

This is a Part for drawing figures, such as lines, arrows, and rectangles.

3.16.1 Line Parts
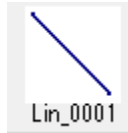
Simple lines can be drawn with the Line Parts. The angle of the lines can be changed freely by dragging the mouse to the desired angle.

Properties

(1) Standard Properties

Below described is the Extended Properties of the Line Parts.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Line	✕	✕
	Management ID	-	from Line01	✕	✕
	Parts ID	NAME	from LIN00001	Read only	✕
	Comment	-	(Blank)	✕	✕
Layout *Set in units of pixels	H. Pos.	-	-	✕	✕
	V. Pos.	-	-	✕	✕
Movement	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○

(2) Extended Properties

Below described is the Extended Properties of the Line Parts.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Line Type	-	Solid	Select either "Solid" or "Dashed".	✕	✕
Line Color	-	Black	Select line color.	✕	✕
Arrow	-	None	Select arrow existence and position	✕	✕

*The thickness of the line is 1 pixel.

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Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action
Show/Hide of Parts will be repeated

The values of the horizontal and vertical position will be the red pixel shown below.
The range is "-5 to (resolution +5)".

3.16.2　Arrow Parts

A simple line with an arrow can be drawn with the Arrow Parts.
The angle of the line can be changed freely by dragging the mouse to the desired angel.

Properties

(1)Standard Properties

Below described are the Standard Properties of the Arrow Parts.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Arrow	×	×
	Management ID	-	from Arrow01	×	×
	Parts ID	NAME	from ARW00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
Movement	Display	VISIBLE	True	○	○

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
	Setting				
	Blink Setting	BLINK	False	○	○

(2) Extended Properties

Below described are the Extended Properties of the Arrow Parts.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Line Type	-	Solid	Select either "Solid" or "Dashed".	×	×
Line Color	-	Black	Select line color.	×	×
Arrow	-	End Point	Select arrow existence and position	×	×

*The thickness of the line is 1 pixel.

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action

Show/Hide of Parts will be repeated

The values of the horizontal and vertical position will be the red pixel shown below.
The range is "-5 to (resolution +5)".

3.16.3 Rectangle Parts

Rec_0001

A simple rectangle can be drawn with the Rectangle Parts

Properties

(1)Standard Properties

Below described are the Standard Properties of the Rectangle Parts.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Rectangle	×	×
	Management ID	-	from Rectangle 01	×	×
	Parts ID	NAME	from REC00001	Read only	×
	Comment	-	(Blank)	×	×
Layout *Set in units of pixels	H. Pos.	-	-	×	×
	V. Pos.	-	-	×	×
	Width	-	48	×	×
	Height	-	48	×	×
Movement	Display Setting	VISIBLE	True	○	○
	Blink Setting	BLINK	False	○	○

(2)Extended Properties

Below described is the Extended Properties of the Rectangle Parts.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Line Type	-	Solid	Choose from solid or dashed	×	×
Line Color	-	Black	Set color of line	×	×
Paint Background	-	Fill	Choose to fill or not fill	×	×
Background Color	-	White	Choose color to fill	×	×

*The thickness of the line is 1 pixel.

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

Blink Action
Show/Hide of Parts will be repeated.

3.17 **Tables**

3.17.1 Table Parts

A simple table can be drawn with the Table Parts.

The table can be edited by the Extended Properties in the Advanced Properties Dialog.

Rows and Columns can be increased up to 30.

Properties

(1) Standard Properties

Below described are the Standard Properties of the Table Parts.

Category	Property Name	Property ID	Default Value	Change with Host Communication	Change with Action
General	Parts Type	-	Table	✕	✕
	Management ID	-	Table01	✕	✕
	Parts ID	NAME	from GRD00001	Read only	✕
	Comment	-	(Blank)	✕	✕
Layout *Set in units of pixels	H. Pos.	-	-	✕	✕
	V. Pos.	-	-	✕	✕
	Width	-	48	✕	✕
	Height	-	48	✕	✕
Movement	Display Setting	VISIBLE	True	○	○

*If the row or column is changed, the height and width will also change.

(2) Extended Properties

Below described is the Extended Properties of the Table Parts.

Property Name	Property ID	Default Value	Description	Change with Host Communication	Change with Action
Line Type	-	Solid	Choose from "Solid" or "Dashed"	×	×
Line Color	-	Black	Set color of table line	×	×
Cell Color	-	Fill	Choose from "Fill" or "No Fill"	×	×
Background Color	-	White	Choose color to fill	×	×

* The thickness of the line is 1 pixel.
* Filling pattern and the background color of the cell can be set for each cell.
* Line style and line color are set for the entire table.

Events

There are no corresponding events.

Methods

There are no corresponding methods.

4.　　**Memories**

4.1　**Memory**

A memory is an internal variable used inside the InfoSOSA Builder.
There are types, such as Numeric Type for numeric values, and String Type for Strings.
Action and Host Communication Command are used to change the values and the properties.
There are two types, Screen Memory and Global Memory.

4.1.1　Numeric Type

The Numeric Type is the memory that uses numeric values that treats numeric values as signed integers. There are Boolean types, Byte types, Word types, Double Word types and the numerical values vary.

Type	Numerical Range
Bool	Only 2 values, 'True,1' or 'False, 0'
Byte	1 Byte signed integer　(-128 to 127)
Word	2 Byte signed integers　(-32,768 to 32,767)
Double Word	4 byte signed integer　(-2,147,483,648 to 2,147,483,647)

Properties

Property Name	Property ID	Default Value	Description	Change after Download Host Communication	Action
Memory ID	NAME	from MEM00001 from GME00001	Used for parts management on screen Refer to 1.2.2 ID Changing Rules for details of changing ID	Read only	×
Comment	-	(Blank)	0 to 64 characters can be input freely Displayed after parts ID at time of Action setting or Link setting	×	×
Value	VALUE	0	Value stored in memory.	○	○
Minimum Value *1	-	-	Setting of the smallest value that can be obtained by the target memory.	×	×
Maximum Value *1	-	-	Setting of the largest value that can be obtained by the target memory.	×	×
Underflow *1	-	Save	Prescribes action for when target memory value exceeds smallest value set.	×	×
Overflow*1	-	Save	Prescribes action for when target memory value exceeds largest value set.	×	×
SRAM*2	-	No Save	Setting of taking or not taking battery backup of target memory value.	×	×

　*1.　Only Byte, Word, and Double Word Type can be set.
　*2.　Only Global Memory can be used.

Events

There are no corresponding events.

Methods

Numeric Type of Global Memory can be counted up or down automatically to the appointed value by the Host Communication command.

Method ID	Action Summary
AUTOCNT	Count up (down) to set value

* Please refer to "13.12Communication Command Details".

* Only Global Memory can be used.

Notices

① Action when value outside of range is specified:

Copy source/ Type before calculation	Copy source/ Storage Type after calculation	Description
Byte/ Word /Double Word Type	Boolean Type	If copy source is 0, than 0 and 1 for anything else.
Byte/ Word /Double Word Type	Byte/ Word /Double Word Type	Value is set to Overflow/Underflow setting of change destination when changed to value outside of range

② Property of Minimum value, Maximum value, Underflow, and Overflow.

Property Name	Description
Minimum Value	Minimum value of value obtained with target memory within numeric value range according to each type. If target memory value undergoes lowest limit of minimum value, it will move accordingly to action set at underflow.
Maximum Value	Maximum value of value obtained with target memory within numeric value range according to each type. If target memory value over-goes highest limit of maximum value, it will move accordingly to action set at Overflow.
Underflow	Prescribes action for when target memory value exceeds smallest value set 3 types of action can be set Save: Saves value right before underflow occurs. No calculations Loop: Underflow memory subtracted from maximum value will be value of target memory. Clip: Set minimum value to target memory
Overflow	Prescribes action for when target memory value exceeds largest value set. 3 types of action can be set Save: Saves value right before overflow occurs. No calculations Loop: Overflow memory added to minimum value will be the value of target memory. Clip: Set maximum value to target memory

4.1.2   String Type

A memory type that uses strings. Maximum of 64 characters can be used.

Properties

Property Name	Property ID	Default Value	Description	Change after Download	
				Host Communication	Action
Memory ID	NAME	from MEM00001 from GME00001	Used to manage parts of screen Refer to 1.2.2 ID Changing Rules for details of changing ID	Read only	×
Comment	-	(Blank)	0 to 64 characters can be input freely Displayed after parts ID at time of Action setting or Link setting	×	×
String	TEXT	0	String stored in memory	○	○
String Length	-	10	Maximum number of strings stored in memory	×	×
SRAM*	-	No Save	Setting of backup or no backup of the target value	×	×

*Can only be used with Global Memory.

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

①   Normal and wide characters will all be counted as 1 character.
②   New line will counted as 2 characters.

4.1.3　Timer Type

This is a memory type that automatically generates Timer events after a specific time elapses.

Properties

Property Name	Property ID	Default Value	Description	Change after Download	
				Host Communication	Action
Memory ID	NAME	from MEM00001 from GME00001	Used to manage parts of screen Refer to 1.2.2 ID Changing Rules for details of changing ID	Read only	×
Comment	-	(Blank)	0 to 64 characters can be input freely Displayed after parts ID at time of Action setting or Link setting	×	×
Timeup Value	TIMEUP	1	Time until Timer event is generated. Value set from 0.1 to 2147483.0 (seconds)	○	○
Loop Count	LOOPCNT	0	Number of times that generate Timer Event Set value between 0 and 32767. The timer event will continue to generate until stopped when set to "0".	○	○
Timer Status	STATE	Stop	Set timer action status Set either "Stop" or "Start"	○	○

Events

Event	Description
Timer	Generated when Screen display is complete

　*Please refer to "5. Events" for details.

Methods

There are no corresponding methods.

Notices

- There might be a time lag in the seconds set if other process is being executed when an event is generated because it will be generated after completing the prior process,
- If action that cannot be completed during the interval of time-up value of the timer type memory is being registered, the execution interval will be delayed.
- If a small value is set to time-up value, the system may become slow due to the action set on timer being generated repeatedly.

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4.1.4   Array Queue Type

This is a Memory type for Simple Graph Part. It is linked with the Simple Graph when used.

Properties

Property Name	Property ID	Default Value	Description	Change after Download	
				Host Communication	Action
Memory ID	NAME	from MEM00001	Used to manage parts on screen. Refer to 1.2.2 ID Changing Rules for ID change	Read only	✕
Comment	-	(Blank)	0 to 64 characters can be input freely Displayed after parts ID at time of Action setting or Link setting	✕	✕
CH	-	1	Complies to CH number of Simple Graphs	✕	✕
Size	-	10	Size that can be saved in Simple graph data. If 100 is set, it can save 100 data.	✕	✕

Events

There are no corresponding events.

Methods

There are no corresponding methods.

Notices

● There is no Array Queue Type Global Memory.

4.2   Difference Between Screen Memory and Global Memory

There are 2 types of memory; one is Screen Memory and the other is Global Memory.
The differences between the two are as listed below.

Item	Screen Memory	Global Memory
Handling of Data	Local Data	Global Data
Timer Type	Only works when related screen is displayed.	Always works
Array Queue Type	○	×
Global Memory Type	×	○
AUTOCNT Method	×	○
SRAM Backup	×	○
Save to Storage	×	○
Data Backup	×	○
Logging	×	○

4.2.1   Handling Data

Screen Memory is a local data that can be used only on set screens.
It initializes when displayed so it should be used to store temporary data for processes that will complete within that screen.
Global Memory is a global data that can be used from any screen.
Use the Global Memory for data to be used in multiple screens.

4.2.2   Timer Type

Screen Memory will function only when screen it belongs is displayed.
Global Memory will work regardless of the display screen.
Also, it is not possible to use the local data to the operation target of the Global Memory action.

4.2.3   Array Queue Type

Array Queue Type can be used only with Screen Memory.

4.2.4   Global Memory Group

Global Memory can be grouped and operated together.

4.2.5   AUTOCNT Method

AUTOCNT Method can be used only with Global Memory.

4.2.6   SRAM Backup

SRAM Backup can be used only with Global Memory.

4.2.7   Saving to Storage, Data Back-up, and Logging

Saving to storage and data back-up is used to target the Global Memory Group.
Logging is used to target the Global Memory.

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4.3 Global Memory Group

Global Memory Group is a function to manage multiple Global Memories as a group.
The grouped Global Memory can be setup/ obtained together with the Host Communication Command. It also specifies Global Memory Group when saving storage and/or taking data backup.

Properties

Below properties can be set up with Group Setting.

(1) General

Set ID and Comment of Group Memory.

Property Name	Property ID	Default Value	Description	Change by Host Communication	Change by Action
Group ID	NAME	from GRP00001	ID given when added to group or copied No. of characters: 1 to 8 characters. Characters: Normal alphanumeric characters, "-" (hyphens), and "_" (underscores).	Read Only	×
Comment	-	(Blank)	Comment freely with 0 to 64characters Displayed behind the memory ID at action and link setting.	×	×

[Note]
*The same Group ID cannot be used.

(2) Data Backup Setting

Set data backup.
Please refer to "11.2 Data Backup Function " for details.

Property Name	Property ID	Default Value	Description	Change by Host Communication	Change by Action
Data Backup	-	Disable	Set data backup function. Place a check to enable and remove to disable.	×	×
Timestamp	-	Invalid	Set to add to timestamp at data backup. Place a check to enable and remove to disable.	×	×

[Note]
* If you put a check in "Data Backup", Group Memory can be used for data backup functions.
* Set the "Data Collect" action and "Data Storage" action to the Timer event of the timer type memory if you want to perform data backup regularly.
* Data backup function cannot be used depending on the model.

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(3)Data

Register or release Grouping of Global Memory.

Property Name	Property ID	Default Value	Description	Change by Host Communication	Change by Action
Memory to Register	-	-	Global Memory that can be registered to group Bool, byte, word, double word and String can be displayed.	×	×
Registered Memory	-	-	Global Memory that is .registered to group	×	×
"→"	-	-	Register to group selected memory.	×	×
"←"	-	-	Release from group selected memory.	×	×

*Registered memory will be sorted in order according to the Global Memory number.

(3)Data

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5.　**Events**

5.1 Events

Events are what trigger the Action to be performed.

Events are generated with Touchscreen operations, timers and others.

Various and multiple events can be used on 1 part.

Multiple actions can be set to each event.

Action setting can be done via "Action Setting" of parts or Timer Type Memories.

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5.2 List of Events That Can Be Used With InfoSOSA

Below is the list of events that can be used with the InfoSOSA.

5.2.1 Events Generated by Touch Input

Event Name	Event ID	Description
Press	PRESS	Generate when part is touched or sheet key is pressed
Release	RELEASE	Generate when released after part is touched or released after Sheet Key is pressed
Leave	LEAVE	Generate when touch area is outside of part by sliding a finger
LongPress	LONGPRESS	Generated once when pressed and held down
Repeat Press	REPEATPRESS	Generated once when pressed and held down and generated repeatedly while kept held down.
Enter	ENTER	Generate when the ENTER key of numeric keypad has been pressed
Cancel	CANCEL	Generate when the ESC key of numeric keypad has been pressed
On	ON	Generate when the result is ON after the switch is touched
Off	OFF	Generate when the result is OFF after the switch is touched

5.2.2 Events Generated by Others

Event Name	Event ID	Description
Timer	TIMER	Generate when the time set in TimeUp value of the timer type memory has elapsed
On Display	ON_DISPLAY	Generate at the time of change screen or the Pop-up screen is completed.
On Load	ON_LOAD	Generate just before the change screen or Pop-up display is performed.

5.3   List of Events Generated by Parts/ Memories

Below is the List of Events generated by Parts/Memories.

* Parts not in the list do not correspond to events.

Events	Parts							
	Button	NoImage Button	Touch screen Button	Switch	Image Multi State Switch	Color Multi State Switch	Numeric Keypad	Character Display Parts
Press	○	○	○	○	○	○		○
Release	○	○	○	○	○	○		○
Leave	○	○	○	○	○	○		○
Long Press	○	○	○	○				○
Repeat Press	○	○						
Enter							○	
Cancel							○	
On				○				
Off				○				
Timer								
On Display								
On Load								

Events	Parts		Memory	Sheet-key Pad	Screen*1
	Number Display Parts	Telop	Timer		
Press	○	○		○	
Release	○	○		○	
Leave	○	○			
Long Press	○	○		○	
Repeat Press				○	
Enter					
Cancel					
On					
Off					
Timer			○		
On Display					○
On Load					○

*   For both Base Screen and Pop-up Screen.

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5.4 **Events**

Below described are the details of the events.
There are some events that will require you to setup the Extended Property of Parts in order to be able to use it.
Events that need to be setup include Long Press, and Repeat Press.

5.4.1 Press

Press events are triggered at the instant you touch.
However, it will be generated only when you touch the part area from a non-touched state.
For example, if you slide your finger from outside the part to the part area, nothing will occur.

5.4.2 Release/Leave

Release events are triggered the moment you release your finger.
However, it will be generated only when you release your finger from inside the part after the Press event.
For example, if you slide you finger outside the part area, nothing will occur.
In that case, Leave event will occur instead.
Either Release or Leave event will occur and not simultaneously.

Below described are examples of the Release and Leave events.

[Example 1]
Move the motor while the button is pressed.

Please setup as below:
· Set "Notify event to host" to Press, Release, Leave events of Builder.
· Host will start motor upon receipt of Press event from the Builder and stop the motor with the Release event or the Leave event.

For Release event only, when the finger is slid and released, the motor would continue to operate so be sure to set to stop for Leave also.

However, if the following operation is performed by Host Communication or Timer event, neither the Release event nor the Leave event will occur.
· Screen transition
· Enabled Touchscreen
· LCD Back light OFF (including auto-OFF)

[Example 2]
Perform action when button is pressed and released; but do not perform if slid and released.

Setup as below:
· Do not set action to Press Event
· Set action to Release Event
· Do not set action to Leave Event

If set as above, the action will not be implemented if the finger slides outside the button even after pressing the button.

5.4.3   Long Press

Long Press event is generated only once by continuously touching the same part for more than the time set. Time until the event occurs can be set from the "Long Press Events" property of the parts. The number of seconds can be set at 0 to 30 seconds.
If it is set to 0, Long Press event will not occur.
Below shown is the property setting examples.
● Long Press Events/Holding Time: 5 seconds
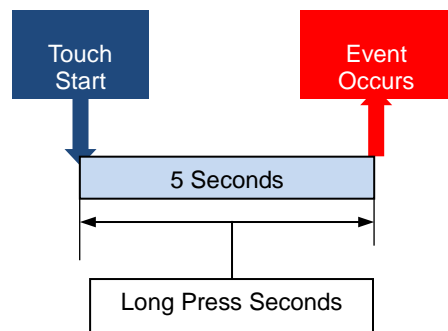
* Repeat Press Event cannot be set for parts that have Long Press Events set.

Properties

Property of "Long Press" is set from "Extended Properties" of "Advanced Properties Dialog".

Notices

If other process is being conducted at the time event is generated, a small time lag (seconds) will occur due to the event generating after the undergoing process is complete.

5.4.4   Repeat Press

Repeat Press event is a recurring event generated when same part is kept touching.
While the parts are being touched, the event will occur infinitely.
Time until the event occurs can be set in the "Start Time" in the property of each Part .
Start time can be set between 0 to 30 seconds.
If 0 is set, Repeat Press events will not occur.
Also by setting the "Minimum Interval" property, and the "Step Up" property, the interval of events can be changed. Below is the property setting examples.

- Interval: 0.8 seconds
- Minimum Interval: 0.2 seconds
- Step-up: 0.3 seconds
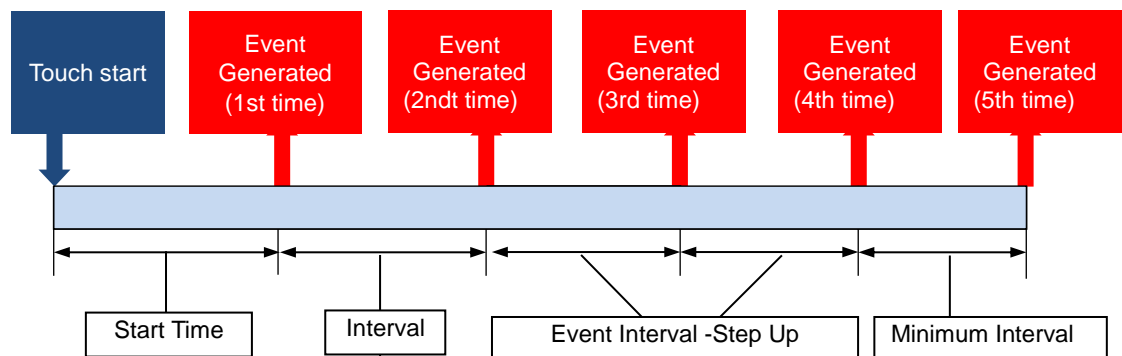
* When Repeat Press event is set to a part, the Long Press Event cannot be set.

Properties

The properties of "Start Time", "Minimum Interval", and "Step Up" can be set from "Extended Properties" of the "Advanced Properties Dialog".

Notice

If other process is being conducted at the time event is generated, a small time lag (seconds) will occur due to the event generating after the undergoing process is complete.

5.4.5   Enter/Cancel

Enter/Cancel Event is an event dedicated for the Numeric Keypad

Enter event is generated when ENTER of the Numeric Keypad is touched.
The input value gets fixed and the action set to the Enter event is processed.

Cancel event is generated when ESC of the Numeric Keypad is touched.
The input value gets discarded and the action set to the Cancel event is processed.

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5.4.6   On/Off

On/Off Event is an event dedicated for the switch.
The Switch Part, when touched, switches repeatedly the ON and OFF state.
When touched, the On event is generated when OFF state switches to ON state, and the Off event is generated when ON state switches to OFF state.

The order events are generated when the switch is taped twice:

Order	Event	Description
①	Press	Generated first when touched.
②	On	Generated when the switch value turns ON at touch
③	Release	Generated when finger is released
④	Press	Generated first when touched.
⑤	Off	Generated when the switch value turns OFF at touch
⑥	Release	Generated when finger is released

[Switch State]

[Touch State]
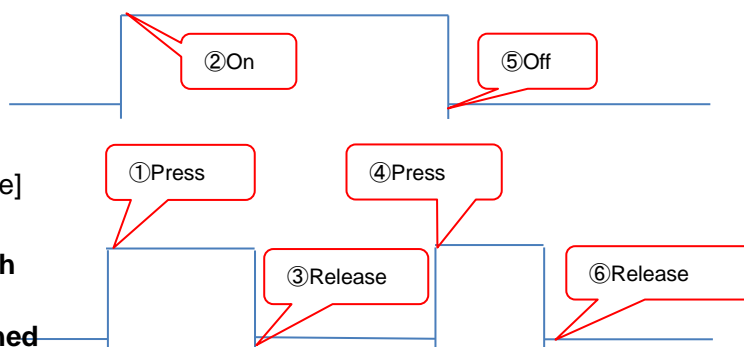
Notices

When ON/OFF is switched with Action or Host Communication, On/Off event will not be generated.

5.4.7   Timer

Timer event is an event that is generated with the elapsed time that has been set.

Setting Procedure

When using the Timer event, you will need to create a Timer Type Memory on Screen Memory or Global Memory.
Setting can be done in the "Advanced Properties Dialog" of the Screen Memory or Global Memory.

Property Name	Property ID	Default Value	Description	Change after Download	
				Host Communication	Action
Time Up	TIMEUP	1	Time (seconds) until the Timer event is generated Specify values between 0.1 to 2147483.0	○*	○*
Loop Count	LOOPCNT	0	Generating count of Timer event Specify values between 0 to 32767 Timer events will generate repeatedly when set to 0.	○	○
Timer State	STATE	Stop	Specify initial operation state of Timer. Choose from Stop (stop state) or Start (operation state).	○	○

- When the initial state of the timer status is set to "Start" in Builder, it will operate as follows:
  [Screen Memory]
  It will operate when the screen that the memory is registered to is displayed.
  [Global Memory]
  The timer will operate at the same time the InfoSOSA startup completes.

- When changing the timer state with the Host Communication Command/Action, use value of "0" for stop and value of "1" for start.

- When the timer status is set to "stop", Timer event will not occur as long as the Timer status is changed to "start" by Action or Host Communication.

- When the Loop event occurs to the number of loops set, the Timer state automatically changes to "stop".

- When timer state is change to "stop" during operation, it will return to the initial state.
  ∗   It cannot restart from the middle of the state.

- When the time-up value is changed during operation via Host Communication or Action, it will be specified in milliseconds.
  ∗   If you want to set the 5 seconds, set 5000.

- When Loop count or the Time Up Value is changed during operation, the timer will continue counting. It will be reflected from the next time-up second.

* If time-up value is change to 30 seconds when there are 5 seconds left before time-up, then it will time-up once after 5 seconds, and the next time-up will be 30 seconds after.

● When property of TimeUp and LoopCnt are obtained via Host Communication or Action, the value will return to the initial state.
    * Remaining operation count and time until Timer event is generated cannot be obtained. .

Operation Description

Operation when setup is shown below.
● Time Up Value: 5 seconds
● Loop Count: 3 times
● Timer Status: Stop
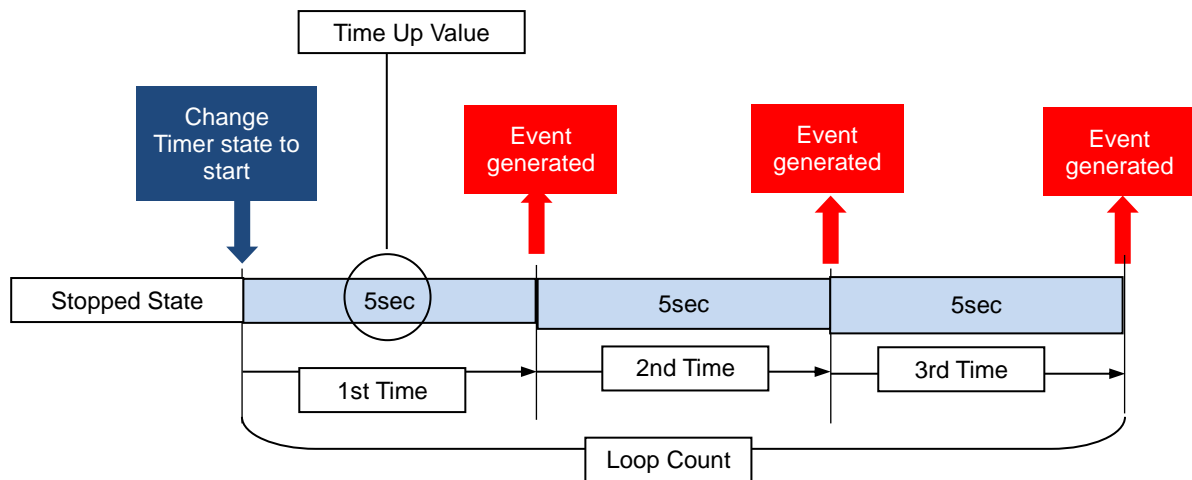
Notices

* If other process is being conducted at the time event is generated, a small time lag (seconds) will occur due to the event generating after the undergoing process is complete
* If action that cannot be completed in the interval of time-up value of the timer type memory, than the execution interval will be delayed.
* If a small value is set for the Time Up value, the entire system operation speed might slow down due to the Timer event action occurring repeated

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5.4.8   On Display

On Display Event is an event that occurs when screen transition and Pop-Up display is complete.

Setting Procedure

When using the On Display Event, choose On Display event from the Action Settings Dialog of the transition destination Base Screen or the Pop-up Screen and set the optional action.

  ∗   Action Settings dialog of the screen can be opened by right-clicking menu of the location where there are no parts.

Operation Description

This event is generated when screen transition at Action or Host Communication, after instruction of Pop-up Display, and after screen display is complete.

  ∗   If you want to change the display by triggering this event, it will be re-displayed after the state before the change is displayed once.
  ∗   If the screen being displayed and the screen of transition destination is the same, On Display event will not occur.
  ∗   In the case of re-display of Pop-up, On Display event will be generated because the Pop-up is redisplayed again after closing once.

5.4.9 On Load

On Load Event is an event that occurs right before screen display update at screen transition or Pop-up display.

Setting Procedure

When using the On Load Event, choose On Load Event from the Action Setting Dialog of the transition destination Base Screen or the Pop-up Screen and set the optional action.

∗ Action Settings dialog of the screen can be opened by right-clicking menu of the location where there are no parts.

Operation Description

This event is generated   right before the screen display is updated after instruction of screen transition or Pop-up display of Action or the Host Communication.
Screen will be displayed after all actions registered to this event have been executed.
The relationship with the On Display event is, it will be generated in the order of "On Load -> On Display".

∗ When changing the display with this event, the screen will be displayed after the change and not before.
∗ If the screen displayed and the transition destination screen is the same, On Load event will not generate.
∗ When re-displaying the displayed Pop-up, the Pop-up will once be closed before re-displaying, thus the On Load event will be generated.

6. Actions

6.1　Actions

Actions are the user configurable behavior of the InfoSOSA.

By setting Actions to the events generated by the operation of Parts or the timer with the touchscreen, you will be able to set the behavior of the InfoSOSA.

Action setting can be done by "Action Settings" of Parts and Timer Type memories.

6.2 List of Actions that can be Setup with InfoSOSA

Below is the list of actions that can be used with the InfoSOSA.

Please refer to each action details for more details.

   * Actions that can be set vary depending on the model.

Action Group	Action	Description	IS7	IS9
H/W Actions	Notify Event to Host	Notify to host event of action processed	○	○
	Output String of Memory to Host	Ignore communication protocol and transit string.	○	○
	Notify Event to Host	Notify host event of action processed and value of optional memory.	○	○
	Output to LED	On/Off of Sheet key LED.	○	○
	Buzzer On	On/Off of buzzer.	○	○
	Restart	Restart InfoSOSA	○	○
	Clear SRAM and Restart	Restart InfoSOSA after clearing SRAM	-	○
	Restart in Download Mode	Restart in download mode	○	○
	Write to Storage	Write to storage the value of group memory	-	○
	Read from Storage	Read from storage the value of group memory	-	○
Screen Operations	Transit to Specified Screen	Switch display to specified Base Screen	○	○
	Display ON of Pop-up Screen	Display specified Pop-up Screen A	○	○
	Display ON of Pop-up Screen	Display specified Pop-up Screen B	○	○
	Display OFF of Pop-up Screen	Close specified Pop-up Screen A	○	○
	Display OFF of Pop-up Screen	Close specified Pop-up Screen B	○	○
	Display Calibration Screen	Display calibration scree	○	○
Parts Operations	Property	Set value to part properties	○	○
	Copy of Property	Copy part properties	○	○
	Setting Link Data	Link memories to parts	○	○
Graph Operations	Main Line ON/OFF Setting	Set On/Off of main line of Simple Graph and Trend Graph parts	○	○
	Main Line ON/OFF Setting	Acquire Simple Graphs and Trend Graph Parts main line On/Off status	○	○
	Main Line ON/OFF Acquisition	Set On/Off of auxiliary line of Simple Graph and Trend Graph parts	○	○
	Main Line ON/OFF Acquisition	Acquire Simple Graph and Trend Graph Parts auxiliary line On/Off status	○	○
	Add Data to Simple Graph End	Add data to end of Simple Graph parts	○	○
	Simple Graph Data Clear	Clear all data of Simple Graph parts	○	○
	Simple Graph Axis Setting Change	Change the axis setting of Simple Graph parts	○	○
	Simple Graph Axis Setting Memory	Acquire and store to memory the axis setting of Simple Graph parts	○	○

Action Group	Action	Description	IS7	IS9
	Output			
	Trend Graph Operation State Setting	Change operation state of Trend Graph parts	-	○
	Trend Graph Operation State Acquisition	Acquire operation state of Trend Graph parts	-	○
	Trend Graph Scroll	Scroll Trend Graph parts from left to right	-	○
	Trend Graph X-axis Time Scale Setting(Specified Absolute Value)	Set X-axis time scale of Trend Graph part (Specified Absolute Value)	-	○
	Trend Graph Operation State Setting (Specified Relative Value)	Set X-axis time scale of Trend Graph part (Specified Relative Value)	-	○
	Trend Graph X-axis Time Scale Acquisition	Acquire X-axis time scale of Trend Graph part	-	○
Control Statements	Create Local Variable	Declare a variable to use only in Action	○	○
	Call Subroutine	Call a Subroutine	○	○
	IF Block (Condition 1)	Specify and set 1 branch condition of Action process	○	○
	IF Block (Condition 2)	Specify and set 2 branches condition of Action process	○	○
	ELSE IF Block (Condition 1)	Specify and set 1 condition if it does not apply to IF Block condition	○	○
	ELSE IFBlock (Condition 2)	Specify and set 2 conditions if it does not apply to IF Block condition	○	○
	ELSE Block	Setup when it does not apply to IF and Else IF Block conditions	○	○
	FOR Block	Repeat Action repeatedly to number of times set	○	○
	WHILE Block (Condition 1)	Repeat Action repeatedly to number of times set if it satisfies one condition	○	○
	WHILE Block (Condition 2)	Repeat Action repeatedly to number of times set if it satisfies two conditions	○	○
Numerical Operations	Copy Value	Copy value to part or memory	○	○
	Value Setting	Set specified value to part or memory	○	○
	Arithmetic Operations	Set added result to part or memory	○	○
	Arithmetic Operations	Set subtracted result to part or memory	○	○
	Arithmetic Operations	Set multiplied result to part or memory	○	○
	Arithmetic Operations	Set divided result to part or memory	○	○
	Arithmetic Operations	Set remainder of the divided result to part or memory	○	○
	Increment	Add set value to part or memory	○	○
	Decrement	Subtract set value to part or memory	○	○
Bit Operations	Bit Operations	Set result of Bit operation AND to part or memory	○	○
	Bit Operations	Set result of Bit operation OR to part or memory	○	○
	Bit Operations	Set result of Bit operation XOR to part or memory	○	○

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Action Group	Action	Description	IS7	IS9
	Bit Operations	Set result of Bit operation NOT to part or memory	○	○
	Bit Shift Left	Set left shift operation result to part or memory	○	○
	Bit Shift Right	Set right shift operation result to part or memory	○	○
Logical Operations	Logical Operation AND Operation(AND)	Set result of logical operation AND to part or memory	○	○
	Logical Operation OR Operation(OR)	Set result of logical operation OR to part or memory	○	○
	Logical Operation Exclusive OR(XOR)	Set result of logical operation XOR to part or memory	○	○
	Logical Operation NOT Operation(NOT)	Set result of logical operation NOT to part or memory	○	○
Comparison Operations	Comparison Operations	Set result of comparison operation (Equal) to part or memory	○	○
	Comparison Operations	Set result of comparison operation (Not Equal) to part or memory	○	○
	Comparison Operations	Set result of comparison operation (Larger than) to part or memory	○	○
	Comparison Operations	Set result of comparison operation (Larger than or Equal to) to part or memory	○	○
	Comparison Operations	Set result of comparison operation (Smaller) to part or memory	○	○
	Comparison Operations	Set result of comparison operation (Smaller than or Equal to) to part or memory	○	○
String Operations	Copy Strings	Copy string to part or memory	○	○
	Add 1 Character to String End	Add a character to end of string	○	○
	Inserting 1 Character to Specified String Position	Add a character to specified position	○	○
	Add String to String End	Add memory string to end of string	○	○
	Insert String to Specified Position	Add memory string to specified position	○	○
	Delete Specified Number of Characters from String End	Delete specified number of character from end of string	○	○
	Search Character	Search specified character	○	○
	Get String of Specified Number of Characters from Specified Position	Search and acquire specified string type	○	○
Data Conversions	Convert Decimal String to Integer	Convert decimal number stored in the string type, then converted to a numeric type	○	○
	Convert HEX String to Integer	Convert hexadecimal number stored in the string type, then converted to a numeric type	○	○
	Convert Integer to Decimal String	Convert to string type in decimal expression the value of a numeric type	○	○
	Convert Integer to HEX String	Convert to string type in hexadecimal expression the value of a numeric type	○	○

Action Group	Action	Description	IS7	IS9
Data Backup	Collect Data	Write to internal buffer the specified group memory	-	○
	Clear Data	Clear specified internal buffer	-	○
	Save Data	Write specified internal buffer to SD memory card	-	○
Logging	Clear All Logging Data	Clear all logging data	-	○
	Generate Trigger	Run logging to specified log data ID	-	○
Image Operations	Image Setting	Set image resource image to part	○	○

6.3 Local Variables and Constants

Local variables and constants of parts properties and memories can be specified in the Action parameter.

6.3.1 Local Variables

Local variables are a numeric type memory for temporarily storing the calculation results that are in Action.

It can be created by "Create Local Variable" of "Control Statement" group.

The local variable created can write and read values as Screen Memory (Global Memory), but will be discarded when all actions in the event has been completed.

[Notes]

- Local Variable must always be registered to the head of the Action.
- The value range of the local variable is -2,147,483,648 to 2,147,483,647.
- String cannot be used.

Characters that can be used for variable names are as below:

Parameter	Description
Variable Name	Specify normal alphanumeric within 8 characters Below are conditions to follow: Character number: 1 to 8 Character type: Alphanumeric, hyphens (-) and underscores (_). Head character must be an alphabet. *Same variable name cannot be used in the same screen.

6.3.2 Constants

Constants are used when specifying a conditional expression directly without having to go through the memory.

Use constants to make the right side of the IF Block condition equations a fixed value.

[Notes]

- The value range that can be specified for a constant is from -2,147,483,648 to 2,147,483,647.
- String cannot be used.

6.4 Subroutine

Subroutine can register multiple actions in a batch.

For example, if there are 10 buttons and each have 5 actions to implement when pressed and 4 action are common, by registering the common 4 as subroutine, the actions that need to be registered to each button is "Call Subroutine" and the individual actions.

Also, when sending commands as "Execute Subroutine" by Host Communication, subroutine can be done according to each command on arbitrary timings.
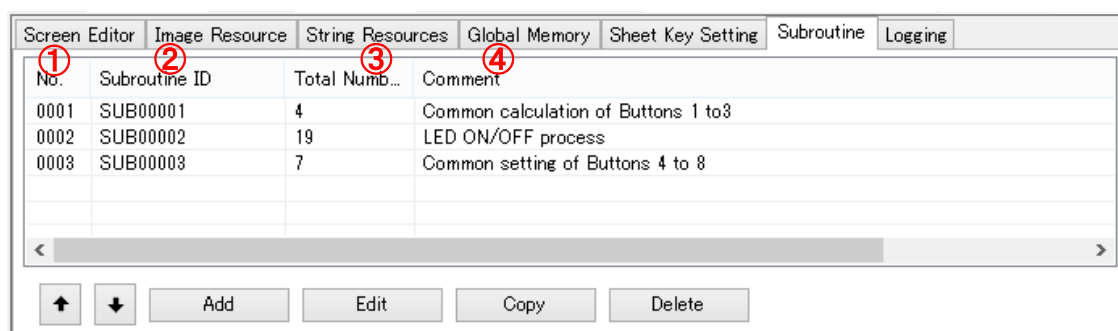
(1) No.

A serial number automatically given when subroutine is added or copied.

It cannot be edited.

(2) Subroutine ID

An ID to distinguish each subroutine. It is used at Host Communications and Actions.

It will not be automatically set even if it is copied or added.

Please refer to below regulations for setup.

Items	Description
Number of characters	1 to 8
Characters allowed	Alphanumeric, hyphens (-), underscores (_),

* Make sure Subroutine IDs do not overlap.
* Head character must be an alphabet (single-byte uppercase).

(3) Total Command Number

The total number of actions registered to the subroutine will be displayed.

* Maximum numbers of Actions to be registered to 1 subroutine is 50.

(4) Comment

The description of the subroutine will be set.

If you set the comment, what you fill out here in the back of the subroutine ID is displayed when the action is set.

[Notes]
● Do not register as "Call Subroutine" inside of subroutine.
● When accessing to local data such as parts and screen memories, choose screens that belong to "Target Screen Of Subroutine".
● Subroutines that have "Target Screens Of Subroutine" set, cannot be executed when the target screen is not displayed.

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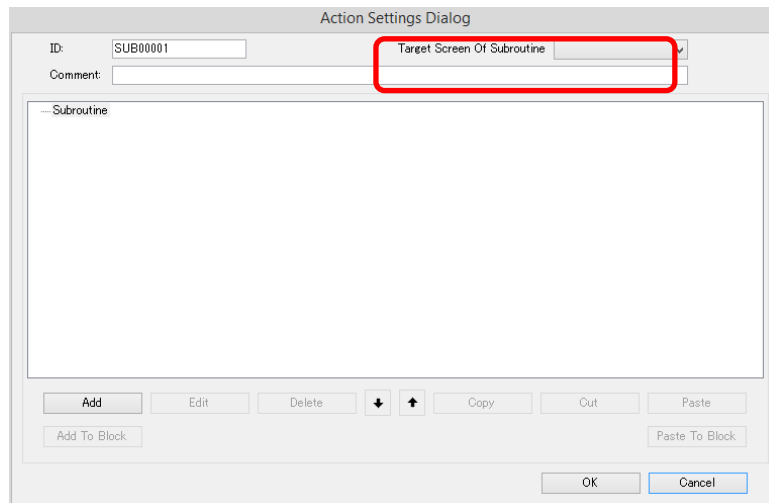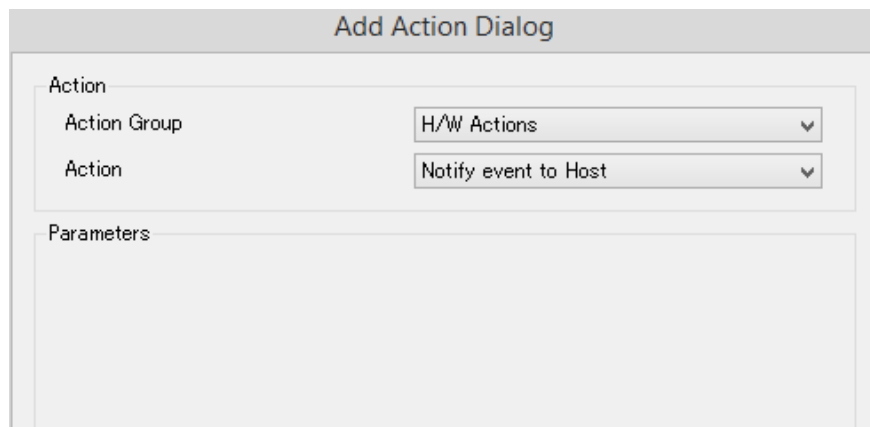
6.5   H/W Action Group

This is an action group of the action of H/W.

6.5.1   Notify Event to Host

Description

Sends the generated event to the destination set at "Notify event to Host".
*   "Notify Event to Host" can be set from "Communications Settings (Target)".
      Please refer to Builder Operation Manual for how to setup.

Parameters

None

6.5.2   Output String of Memory to Host

Description

Send string of specified string type memory to the notification destination set at "Notify Event to Host" without Host Communication protocol format.

Do not convert new line code such as add header/footer, sequence number control, retransmission process, and send ignoring the protocol.

* "Host to notify String" can be set via "Communication Setting (Target) Dialog".
* When transmitting control statement, click "Yes" for "Control Character Input" of the H/W Settings Dialog.
* String will be transmitted according to the current "Character Code Setting", either in ASCII or UTF-16LE.
* It will be transmitted as <CR><LF> since new line will not be converted.

[About Control Character]

If "Control Character Input" is set to "Yes", the 2 digits that follow "/" (0 to 9, A to F, and a to f) will be converted to binary value. Also "//" will be changed to "/"

Example 1: /02test/0d/03   ->   <STX>test<CR><ETX>
Example 2: //mark   ->   /mark

 * <STX> is 0x02、<CR> is 0x0d、<LF> is 0x0a and <ETX> is 0x03.

Parameter

Parameter	Description
Memory type	String Type memory it belongs to
Memory ID (String Type)	String Type memory ID

6.5.3   Notify Event to Host

Description

Transmits the generated event and any memory value to the destination set at "Notifying Event to Host".
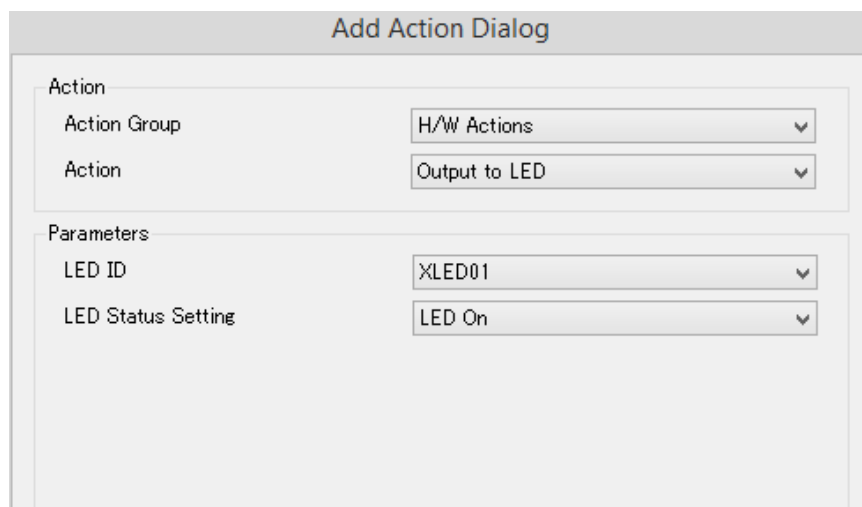
*"Notify Event to Host" is setup with the Communication Setting (Target) Dialog.

Parameter

Parameter	Description
Value 1 Memory Type	Memory that value 1 belongs to
Value 1 Memory Type ID(Number/String type)	Memory ID of value 1
Value 2 Memory Type*	Memory that value 1 belongs to
Value 2 Memory Type ID(Number/String type)*	Memory ID of value 2
Value 3 Memory Type*	Memory that value 2 belongs to
Value 3 Memory Type ID(Number/String type)*	Memory ID of value 3
Value 4 Memory Type*	Memory that value 3 belongs to
Value 4 Memory Type ID(Number/String type)*	Memory ID of value 4
Value 5 Memory Type*	Memory that value 4 belongs to
Value 5 Memory Type ID(Number/String type)*	Memory ID of value 5
Value 6 Memory Type*	Memory that value 6 belongs to
Value 6 Memory Type ID(Number/String type)*	Memory ID of value 6

*   Values 2 to 6 are optional. Leave blank if not necessary.

6.5.4　Output to LED

Description

Turn ON or OFF the Sheet Key LED.

Parameter

Parameter	Description
LED ID	ID of the operating LED
LED Status Setting	LED on/ LED off

6.5.5   Buzzer On
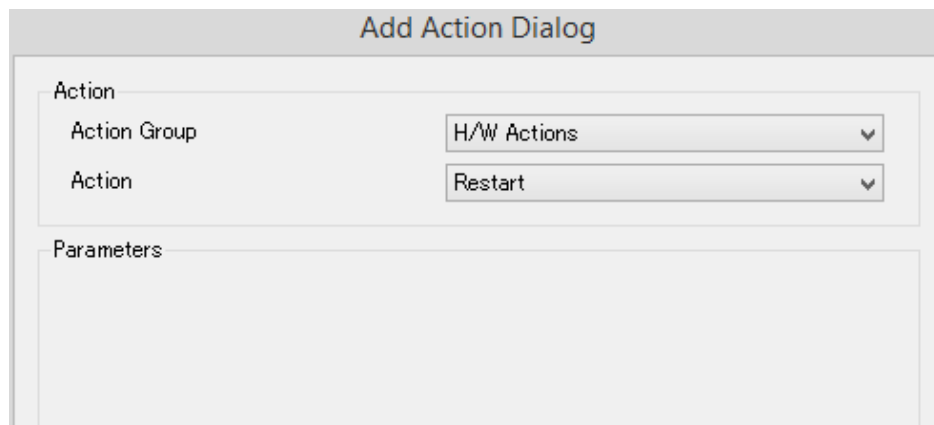
Description

Turn the Buzzer On or Off.
Pattern 1 is the lowest sound and Pattern 9 is the highest sound.

Parameter

Parameter	Description
Buzzer Status	Buzzer ON/ Buzzer OFF
Buzzer Sound	Patterns 1 to 9(Can only be set when Buzzer status is "Buzzer ON")

6.5.6   Restart

Description

Restart the InfoSOSA.

Actions set after Restart action will not be implemented.

   * By using together with the Long Press Event, restarting by mistake can be avoided.

Parameter

None.

6.5.7   Clear SRAM and Restart
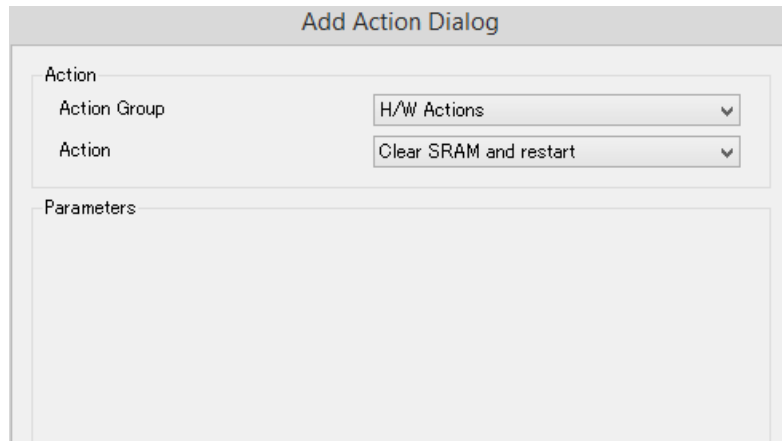
Description

Clear SRAM and restart the InfoSOSA.

Any actions set after restarting of the InfoSOSA will not be implemented.

Global Memory will be read at initial value after restart.
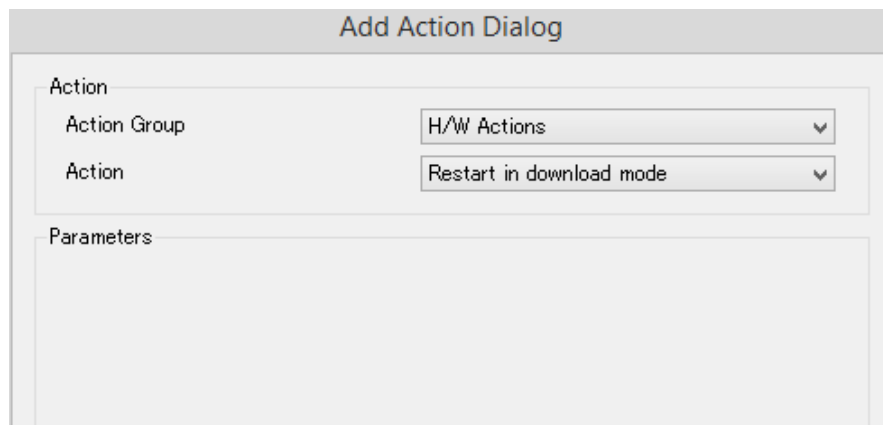
* By using together with the Long Press Event, restarting by mistake can be avoided.

Parameter

None.

6.5.8   Restart in Download Mode

Description

Action for developers that confirm firmware versions an IP addresses of InfoSOSA.
When this action is processed, it will restart in download mode.

It will go back to normal mode with below operations
- Click "Cancel"
- Turn power off and on again
- Download of Screen Data is accomplished

For details of Download mode, please refer to "12.9.2 Download Mode"

Parameter

None.

6.5.9　Write to Storage

Description

Write all Global Memory value that belongs to the group memory. Values will be stored even when power is OFF.
When power is turned ON, it will not automatically read. Be sure to implement "Read from Storage" action.

Below file will be created in the storage:
Group ID.csv (E.g.: GRP00001.csv)
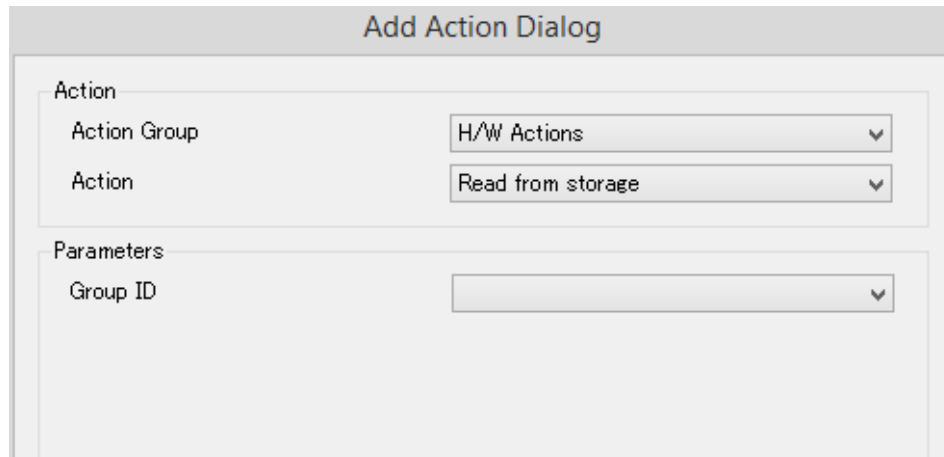
* Do not edit output file

Parameter

Parameter	Description
Group ID	Group memory to write to storage
Overwrite	Allow/ Not allow overwrite

* Global Memory complies with numeric and string type.
* This action is valid only when using storage.
* When repeatedly implementing this action, please wait 5 seconds in between. However, the time necessary will depend on the file status in the storage and other processes.
* When recording the change of value, use the data back-up or the logging function.

6.5.10　Read from Storage

Description

Read group memory value stored with "Write to Storage" action in the storage device.

Parameter

Parameter	Description
Group ID	Group memory to read

* Please note the Global Memory value will be overwritten.
* If file is not saved with in storage with the specified group ID, it will not read.
* This action is available only when using storage.
* When repeatedly implementing this action, please wait 5 seconds in between. However, the time necessary will depend on the file status in the storage and other processes.

6.6 Screen Operation Group

This is the action group to display switching to specified screen, ON/OFF of Pop-Up Screen, coordinate calibration of touchscreen.

6.6.1 Transit to Specified Screen

Description

Switch to specified screen.

* If the displayed screen and the transit destination screen is the same, then the OnDisplay event will not generate.
* Action results after transition of screen action will become indefinite. Be sure to setup.

Parameter

Parameter	Description
Screen ID of Transit DST	ID of the transit destination screen

6.6.2　　Display ON of Pop-up Screen

Add Action Dialog

Action
Action Group | Screen Operations
Action | Display ON of Pop-up Screen A

Parameters
Screen ID
X Coordinate of Display Position
Y Coordinate of Display Position

Description

Displays the specified Pop-up Screen.

There are two actions: "Display ON of Pop-up Screen A" and "Display ON of Pop-up Screen B".
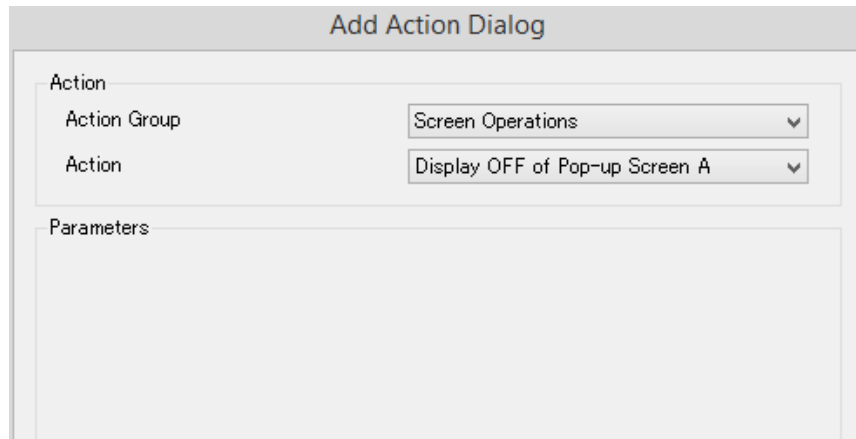
> *When same layer of Pop-up screen is turned ON when Pop-up screen is being displayed, the displayed screen will automatically be turned OFF and the specified screen will be displayed.

Parameter

Parameter	Description
Screen ID	ID of Pop-up Screen A or B to be displayed
X Coordinate of Display Position	Display position of Pop-up Screen by specifying the distance of the pop-up screen in units of pixel in the X direction with the upper left point as origin.
Y Coordinate of Display Position	Display position of Pop-up Screen by specifying the distance of the pop-up screen in units of pixel in the Y direction with the upper left point as origin.

6.6.3　　Display OFF of Pop-up Screen

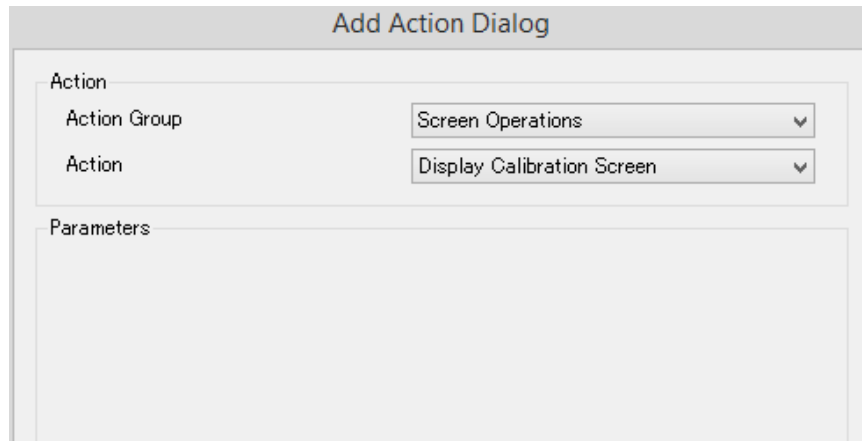## Description

Turn the display of the specified screen OFF.
There are two actions: "Display OFF of Pop-up Screen A" and "Display OFF of Pop-up Screen B".

Parameter

None.

6.6.4　Display Calibration Screen

Description

Display the coordinate calibration screen for the touchscreen.

If calibration ends successfully, the result will be saved and the screen will go back to what was displayed.

Also, if there is no touch input for 30 seconds, the buzzer will sound and it will also go back to the displayed screen,

in this case, calibration results will not be displayed.

Please refer to "12.4 Calibration".

Parameter

None

6.7　**Part Operation Group**
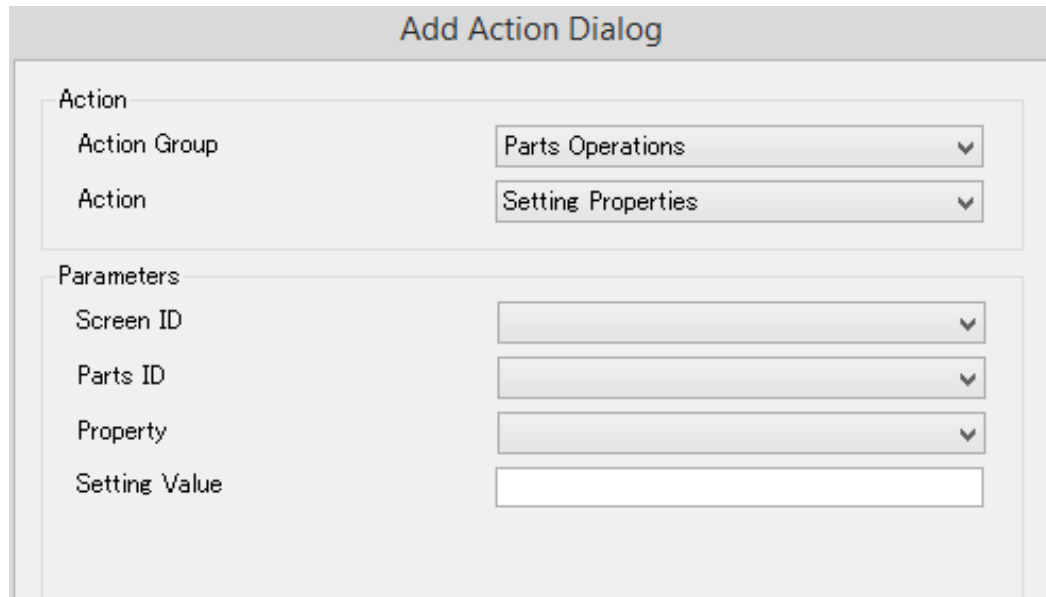
This is an action group to operate the property of the parts/

Parts and properties that can be used in Part Operation is as below:

Parts/Memories	Operable Properties						
	Value	Enabled	Visible	Blink	State	TimeUp	LoopCnt
Global Memory (Numeric type)	○						
Global Memory (Timer Type)					○	○	○
Screen Memory (Numeric type)	○						
Screen Memory (Timer Type)					○	○	○
Environmental Variables (Numeric Type)	△*						
Button		○	○	○			
NoImage Button		○	○	○			
Touchscreen Button		○					
Switch screen Button		○	○	○			
Switch	○	○	○	○			
Image Multi-state Switch	○	○	○	○			
Color Multi-state Switch	○	○	○	○			
Numeric keyboard							
Lamp	○		○	○			
NoImage Lamp	○		○	○			
Image Multi-state Lamp	○		○	○			
Color Multi-state Lamp	○		○	○			
Label			○	○			
Character Display Parts		○	○	○			
Number Display Parts	○	○	○	○			
Telop	○	○	○				
Time Displaying Parts	○		○	○			
Frames			○				
NoImage Frames			○				
Simple Graph			○				
Trend Graph Graph Unit			○				
Trend Graph Operation Panel							
Bar Meter			○				
Picture Box			○				
Line Parts			○	○			
Arrow Parts			○	○			
Rectangle Parts			○	○			
Table Parts			○				

*Only complies with environmental variables that allow write.

6.7.1   Property Setting

Add Action Dialog

Action

Action Group   Parts Operations

Action   Setting Properties

Parameters

Screen ID

Parts ID

Property

Setting Value

Description

Change the value of the Property to the property set.

Parameter

Parameter	Description
Screen ID	Screen which parts or memory belongs to
Parts ID	Target Part or Memory
Property	Property to set (depends on parts and memory)
Setting Value	Value to set to property

6.7.2　Copy of Property

Description

Copy value to destination property value from the source property value.

Parameter

Parameter	Description
SRC Screen ID	Where parts or memory of source belongs to
SRC Parts ID	Parts or memories of source
SRC Property	Source property (depends on parts and memories)
DST Screen ID	Where parts or memory of destination belongs to
DST Parts ID	Parts or memories of destination
DST Property	Destination property (depends on parts and memories)

6.7.3　Setting Link Data

Description

Change the specified link data of Parts to memory.

Parameter

Parameter	Description
Screen ID	Screen ID of parts to set link data
Parts ID	Part to set link data
Link DST Memory Type	Where memory to link belongs to
Link DST Memory ID	ID of memory to link

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6.8 Graph Operations Group

This is an action group to operate Simple Graph or Trend Graph.

6.8.1 Main Line ON/OFF Setting

Description

Acquire to specified memory the ON/OFF status of graph lines of specified Simple Graph or the Trend Graph parts.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
CH Number	CH Number of graph line (1 - 8)
ON/OFF	1:ON 0:OFF

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6.8.2 Main Line ON/OFF Acquisition

Description

Acquire to specified memory the ON/OFF status of graph lines of specified Simple Graph or the Trend Graph parts.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
CH Number	CH Number of graph line(1 - 8)
DST Memory Type	Type of memory of destination
DST Memory ID	Memory ID of destination

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6.8.3   Auxiliary Line ON/OFF Setting

Description

Set the display ON/OFF of the auxiliary line of specified Simple Graph and Trend Graph parts.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
AUX Number	Auxiliary line number(1-3)
ON/OFF	1:ON 0:OFF

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6.8.4   Auxiliary Line ON/OFF Acquisition

Description

Acquire to specified memory the ON/OFF status of auxiliary lines of specified Simple Graph or the Trend Graph parts.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
AUX Number	Auxiliary line Number (1 to 3)
DST Memory Type	Type of memory of destination
DST Memory ID	Memory ID of destination

6.8.5 Add Data to Simple Graph End

Description

Add data to the end of the specified Simple Graph end.
Specify data from CH1 to 8. Be sure to match the CH number of the target Simple graph and the specified data number.
If data is left blank, it will be treated as missing value.

Parameter

Parameter		Description
Screen ID		Screen which parts belong to.
Parts ID		Target Part
CH1~8	Memory Type	Memory type of data to add
	Memory ID	Memory ID of data to add

6.8.6　Simple Graph Data Clear

Description

Clear all data of the specified Simple Graph part.

Parameter

Parameter	Description
Target Part	Screen which parts belong to.
Parts ID	Target Part

6.8.7　Simple Graph Axis Setting Change

Add Action Dialog

Action

| Action Group | Graph Operations ▾ |
| Action | Simple Graph Axis Setting Change ▾ |

Parameters

Screen ID	▾
Parts ID	▾
X-axis Data Number MEM Type	▾
X-axis Data Number MEM ID	▾
Y-axis Upper Limit MEM Type	▾
Y-axis Upper Limit MEM ID	▾
Y-axis Lower Limit MEM Type	▾
Y-axis Lower Limit MEM ID	▾
X-axis Scale Interval MEM Type	▾
X-axis Scale Interval MEM ID	▾
Y-axis Scale Interval MEM Type	▾
Y-axis Scale Interval MEM ID	▾
Y-axis Scale Disp Interval MEM Type	▾
Y-axis Scale Disp Interval MEM ID	▾
Y-axis Display Dig MEM Type	▾
Y-axis Display Dig MEM ID	▾

OK　　　　Cancel

Description

Change the X-axis/Y-axis of the specified Simple Graph part.

Item that can be changed:

Item	Description
X-axis Data Number	Number of data to display on X-axis Setting Range: 1 to 400
Y-axis Upper Limit	Upper value limit of Y-axis Setting Range：-2147483645 to 2147483647 * Choose a larger value than the Y-axis lower display limit value * If there is a large difference in the Y-axis upper display limit value and the lower limit value, it may not be able to setup. * In order to display scale value, please set digit number bigger than or equal to the Y-axis display digit number * Values higher than the Y-axis Upper limit will be displayed depending on the Y-axis scale interval.
Y-axis Lower Limit	Lower limit of Y-axis Setting Range：-2147483645 to 2147483647 * Specify a value smaller than Y-axis Upper display limit * If there is a large difference in the Y-axis upper display limit value and the lower limit value, it may not be able to setup. * In order to display scale value, please set digit number bigger than or equal to the Y-axis display digit number
X-axis Scale Interval	Scale interval (Unit=each data number) on X-axis. Graduation line is drawn for each Scale Interval Setting Range：1 - 400
Y-axis Scale Interval	"Scale interval(Unit=each data value) on Y-axis Graduation line is drawn for each Scale Interval" Setting Range：1 - 2147483647 * Specify interval with so that scale is larger than or equal to 1 * Intervals that scale numbers are more than the pixel number of Graph display area cannot be se
Y-axis Scale Disp Interval	Scale Value Display Interval (Unit= each Scale) on Y-axis Scale value is drawn at the left of Scale Line for each Scale Disp Interval. Setting Range：0 - 5 * Scale value will not display if 0 is chosen.
Y-axis Display Dig	Number of digits of Scale Value displayed on Y-axis. Setting Range：1 - 12 * Scale value that is more than the specified digit number.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
X-axis Data Number MEM Type	Memory type of source of X-axis data number
X-axis Data Number MEM ID	Memory ID of source of X-axis data number
Y-axis Upper Limit MEM Type	Memory type of source of Y-axis upper limit
Y-axis Upper Limit MEM ID	Memory ID of source of Y-axis upper limit
Y-axis Lower Limit MEM Type	Memory type of source of Y-axis lower limit
Y-axis Lower Limit MEM ID	Memory ID of source of Y-axis lower limit
X-axis Scale Interval MEM Type	Memory type of source of X-axis Scale Interval
X-axis Scale Interval MEM ID	Memory ID of source of X-axis Scale Interval
Y-axis Scale Interval MEM Type	Memory type of source of Y-axis Scale Interval
Y-axis Scale Interval MEM ID	Memory ID of source of Y-axis Scale Interval
Y-axis Scale Display Interval MEM Type	Memory type of source Y-axis scale display interval
Y-axis Scale Display Interval MEM ID	Memory ID of source of Y-axis scale display Interval
Y-axis Display Dig MEM Type	Memory type of source of Y-axis display digit
Y-axis Display Dig MEM ID	Memory ID of source of Y-axis display digit

6.8.8   Simple Graph Axis Setting Memory Output

Add Action Dialog

Action

Action Group	Graph Operations
Action	Simple Graph Axis Setting Memory Outp

Parameters

Screen ID	
Parts ID	
X-axis Data Number MEM Type	
X-axis Data Number MEM ID	
Y-axis Upper Limit MEM Type	
Y-axis Upper Limit MEM ID	
Y-axis Lower Limit MEM Type	
Y-axis Lower Limit MEM ID	
X-axis Scale Interval MEM Type	
X-axis Scale Interval MEM ID	
Y-axis Scale Interval MEM Type	
Y-axis Scale Interval MEM ID	
Y-axis Scale Disp Interval MEM Type	
Y-axis Scale Disp Interval MEM ID	
Y-axis Display Dig MEM Type	
Y-axis Display Dig MEM ID	

OK   Cancel

Description

Output the setting of the X-axis/Y-axis of the specified Simple Graph to the specified memory.

Items that can be acquired are the same as "Axis Setting Change".

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
X-axis Data Number MEM Type	Memory type of source of X-axis data number
X-axis Data Number MEM ID	Memory ID of source of X-axis data number
Y-axis Upper Limit MEM Type	Memory type of source of Y-axis upper limit
Y-axis Upper Limit MEM ID	Memory ID of source of Y-axis upper limit
Y-axis Lower Limit MEM Type	Memory type of source of Y-axis lower limit
Y-axis Lower Limit MEM ID	Memory ID of source of Y-axis lower limit
X-axis Scale Interval MEM Type	Memory type of source of X-axis Scale Interval
X-axis Scale Interval MEM ID	Memory ID of source of X-axis Scale Interval
Y-axis Scale Interval MEM Type	Memory type of source of Y-axis Scale Interval
Y-axis Scale Interval MEM ID	Memory ID of source of Y-axis Scale Interval
Y-axis Scale Display Interval MEM Type	Memory type of source Y-axis scale display interval
Y-axis Scale Display Interval MEM ID	Memory ID of source of Y-axis scale display Interval
Y-axis Display Dig MEM Type	Memory type of source of Y-axis display digit
Y-axis Display Dig MEM ID	Memory ID of source of Y-axis display digit

6.8.9 Trend Graph Operation State Setting

Description

Acquire the operation state of the specified Trend Graph Part to the specified memory.

Please refer to "3.13 Trend Graph" for setting values and operation state correspondence.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
Operation State	Real Time Mode/ History Mode/ Cursor Mode

6.8.10 Trend Graph Operation State Acquisition

Description

Acquire the operation state of the specified Trend Graph Part to the specified memory.
Please refer to "3.13 Trend Graph" for setting values and operation state correspondence.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
Acquisition Destination Memory Type	Type of acquisition destination of operation state
Acquisition Destination Memory ID	ID of acquisition destination of operation state

6.8.11　Trend Graph Scroll

Description

Acquire the operation state of the specified Trend Graph Part to the specified memory.

Please refer to "3.13 Trend Graph" for setting values and operation state correspondence.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
Scroll Direction	Return/Forward

6.8.12 Trend Graph X-axis Time Scale Setting(Specified Absolute Value)

```
                        Add Action Dialog

  Action
    Action Group          Graph Operations                    v
    Action                Trend Graph X-axis Time Scale Setting  v

  Parameters
    Screen ID             BAS00001(Screen)                    v
    Parts ID              TGRH0001                            v
    X-axis Time Scale     Time Display                        v
```

Description

Change the time scale of the specified Trend Graph part.
Please refer to "3.13 Trend Graph" for setting values and time scale correspondence.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
X-axis Time Scale	Time/ 1Day Display

6.8.13 Trend Graph Operation State Setting (Specified Relative Value)

Description

Change the time scale of the specified Trend Graph part.
Specify relative of one stage of zoom in and zoom out.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
Zoom Type	Zoom In One Step/Zoom Out One Step

6.8.14　Trend Graph X-axis Time Scale Acquisition

Description

Acquire specified memory of time scale of the specified Trend Graph part.
Please refer to "3.13 Trend Graph" for setting values and time scale correspondence.

Parameter

Parameter	Description
Screen ID	Screen which parts belong to.
Parts ID	Target Part
Acquisition DST Memory Type	Type of acquisition memory of time scale
Acquisition DST Memory ID	ID of acquisition memory of time scale

6.9   Control Statement Group

This is an action group related to the Control Statements such as conditional branching and repetition.

This action group allows you to create a Control Statement with blocks such as IF block and ELSE IF block.

Parts, memories, and comparison operators that could be used by each block are as follows.

* Do not use the control block in a control block.
* Please make sure it does not become an infinite loop.

Parts and Memories that can be used for Blocks

Parts/ Memory Types
Constant
Local Variables
Global Memory (Numeric)
Screen Memory (Numeric)
Environmental Variable (Numeric)
Switch
Image Multi State Switch
Color Multi State Switch
Lamp
NoImage Lamp
Image Multi State Lamp
Color Multi State Lamp
Number Display Parts
Time Display Parts

* Only Parts property that can be used is Value.

Comparison Operators that can be used for Blocks

Item	Description
==	Equal
!=	Not Equal
>	Larger than
>=	Larger than or equal to
<	Smaller than
<=	Smaller than or equal to

6.9.1　Create Local Variable

Description

Set a Local Variable.

The set Local Variables can be used only in the event that the variable declaration action is set.

Local Variable must be registered at the top of the action.
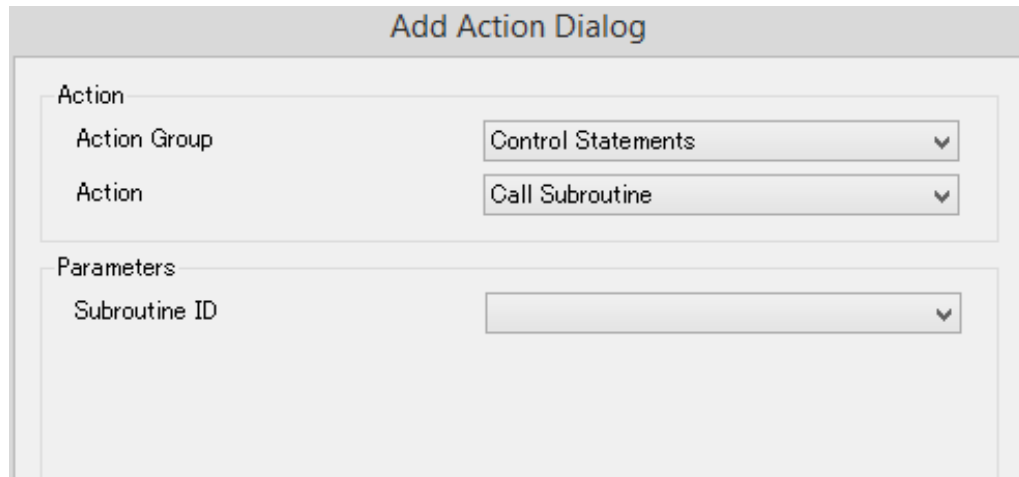
Local Variable value range is treated as a double word type with memory of "-2,147,483,648" to "2,147,483,647".

The value of the Local Variable is discarded when you perform an action to the end.

Parameter

Parameter	Description
Variable	Specify alpha numerals within 8 characters and less Can be set to below conditions. No. of character: 1 to 8 characters Type of character: Alpha-numeric characters, hyphens (-), and underscores (_) First character must be an alphabet. * Same variable cannot be used within the same screen.

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6.9.2   Call Subroutine

Description

Implement Subroutine.
Please refer to "6.4 Subroutine" for details.

Parameter

Parameter	Description
Subroutine ID	ID of the subroutine to implement

6.9.3 IF Block (Condition 1)

Description

Set the branch condition of action treatment. One branch condition can be specified.

Parameter

Parameter	Description
Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Left Memory ID (Num Type)	Numeric parts (or memories) of comparison source.
Comparison Operators	Comparison Operators
Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Right Memory ID (Num Type)	Numeric parts (or memories) to be compared

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6.9.4 IF Block (Condition 2)

Description

Set the branch condition of action treatment. Two branch conditions can be specified.

Parameter

Parameter	Description
Eq.1 Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Eq.1 Left Memory ID(Num Type)	Numeric parts (or memories) of comparison source.
Eq.1 Comparison Operators	Comparison Operators
Eq.1 Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Eq.1 Right Memory ID(Num Type)	Numeric parts (or memories) to be compared
Logical Relationship Operators	Logical sum (or) / Logical product (and)
Eq.2 Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Eq.2 Left Memory ID(Num Type)	Numeric parts (or memories) of comparison source.
Eq.2 Comparison Operators	Comparison Operators
Eq.2 Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Eq.2 Right Memory ID(Num Type)	Numeric parts (or memories) to be compared

6.9.5　ELSE IF Block (Condition 1)

Description

Set the condition when it does not match the IF Block Conditions. One condition can be specified.

*Else IF Block cannot be used unless IF Block is registered.

Parameter

Parameter	Description
Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Left Memory ID (Num Type)	Numeric parts (or memories) of comparison source.
Comparison Operators	Comparison Operators
Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Right Memory ID (Num Type)	Numeric parts (or memories) to be compared

6.9.6   ELSE IFBlock (Condition 2)

Description

Set the condition when it does not match to the IF Block Conditions. Two conditions can be specified.

*Else IF Block cannot be used unless IF Block is registered

Parameter

Parameter	Description
Eq.1 Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Eq.1 Left Memory ID(Num Type)	Numeric parts (or memories) of comparison source.
Eq.1 Comparison Operators	Comparison Operators
Eq.1 Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Eq.1 Right Memory ID(Num Type)	Numeric parts (or memories) to be compared
Logical Relationship Operators	Logical sum (or) / Logical product (and)
Eq.2 Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Eq.2 Left Memory ID(Num Type)	Numeric parts (or memories) of comparison source.
Eq.2 Comparison Operators	Comparison Operators
Eq.2 Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Eq.2 Right Memory ID(Num Type)	Numeric parts (or memories) to be compared

6.9.7　ELSE Block
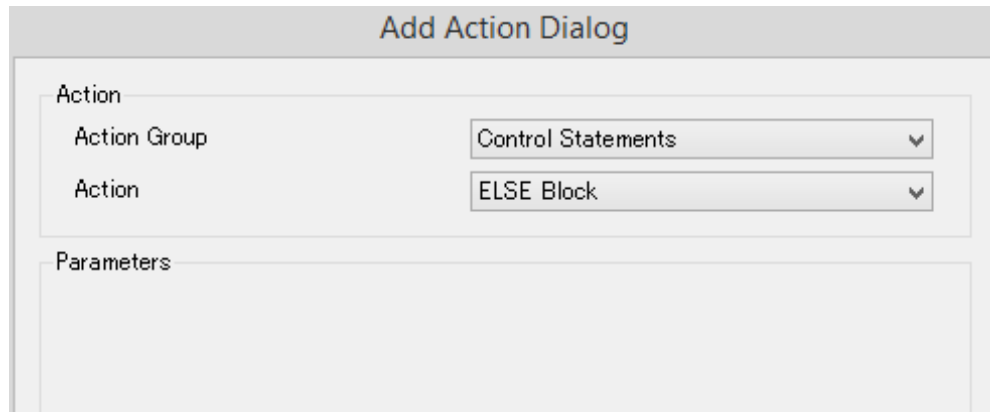
Description

Set the process other than the conditions of IF Block and Else IF Blocks.

This cannot be used without registering the IF Block.

Registration of the Else IF Block is not necessary.

Parameter

None

6.9.8　FOR Block

Description

Set the action that repeats a process a fixed number of times.

Register the action to be processed repeatedly below this action block.

*　Please note, if a time-consuming process is registered, event generating touch or timer, or Host Communication processing might be delayed.

Parameter

Parameter	Description
REP Count Setting MEM Type	Where numeric parts (or memories) with repeat count set belongs to.
REP Count Setting MEM ID (Num Type)	Numeric parts (or memories) with repeat count set

6.9.9   WHILE Block (Condition 1)

Description

Repeat the process while the specified condition is met.

One condition can be specified.

* Please note, if a time-consuming process is registered, event generating touch or timer, or Host Communication processing might be delayed.

[Note]

Please set so WHILE Block can be taken out during the WHILE Block process.

Other actions of parts and timers and instructions of Host Communications will not be processed until the WHILE Block is take out and be in an infinite loop.

Parameter

Parameter	Description
Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Left Memory ID (Num Type)	Numeric parts (or memories) of comparison source.
Comparison Operators	Comparison Operators
Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Right Memory ID (Num Type)	Numeric parts (or memories) to be compared

6.9.10　WHILE Block (Condition 2)

Add Action Dialog

Action

Action Group	Control Statements
Action	WHILE Block (Condition 2)

Parameters

Eq.1 Left Memory Type	BAS00001(Screen)
Eq.1 Left Memory ID(Num Type)	MEM00001
Eq.1 Comparison Operators	==
Eq.1 Right Memory Type	Constant
Eq.1 Right Memory ID(Num Type)	1
Logical Relation Operators	OR
Eq.2 Left Memory Type	BAS00001(Screen)
Eq.2 Left Memory ID(Num Type)	MEM00001
Eq.2 Comparison Operators	==
Eq.2 Right Memory Type	Constant
Eq.2 Right Memory ID(Num Type)	1

Description

Repeat the process while the specified condition is met.

Two conditions can be specified.

* Please note, if a time-consuming process is registered, event generating touch or timer, or Host Communication processing might be delayed.

[Note]

Please set so WHILE Block can be taken out during the WHILE Block process.

Other actions of parts and timers and instructions of Host Communications will not be processed until the WHILE Block is take out and be in an infinite loop.

Parameter

Parameter	Description
Eq.1 Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Eq.1 Left Memory ID(Num Type)	Numeric parts (or memories) of comparison source.
Eq.1 Comparison Operators	Comparison Operators
Eq.1 Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Eq.1 Right Memory ID(Num Type)	Numeric parts (or memories) to be compared
Logical Relationship Operators	Logical sum (or) / Logical product (and)
Eq.2 Left Memory Type	Where Numeric parts (or memories) of comparison source belongs to.
Eq.2 Left Memory ID(Num Type)	Numeric parts (or memories) of comparison source.
Eq.2 Comparison Operators	Comparison Operators

Parameter	Description
Eq.2 Right Memory Type	Where Numeric parts (or memories) to be compared belongs to.
Eq.2 Right Memory ID(Num Type)	Numeric parts (or memories) to be compared

6.10 Numerical Operations Group

This is an action group that operates numerical values such as arithmetic operations.

Parts and memories that can use the Numerical Operations are as follows.

Parts/Memory Types	Input Source	Output Destination
Invariables	○	
Local Variables	○	○
Global Memory (Numeric)	○	○
Screen Memory (Numeric)	○	○
Environmental Variable (Numeric)	○	△*
Switch	○	○
Image Multi State Switch	○	○
Color Multi State Switch	○	○
Lamp	○	○
NoImage Lamp	○	○
Image Multi State Lamp	○	○
Color Multi State Lamp	○	○
Number Display Parts	○	○
Time Display Parts	○	○

* Environment variables are only compatible to those that can be written. For details, please refer to "10.2 List of Environmental Variables".

* Parts property than can be used with Numerical Operations is Value only.

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6.10.1   Copy Value

Description

Copy the value of the copy source to the copy destination.

Maximum of three copy destinations are available with one action.

Parameter

Parts/Memory Types	Description
SRC Memory Type	Where parts or memories of copy source belongs to
SRC Memory ID (Num Type)	Parts or memories of copy source
DST 1 Memory Type	Where parts or memories of copy destination belongs to (1st)
DST 1 Memory ID (Num Type)	Parts or memories of copy destination (1st)
DST 2 Memory Type	Where parts or memories of copy destination belongs to (2nd)
DST 2 Memory ID (Num Type)	Parts or memories of copy destination (2nd)
DST 3 Memory Type	Where parts or memories of copy destination belongs to(3rd)
DST 3 Memory ID (Num Type)	Parts or memories of copy destination (3rd)

*   Copy2 and 3 are options. If not necessary, it can be left blank.

6.10.2 Value Setting

Description

Set the specified value to the parts or memories.

Parameter

Parameter	Description
Memory Type	Where parts or memories that set values belongs to
Memory ID (Num Type)	Parts or memories that set values
Value	Values to set*

*   Values vary according to Parts and Memories.

6.10.3　Arithmetic Operations

Description

Arithmetic Operations include addition, subtraction, multiplication, division, and remainder calculation.

Calculates value 1 and 2, and then outputs calculation results to the specified parts or memories.

　　*　　Nothing will be processed when 0 divisions is specified.

Parameter

Parameter	Description
Value 1 Memory Type	Where calculating parts or memories belongs to
Value 1 Memory ID (Num Type)	Calculating parts or memories
Value 2 Memory Type	Where calculating parts or memories belongs to
Value 2 Memory ID (Num Type)	Calculating parts or memories
Result Memory Type	Where parts or memories that output calculation results belongs to
Result Memory ID (Num Type)	Parts or memories that output calculation results

6.10.4   Increment

Description

Increments the value of memory type and memory ID to the value of additional value.

Parameter

Parameter	Description
Memory Type	Where parts or memories to be subtracted belong to
Memory ID (Num Type)	Parts or memories to be subtracted
Subtracted Value	Values to subtract (0 - 2,147,483,647)

6.10.5   Decrement

Description

Decrements the value of subtracted value from the value of memory type and memory ID.

Parameter

Parameter	Description
Memory Type	Where parts or memories to be subtracted belong to
Memory ID (Num Type)	Parts or memories to be subtracted
Subtracted Value	Values to subtract (0 - 2,147,483,647)

6.11 **Bit Operations Group**

This is an action group that implements bit operations.
Bit operation converts all input values, including Boolean, to Double Word type (32 bit).
Calculation result values (32 bit) are set accordingly to the maximum/minimum value and over/underflow (all values than 0 are 1 for Boolean) of memory of the destination.

Parts and Memories that can be used for bit operation are as shown below.

Parts/ Memory Types	Input Source	Output Destination
Parts/Memory Types	○	
Local Variables	○	○
Global Memory (Numeric)	○	○
Screen Memory (Numeric)	○	○
Environmental Variable (Numeric)	○	△*
Switch	○	○
Image Multi State Switch	○	○
Color Multi State Switch	○	○
Lamp	○	○
NoImage Lamp	○	○
Image Multi State Lamp	○	○
Color Multi State Lamp	○	○
Number Display Parts	○	○
Time Display Parts	○	○

* Environment variables are only compatible to those that can be written. For details, please refer to"10.2 List of Environmental Variables ".
* Parts property than can be used with Bit Operations is Value only.

6.11.1 Bit Operations

Description

Calculate 2 values for each bit and output the results to the specified parts and memories.
There are 4 types of bit operations: Logical AND (AND), Logical OR (OR), Exclusive-OR (XOR), and Negate (NOT).

Parameter

Parts/Memory Types	Description
Value 1 Memory Type	Categories of parts or memories that calculate
Value 1 Memory ID (Num Type)	Parts or memories that calculate
Value 2 Memory Type	Categories of parts or memories that calculate
Value 2 Memory ID (Num Type)	Parts or memories that calculate
Result Memory Type	Categories of parts or memories that output calculation results
Result Memory ID (Num Type)	Parts or memories that output calculation results

* There is no "Value2 Memory Type" or "Value 2 Memory ID (Num Type) in Negate (NOT).

6.11.2   Bit Shift

Description

Bit shift by shift amount with the original value and output the results to the specified parts and memories.
There are 2 types of bit shifts: "Bit Shift Left" and "Bit Shift Right".

Parameter

Parameter	Description
Original Value Memory Type	Categories of parts or memories that calculate
Original Value Memory ID (Num Type)	Parts or memories that calculate
Shift Amount Memory Type	Bit shift amount (Categories of Parts or memories)
Shift Amount Memory ID (Num Type)	Bit shift amount (Parts or memories)
Result Memory Type	Categories of parts or memories that output calculation results
Result Memory ID (Num Type)	Parts or memories that output calculation results

6.12 Logical Operation Group

This is an action group that does logical operations.

Parts and memories that can be use are as below:

Parts/ Memory Types	Input Source	Output Destination
Parts/Memory Types	○	
Local Variables	○	○
Global Memory (Numeric)	○	○
Screen Memory (Numeric)	○	○
Environmental Variable (Numeric)	○	△*
Switch	○	○
Image Multi State Switch	○	○
Color Multi State Switch	○	○
Lamp	○	○
NoImage Lamp	○	○
Image Multi State Lamp	○	○
Color Multi State Lamp	○	○
Number Display Parts	○	○
Time Display Parts	○	○

*   Environment variables are only compatible to those that can be written. For details, please refer
        to"10.2 List of Environmental Variables".

*   Parts property that can be used with Logical Operations is Value only.

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6.12.1 Logical Operation

Description

Output the results of logical operations of 2 values to the specified parts and memories.
Operation results will be "1" if "true" and "0" if "false".
There are 4 types of logical operations: Logical AND (AND), Logical OR (OR), Exclusive-OR (XOR), and Negate (NOT).

Parameter

Parameter	Description
Value 1 Memory Type	Memory Type of the operand Part or Memory
Value 1 Memory ID (Num Type)	Operand Part of Memory
Value 2 Memory Type	Memory Type of the operand Part or Memory
Value 2 Memory ID (Num Type)	Operand Part of Memory
Result Memory Type	Categories of parts or memories that output calculation results
Result Memory ID (Num Type)	Part or Memory which calculation results are stored to.

* When input value (value 1 and value 2) is other than 0, it will all be treated as 1.
* There is no "Value 2 Memory Type" and "Value 2 Memory ID (Num Type)" for Negate (NOT).

6.13 Comparison Operations Group

This is an action group that performs comparison operations.

Parts and memories that can be use are as below:

Parts/ Memory Types	Input Source	Output Destination
Invariables	○	
Local Variables	○	○
Global Memory (Numeric)	○	○
Screen Memory (Numeric)	○	○
Environmental Variable (Numeric)	○	△*
Switch	○	○
Image Multi State Switch	○	○
Color Multi State Switch	○	○
Lamp	○	○
NoImage Lamp	○	○
Image Multi State Lamp	○	○
Color Multi State Lamp	○	○
Number Display Parts	○	○
Time Display Parts	○	○

* Environment variables are only compatible to those that can be written. For details, please refer to"10.2 List of Environmental Variables".

* Parts property than can be used with operations is Value only.

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6.13.1 Comparison Operations

Description

Compare value 1 and value 2 and output to specified part and memory "1" if there equal and "0" if they are not.

There are 6 types to a comparison operation: equal (=), not equal (≠), larger than (>), larger than or equal to (>=), smaller than (<), and smaller than or equal to (=<).

Parameter

Parameter	Description
Value 1 Memory Type	Category of parts and memories of comparison source
Value 1 Memory ID (Num Type)	Parts and memories of comparison source
Value 2 Memory Type	Category of parts and memories of comparison
Value 2 Memory ID (Num Type)	Parts and memories of comparison
Result Memory Type	Categories of parts or memories that output calculation results
Result Memory ID (Num Type)	Parts or memories that output calculation results

6.14 **String Operations Group**

This is an action group that performs operations concerning strings.

Parts and memories that can be used for string operations are as shown below.

Parts/ Memory Types	Input Source	Output Destination
String Type Global Memory	○	○
String Type Screen Memory	○	○
String Resource	○	
String Type Environmental Variables	○	△*
Button	○	○
NoImage Button	○	○
Change Screen Button	○	○
Switch		
Image Multi State Switch		
Color Multi State Switch		
Lamp		
NoImage Lamp		
Image Multi State Lamp		
Color Multi State Lamp		
Label	○	
Character Display Parts	○	○
Telop*	○	○

*　Environment variables are only compatible to those that can be written. For details, please refer to"10.2 List of Environmental Variables".

*　Telop is operated only to global memories of the link destination.

6.14.1   Copy Strings

Description

Copy the string of copy source to copy destination.

3 destinations can be specified to 1 action.

Parameter

Parameter	Description
SRC Memory Type	Category of parts and memories of copy source
SRC Memory ID (String Type)	Parts and memories of copy source
DST 1 Memory type	Category of parts and memories of copy destination(1st)
DST1 Memory ID (String Type)	Parts and memories of copy destination(1st)
DST 2 Memory Type	Category of parts and memories of copy destination(2nd)
DST 2 Memory ID (String Type)	Parts and memories of copy destination(2nd)
DST 3 Memory Type	Category of parts and memories of copy destination(3rd)
DST 3 Memory ID (String Type)	Parts and memories of copy destination(3rd)

* Destinations 2 and 3 are options. Leave blank if not necessary.

6.14.2   Add 1 Character to String End

Description

Add a character to end of string.

Parameter

Parameter	Description
Memory	Category of parts and memories of character adding destination
Memory ID (String Type)	Parts and memories of character adding destination
Character to add (1 character)	Character to add (1 character)

6.14.3   Inserting 1 Character to Specified String Position

Add Action Dialog

Action
Action Group   String Operations
Action   Insert 1 character to specified string pos

Parameters
Memory Type
Memory ID (String Type)
Character to Insert (1 character)
Position From Top of String(0~63)

Description

Insert specified character to the specified location.
If inserting location is set to 0, then it will be inserted to head of strings.

Parameter

Parameter	Description
Memory Type	Category of the parts or memory of character inserting destination.
Memory ID (String Type)	Parts or memory of character inserting destination.
Character to Insert (1 Character)	Character to insert (Both normal and wide character counted as "1".)
Position From Top of String(0 to 63)	Location to insert character (0 to 63)

*   New line will be counted as 2 characters.

6.14.4   Add String to String End

Description

Add memory string to end of String.

Parameter

Parameter	Description
Add SRC Memory Type	Category of parts or memories of string to be added
Add SRC Memory ID (String Type)	Parts or memories of string to be added
After Add Memory Type	Category of parts or memories after adding of string
After Add Memory ID (String Type)	Parts or memories after adding of string

6.14.5　Insert String to Specified Position

Description

Insert memory string to specified position.

If the inserting position is 0, then it will be inserted to the head of the strings.

Parameter

Parameter	Description
Before Insert Memory Type	Category of parts or memories of string to be added
Before Insert Memory ID (String Type)	Parts or memories of string to be added
After Insert Memory Type	Category of parts or memories of string insert destination
After Insert Memory ID (String Type)	Parts or memories of string insert destination
Position From Top of String (0 to 63)	Position to insert the String (0 to 63)

＊　　New line will be counted as 2 characters.

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6.14.6   Delete Specified Number of Characters from String End
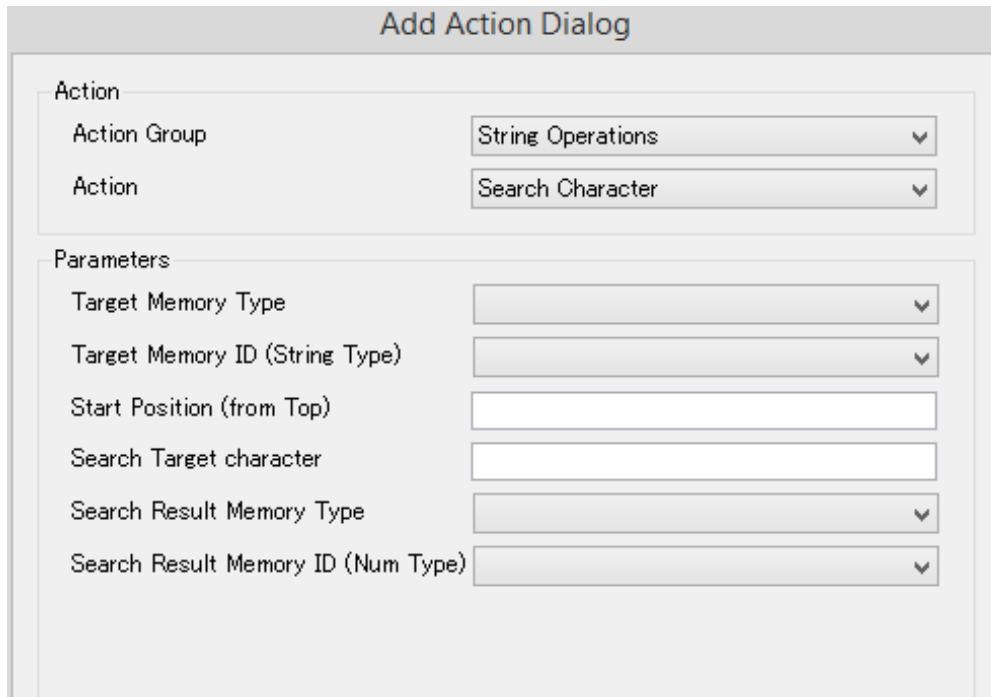
Description

Delete the number of characters specified from the end of string.

Parameter

Parameter	Description
Memory Type	Category of parts and memories of string to be deleted
Memory ID (String Type)	Parts and memories of string to be deleted
No. of Characters to Delete	Number of characters to delete(1 to 64)

*   New line will be counted as 2 characters.

6.14.7 Search Character

Description

Search the target character (1 character) from the String Type memory of String parts.

When searching from the head of the strings, please specify "0" for the starting position.

Below values will be output to the search result memory.

· "n" when found in the n-th letter from the head
· "-1" when not found after the search position

Example: Search memory set to "ABCDE

Search Start Position	Search Target	Output Value
0	A	0
0	O	4
0	K	-1
1	A	-1
2	O	4
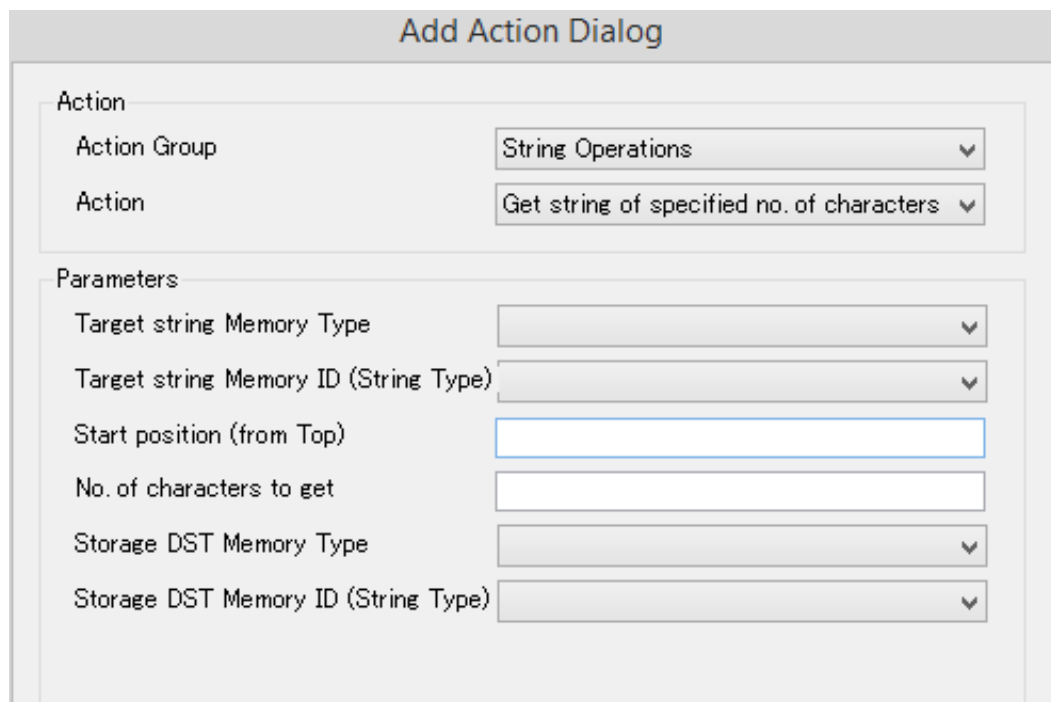
Parameter

Parameter	Description
Target Memory Type	Category of parts and memories of string to be searched
Target Memory ID (String Type)	Parts and memories of string to be searched
Start Position(from Top)	Position to start search of specified character (0 to 63)
Search Target Character	Specify character to search (1 character)
Search Result Memory Type	Category of numeric parts and memories to store search results
Search Result Memory ID (String Type)	Numeric parts and memories to store search results

* New line will be counted as 2 characters.

6.14.8 Get String of Specified Number of Characters from Specified Position

Description

Copy the string of specified number of characters from the specified location of string memory or part to a different string type memory or part.

When coping from the head of the string, please specify "0" for the starting position.

Parameter

Parameter	Description
Target String Memory Type	Category of parts and memories of string to acquire
Target String Memory ID (String Type)	parts and memories of string to acquire
Start Position (From Top)	Start position of string to acquire(0 to 63)
No. of Characters to Get	Number of characters to acquire(1 to 64)
Storage DST Memory Type	Category of parts and memories to store the acquired string
Storage DST Memory ID (String Type)	parts and memories to store the acquired string

* New line will be counted as 2 characters.

6.15 **Data Conversion Group**

This is an action group that performs interconversion of numbers and strings.

The parts that data can be converted are as listed below:

Parts/Memories	String=> Num Value		Num Value =>String	
	Conversion source	Conversion Destination	Conversion source	Conversion Destination
Global Memory (Num Type)		○	○	
Global Memory (String Type)	○			○
Screen Memory (Num Type)		○	○	
Screen Memory (String Type)	○			○
Environmental Variable (Num Type)		○	○	
Environmental Variable (String Type)	○			△*
String Resource	○			
Button	○			○
NoImage Button	○			○
Screen Change Button	○			○
Switch		○	○	
Image Multi-state Switch		○	○	
Color Multi-state Switch		○	○	
Lamp		○	○	
NoImage Lamp		○	○	
Image Multi-state Lamp		○	○	
Color Multi-state Switch		○	○	
Label	○			
Character Displaying Part	○			○
Number Displaying Part		○	○	
Telop*	○			○
Time Displaying Part		○	○	

*　Environment variables are only compatible to those that can be written. For details, please refer to"10.2List of Environmental Variables".

*　Telop will be operated to the Global Memory of the link destination.

6.15.1　Convert Decimal String to Integer

Description

Convert the decimal representing string to an integer (numerical value) and output to specified part or memory.

If there is a string other than the decimal string, any strings thereafter will not be converted.

Example: 123ABC →　123

Parameter

Parameter	Description
Convert SRC Memory Type	Category of parts and memories of conversion source
Convert SRC Memory ID (String Type)	Parts and memories of conversion source
Convert DST Memory Type	Category of parts and memories of output destination after conversion.
Convert DST Memory ID (Num Type)	Parts and memories of output destination after conversion.
Location from Head to Convert String	Start position of conversion string (0 to 63)
Character CNT of Object String	Number of character of converted strings (1 to 64 position from head of converted string)

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6.15.2 Convert HEX String to Integer

Description

Convert the hexadecimal representing string (upper case/lower case) to an integer (numerical value) and output to specified part or memory.
If there is a string other than the hexadecimal string, any strings thereafter will not be converted.

Example: 1Axyz -> 26

Parameter

Parameter	Description
Convert SRC Memory Type	Category of parts and memories of conversion source
Convert SRC Memory ID (String Type)	Parts and memories of conversion source
Convert DST Memory Type	Category of parts and memories of output destination after conversion.
Convert DST Memory ID (Num Type)	Parts and memories of output destination after conversion.
Location from Head to Convert String	Start position of conversion string (0 to 63).
Character CNT of Object String	Number of character of converted strings (1 to 64 positions from head of converted string).

6.15.3 Convert Integer to Decimal String

Description

Convert Integer (numerical value) to decimal representing string and output to specified part or memory.

Parameter

Parameter	Description
Convert SRC Memory Type	Category of parts or memories of conversion source
Convert SRC Memory ID (String Type)	Parts or memories of conversion source
Convert DST Memory Type	Category of parts or memories of output destination after conversion.
Convert DST Memory ID (Num Type)	Parts or memories of output destination after conversion.
Presence/ Absence of Thousands Separator	Show or hide of separator(,)(Show separator, Hide separator)
Decimal position from Low Order Digit (0 to 9)	Position of decimal point (0 to 9)

6.15.4   Convert Integer to HEX String
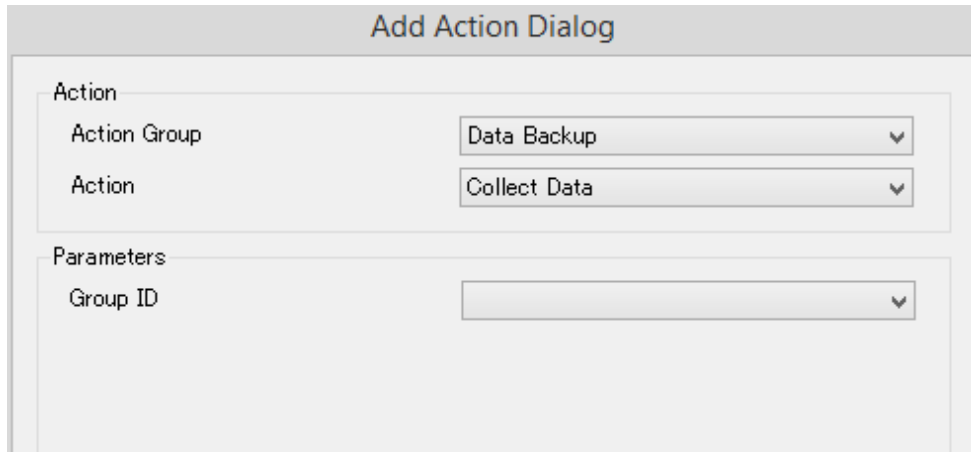
Description

Convert Integer (numerical value) to hexadecimal representing string and output to specified part or memory.

Parameter

Parameter	Description
Convert SRC Memory Type	Category of parts or memories of conversion source
Convert SRC Memory ID (String Type)	Parts or memories of conversion source
Convert DST Memory Type	Category of parts or memories of output destination after conversion.
Convert DST Memory ID (Num Type)	Parts or memories of output destination after conversion.
Upper Case/ Lower Case Setting	Set output character (A to F) to upper or lower case

6.16 **Data Backup Group**

6.16.1　Collect Data

Description

Temporary stores the value of the specified group memory.

Parameter

Parameter	Description
Group ID	Group memory to store data

*　Data will not be created in storage when action "Collect Data" is performed. It will be stored at "Save Data".

6.16.2 Clear Data

Description

Clear the value saved at "Collect Data".

Parameter

Parameter	Description
Group ID	Group memory to clear data stored at "Collect Data"

6.16.3   Save Data

Description

Store to storage the value saved at "Collect Data".

Parameter

Parameter	Description
Group ID	Group memory to save values stored at "Collect Data" to a SD memory card

* You will need to save data beforehand with "Collect Data".
* Set "Store data" should have a minimum of 5 second interval. It may not write correctly. However the necessary time will vary according to other processes or file conditions.

6.17 **Logging Group**
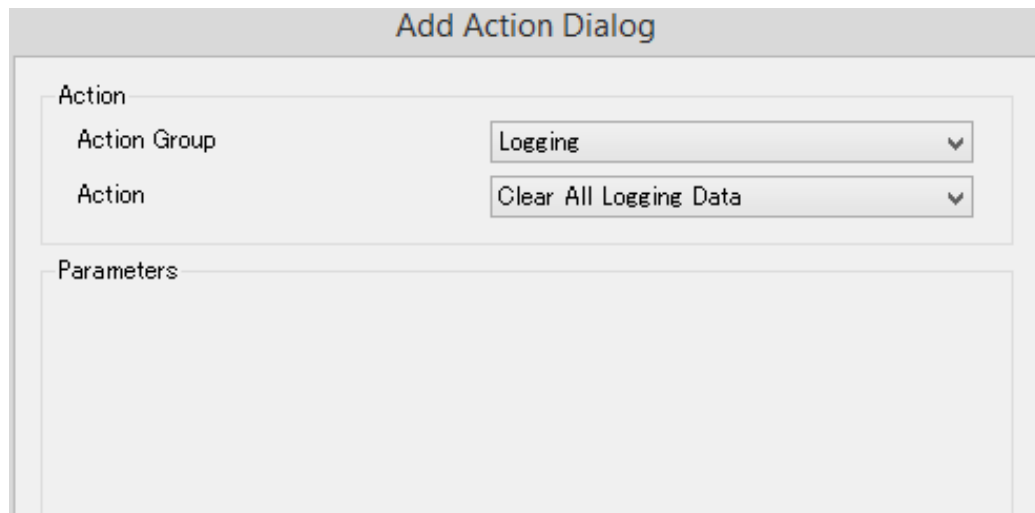
This is an action group to operate the log data.
* Log data is the log data setup at logging function.

For details on how to setup the save location of data and folder configurations, please refer to "11.3 Logging Function".

* Please note, If storage for logging is not inserted or for any other reason the log data cannot access to the storage, the operation will fail.

6.17.1　Clear All Logging Data

Description

Deletes all log data.

Parameter

None

6.17.2   Generate Trigger

Description

Generate a logging trigger for the specified log data.
When a trigger is generated for a specific log data, the log data of that moment will be recorded regardless of its trigger type (user generated/periodical).

Parameter

Parameter	Description
Log Data ID	Log data ID to generate trigger

6.18 **Image Operation Group**

This is an action group to operate the image stored in the InfoSOSA.

The parts and memories that can operate the image are as follows:

Parts/Memories	Input Source	Output Source
Image resource	○	
Picture Box		○
Screen*		○

* Specify Base Screen or Pop-up Screen.

6.18.1   Image Setting

Description

Set the image registered in Image Resource to the specified part or screen.

Parameter

Parameter	Description
Image Resource ID	Image Resource ID to set
Parts of Setting Target Screen ID	Screen which Target Part belongs to
Parts of Setting Target Parts ID	Target Part

* Resizing to target part size cannot be done.

7. **Methods**

7.1 Method

Method is a special function of memories and some of the parts.

It can be performed by Host Communication Command.

Please refer to "13.12 Communication Command Detail" for details.

7.1.1   List of Methods

Method of Parts

Picture Box

Method ID	Description
DPOINT	Draw a point of 1 dot to the specified coordinate.
DLINE	Draw a straight line or rectangle between the 2 points of a coordinate.
DCIRCLE	Draw a circle with the point in the specified coordinates center
LPICTURE	Draw an image registered in the Image Resource to the specified coordinate

Simple Graph

Method ID	Description
ADDLAST	Add data to the end of Graph Data
ADDDATA	Add data to multiple lines
ALLCLR	Clear all data
DRAWAXIS	Change data display number or lower/upper display limit of graphs.
GETAXIS	Acquire data display number or lower/upper display limit of graphs.

Trend Graph

Method ID	Description
SETOP	Change operation status
GETOP	Acquire operation status
SCROLL	Scroll graph
SETTSA	Set time scale (absolute value).
SETTSB	Set time scale (relative value).
GETTS	Acquire time scale.

Method of Memory

Numeric Global Memory

Method ID	Description
AUTOCNT	Count up(down) to the specified value.

8.　Resources

8.1   Resources

Resources are one of global data that can be used on all screens.

By registering to a project beforehand, displaying on screens and calling from action or Host Communication will be possible.

Resources registered will be categorized as "Read only" data and will not be changed while in operation.

There are 2 types of resources: Image resource and String Resource.

8.2   Image Resources

Image Resources are the image data that can be used in all screens.
Images registered to the Image Resource can be stored in the project file. When editing the image after registration, select the image and click "Edit".

File Format

The conditions for images to be registered are as follows:

Item	Description
File format	BMP(24bit Color)、JPEG、GIF、PNG
Image size	Please refer to "15.1 Setting Range List "

* When images are captured to image resources, the color transparency setting will be lost.
* With units with display color of 8, the color reduction at image capture will be either "gray scale" or "8 colors"
* Not all files that meet the requirements can be used.

Image Resource Information

Image resource information displayed to image resource area.

Item	Default Value	Description
File Name	-	File name of the image captured
File Path	-	File path of the image captured
Image ID	IMG00001 -	ID given when image is added or copied Number of characters: 1 to 8 Types of characters: alpha-numerals, - (hyphens), _ (underscores)
Comment	(Blank)	0 to 64 characters can be input freely Displayed following the memory ID of Action or at link setting.

[Note]
* Image cannot be registered under the same file name. (Same even if extension is different.)
* Same image ID cannot be used.
* File name cannot be changed.
* Display orders of the images in the resource are automatically sorted in the image ID.
* File path will display the address of the image when captured. It will not be reflected in the image of image resources to edit the image of the display address after captured.

8.3 String Resources

String Resources are read only strings that can be used on all screens.
String Resources are linked to parts, such as labels.
Separate strings can be registered to each String Resource set registered to one "String ID".
The displayed string is a String Resource set registered to the string mode.
By switching the string mode, the display string of parts linked to the String Resource can be changed all together, such as switching the language from English to Japanese, or vice versa.

8.3.1 Registering of String Resources

String Resources can be registered or edited from the "Edit" tab.
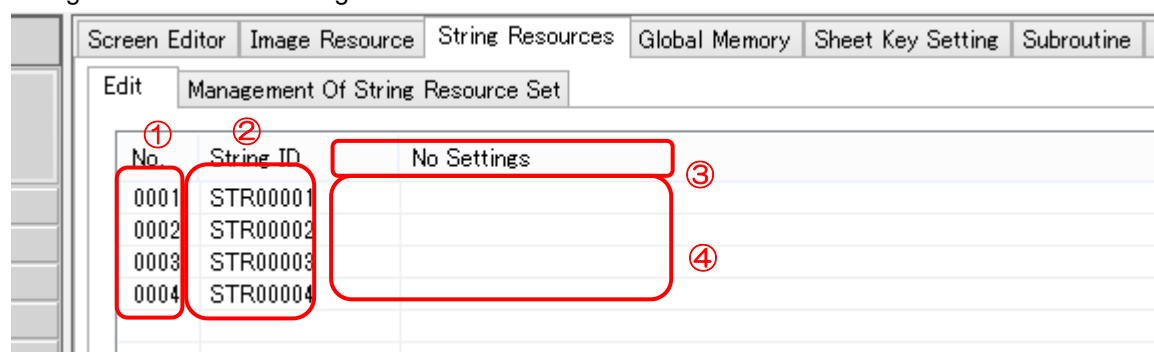
No.	Property Name	Property ID	Default Value	Description	Change by Host Communication	Change by Action
①	No.	-	0001 -	Number automatically given when String Resource is added or copied (cannot be edited)	×	×
②	String ID	-	STR00001 -	ID given when String Resource is added or copied Number of characters: 1 to 8 Types of characters: alpha-numerals, - (hyphens), _ (underscores	×	×
③	String Resource Set Name	-	Not Set	String Resource set name registered at management tab of String Resource set is displayed	×	×
④	Strings	-	(Blank)	String according to each resource set can register. Maximum of 64 characters (normal and wide are counted as 1, new line is counted as 2).	×	×

8.3.2　Registering of String Resource Set

The String Resource set can be registered and edited from "Management Of String Resource Set".

String Resource Set is made of String Resource set ID and String Resource name and can be registered up to 5 sets.
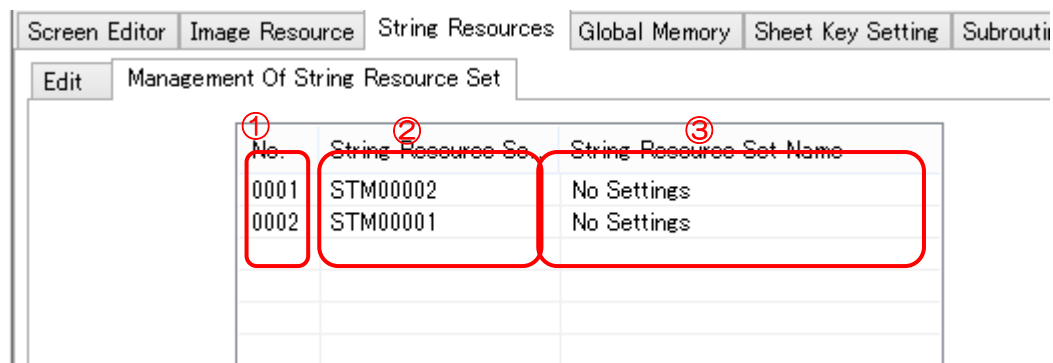
No.	Property Name	Property ID	Default Value	Description	Change by Host Communication	Change by Action
①	No.	-	0001 -	Number given when string mode is added or copied. (Cannot be edited)	×	×
②	String Resource Set Name	-	STM00001 -	ID given when string mode is added or copied (Cannot be edited)	×	×
③	String Resource Set Name	-	Not Set	String displayed on "String Resource Set" on toolbar	×	×

[Note]
* Normal and wide are both counted as 1 character in string.

8.3.3   Switching of String Mode

There are several ways to change the string mode.
* Please refer to "9.4 Font When Changing String Mode" for String Mode.

1)   Set Initial Value

Choose the String Resource set name of String Resource set to use in the initial state for "String Resource Set" of tool bar.

[Setting Example of Memory]
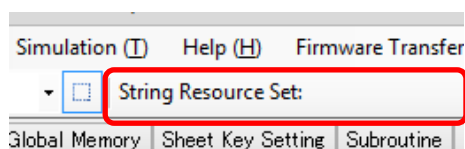
2)   Change by Action

Copy String Resource set ID to environmental variable "STRMODE" by "Copy String" action
Registration of same string as the one set to ID at "String Resource Set ID" will be necessary.
[Setting Example of Memory]

[Setting Example of Action]

3) Change by Host Communication

Switch the environmental variable "STRMODE" by using the "Property Setting" command.
By sending the below command by devices connected to the unit by serial or LAN, it can be switched to String Resource Set.

Property Setting Command

Command	Property specified	Set Value
PA01	@SYSENV.STRMODE.TEXT	String Resource Set ID

Example) Command to set String Resource Set ID "STM00002"("Chinese" in this example):

PA01,@SYSENV.STRMODE.TEXT,STM00002

* Please refer to "" for details of communication settings and Message format of Host Communication.

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9. Fonts

9.1 **Fonts**

There are two main types of fonts that can be used in this product: "System Fonts" and "Image Fonts".

Font Type	Description
System Fonts	Dedicated font for the InfoSOSA unit. System Font is a kind of True Type Font. So project data size used by font-data is fixed to constant value and does not depend on the strings used in the project. It will allow displaying a large number of strings but typeface will be fixed. If you want to use character display of your image, we recommend a combination of the image font below. Selectable system font will vary depending on the model, at least one System Font is needed in each project.
Image Fonts	Display font installed in the computer as images. If number of fonts to display increases, the project size will also increase due to downloading of fonts to display as bitmaps to InfoSOSA. Also, because bitmaps will be created for each letter and downloaded, font to be displayed will need to be registered to the Builder beforehand.

* Multiple selections can be made for system fonts for Multi-lingual models (referred to as ML hereafter) and only one for Non Multi-Lingual Models (referred to as Non-ML models).

* There might be a slight difference of the fonts displayed between the Builder and the InfoSOSA unit. If little adjustments are necessary, please use the simulator to check the display.

* When using the image fonts, please do so after confirming the terms of use of the fonts.

Comparison of Image Fonts and System Fonts

Item	System Fonts	Image Fonts
Project Data Size	Fixed according to system fonts selected for projects and will use data size whether displayed or not. If multiple system fonts are selected, project data size will increase.	Data size will increase depending on the number of characters to be displayed as image fonts. Also, data size will increase for each character size.
Font	Depends on the selected system font	Depends on the selected Windows® Font. Maximum of 255 types of image fonts can be used for 1 project.
Size	8 to 256 points in 2 increments	8 to 256 points in 2 increments
Multi-Lingual	Automatically distinguishes and displays displayable fonts from the system fonts selected in project.	Displays set image fonts Cannot automatically distinguish fonts. Registration by customer of strings to displayable image fonts will be necessary.
Conditions which characters cannot be displayed	String cannot be displayed if system font selected in project cannot be displayed.	String cannot be displayed if the set image font cannot be displayed.
Behavior when characters cannot be displayed	Characters that cannot be displayed will be blank.	Attempts will be made to display system fonts alternatively with other fonts selected by project If that does not work, then the character will be left blank

Font size: 1 point= 1 pixel

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9.2　**System Font**

9.2.1　List of System Fonts

List of system fonts:

Font	Language	Corresponding Model		Data Size	Remarks
		Non-ML	**ML**		
Gothic (BOLD)	Japanese	○	○	App. 900KB	Select either BOLD or NORMAL
Gothic (NORMAL)	Japanese	○	○	App. 800KB	
Traditional Gothic	Chinese	✕	○	App. 1300KB	*1
Simplified Gothic	Chinese	✕	○	App. 2500KB	
Hangul Gothic	Korean	○	○	App. 900KB	
Latin Gothic	European	○	○	App. 400KB	

*1　The character display and output device inside of China has been obligated to conform to GB18030 standard. Our product is equipped with the Chinese font that passed the GB18030 conformity inspection and is safe for use in China as is.

Number of system fonts that can be selected per project:

Non-ML	ML
1 type	Max. of 5 types

9.2.2   How to Display System Fonts

In order to display system fonts to parts, "Font Type" of "Advanced Properties Dialog" must be set to "System Font".
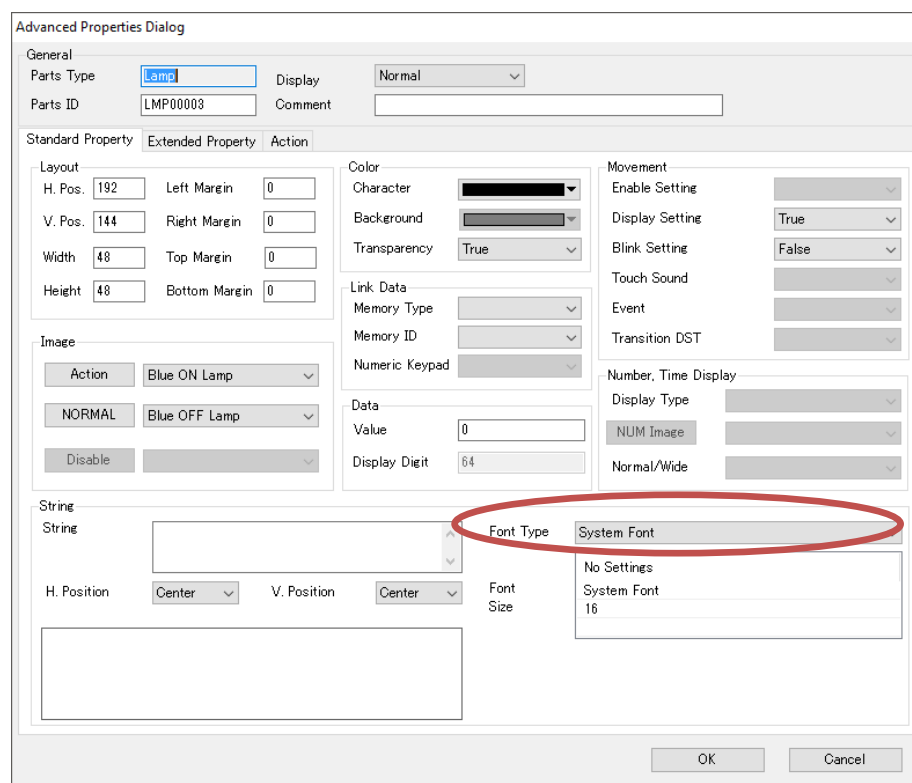
9.2.3   Platform Dependent Characters

Platform dependent characters as below cannot be displayed on both the InfoSOSA Unit and the Builder.
Not all, but examples of Platform dependent characters:

9.3　Image Fonts

9.3.1　How to Display Image Fonts

In order to display Image fonts on parts, "Font Type" must be set to "Image Font". Fonts must also be set individually to each String Resource set.
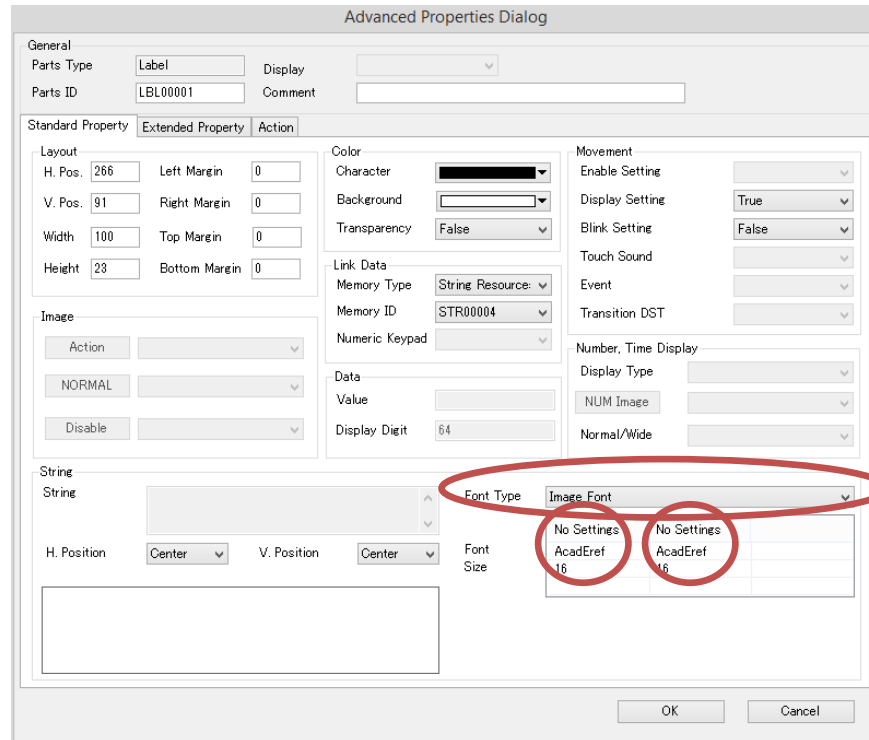
9.3.2　　Registration of Image Fonts

Image fonts are automatically converted to bitmaps, but when changing with Action or Host Communication, it will be necessary to register beforehand the converted font to the Builder.

(1)　Select "Image Font Registration" from the "System Settings".
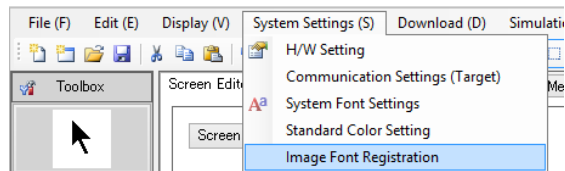
(2)　Register strings for each font/size.
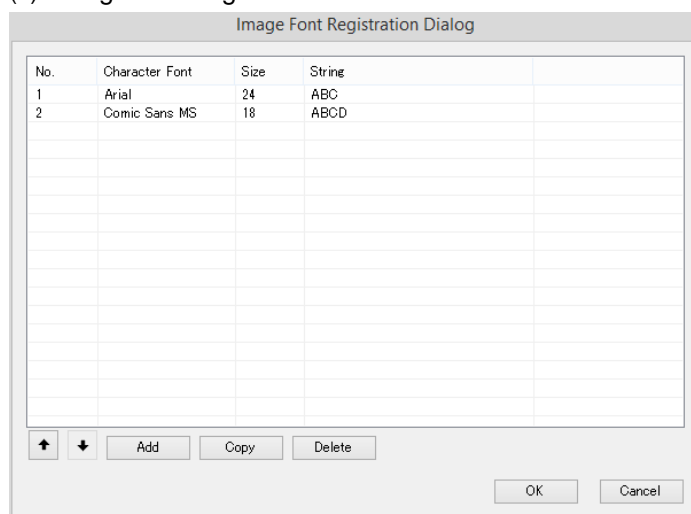
Image fonts will need to be registered according to each 'font typeface' and 'size'.

Bitmap of registered characters of above example.

Character	Font-size
あ	MS Mincho-16pt, MS P Gothic-24pt
い	MS Mincho-16pt, MS P Gothic -24pt
う	MS Mincho-16pt, MS P Gothic -24pt
え	MS Mincho-16pt, MS P Gothic -24pt
お	MS Mincho-16pt, MS P Gothic -24pt
A	MS Mincho-16pt
B	MS Mincho-16pt
C	MS Mincho-16pt
X	MS P Gothic -24pt
Y	MS P Gothic -24pt
Z	MS P Gothic -24pt

Below are the results of when the string is displayed with the registered data as above example.

Font Setting Font-size	String	String Displayed	Remarks
MS Mincho-16pt	αβγABCXYZ	αβγABC	「X」「Y」「Z」do not come in MS Mincho and will not be displayed.
MS P Gothic-24pt	αβγABCXYZ	αβγXYZ	「A」「B」「C」do not come in MS P Gothic and will not be displayed.

*　Some special characters "α", "β", "γ", "δ" , and "ε" are registered to both font types and size, so they can be displayed in both fonts.

9.3.3　Data Size of Image Fonts

Project size will increase according to the Image fonts used.

[Data size calculation]
<Data size of 1 character>=font width size X font height size (byte)*
<Data size used by Image font>=<Data size of 1 font> X all numbers of registered character

* For double width characters, it will be font size to the 2nd power, and font size to the 2nd power/2 for normal width.

Please note, above is just a rough idea just for reference.

9.4　Font When Changing String Mode

When changing the string mode, the font will be converted accordingly to the setting of the parts to display the font as below:

Character Drawing Method	Behavior
System Font	Selected automatically depending on the string to display
Image Font	Displayed by font set by the Builder

10.　　Environmental Variables

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10.1　Environmental Variables

Environmental variables are variables that are specified in the InfoSOSA.
Information such as current time and date, brightness of the LCD, and time of automatic power
OFF are stored. Environmental Variables can be referred to or setup via Action/ Host
Communication.
Environmental Variables cannot be added nor removed.
It cannot also be edited on the Builder.

10.2 List of Environmental Variables

Below is the list of Environmental Variables. Part of it can store the values when power is turned OFF.

ID	Data Type	Property	Value store at power OFF	Description
TRUE	Numeric Value	R	-	Indicates true logical value
FALSE	Numeric Value	R	-	Indicates false logical value
YEAR	Numeric Value	R/W	△	Indicates "year" of system clock.
MONTH	Numeric Value	R/W	△	Indicates "month" of system clock.
DAY	Numeric Value	R/W	△	Indicates "day" of system clock.
HOUR24	Numeric Value	R/W	△	Indicates "hour" as 24-hour system clock
HOUR12	Numeric Value	R	-	Indicates "hour" as 12-hour system clock
MINUTE	Numeric Value	R/W	△	Indicates "minute" of system clock.
SECOND	Numeric Value	R/W	△	Indicates "second" of system clock.
WEEK	Numeric Value	R	-	Indicates "day of week" of system clock. 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday
AMPM	Numeric Value	R	-	Indicates "AM / PM" of system clock. 0: AM 1: PM
TOTALSEC	Numeric Value	R	-	Indicates "total seconds" of system clock. January 1, 2000, 00:00:00a.m., is the starting point.
AUTOOFF	Numeric Value	R/W	O	indicates time until LCD is turned OFF automatically. Set in increments of 1 minute between the ranges of 0 to 1440. (0 is always ON)
BRIGHT	Numeric Value	R/W	O	Indicates LCD brightness. Brightness can be adjusted from level 1 to 8. Larger the number, the brighter.
LCD_MODE	Numeric Value	R/W	X	Indicates state of LCD. 0: OFF 1: ON 2: Screen Protected (Returns when touched)
STRMODE	String	R/W	X	Switch the String mode. Sets String Resource ID.
IP1～4[*1]	Numeric	R/W[*2]	O	Indicates IP Address of InfoSOSA unit.

ID	Data Type	Property	Value store at power OFF	Description
	Value			
NETMASK1～4*1	Numeric Value	R/W*2	O	Indicates Subnet mask of InfoSOSA unit.
GATEWAY1～4*1	Numeric Value	R/W*2	O	Indicates Default gateway of InfoSOSA unit.
TCP_IP11～14*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP address 1. (TCP)
TCP_IP21～24*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP address 2. (TCP)
TCP_IP31～34*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP address 3. (TCP)
TCP_IP41～44*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP address 4. (TCP)
TCPPORT1～4*1	Numeric Value	R/W*2	O	Indicates Host Communication destination ports 1 to 4. (TCP)
CONINVAL*1*3	Numeric Value	R/W	X	Indicates LAN connection attempt interval.
UDP_IP11～14*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP address 1. (UDP)
UDP_IP21～24*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP address 2. (UDP)
UDP_IP31～34*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP address 3. (UDP)
UDP_IP41～44*1	Numeric Value	R/W*2	O	Indicates Host Communication destination IP4 address. (UDP)
UDPPORT1～4*1	Numeric Value	R/W*2	O	Indicates Host Communication destination ports 1 through 4. (UDP)
RECVCS1*3 RECVCS2 RECVCL	Numeric Value	R	X	Indicates message reception count from host.
RECVECS1*3 RECVECS2 RECVECL	Numeric Value	R	X	Indicates message reception error count from host.
SENDCS1*3 SENDCS2 SENDCL	Numeric Value	R	X	Indicates message transmissions count to host.
SCMDCS1*3 SCMDCS2 SCMDCL	Numeric Value	R	X	Indicates setting command reception count from host.
SCMDECS1*3 SCMDECS2 SCMDECL	Numeric Value	R	X	Indicates setting command execution error count from host.
GCMDCS1*3 GCMDCS2 GCMDCL	Numeric Value	R	X	Indicates acquisition command reception frequency from host.
GCMDECS1*3 GCMDECS2 GCMDECL	Numeric Value	R	X	Indicates acquisition command execution error count from host.
ADDRESS1	Numeric	R/W	O	Indicates address of InfoSOSA Unit

ID	Data Type	Property	Value store at power OFF	Description
	Value			Only valid for RS-485 compliant models.
STRG1EN	Numeric Value	R/W	X	Shows valid setting of storage. 0: read / write invalid 1: read / write enabled (initial value) ∗ If storage is not inserted at time of start-up, read and write of initial value will be disabled
STRG1STS	Numeric Value	R	X	Shows access status of storage. 0: No access 1: Accessing
STRG1ERR*4	Numeric Value	R/W	X	Shows error state of storage 0: No error (initial value) 1: Write error 2 : Delete error
STRG1INS	Numeric Value	R	X	Shows insertion state of storage device. 0: No insertion 1: Inserted
STRG1TSZ*5	Numeric Value	R	X	Total capacity of storage (in units of Kbyte)
STRG1FSZ*5	Numeric Value	R	X	Free space of storage (in units of Kbyte)

* "R" of Property stands for "Read Only", and "R/W" stands for "Read/Write".
Please note, when a value is written by Host Communication to the environmental variable with an "R" in the property, it will become "undefined".

* "0" of "Value store at power OFF" will be stored, "∆" will only store when connected to the battery, and "X" will be volatile.

*1. Can be used with a LAN interface compliant model.

*2. Will be reflected at restart.

*3. Show Communication Status for each interface. Each end ID of environmental variables represent the type of communication interface as shown below:
   S1: Serial interface (SIO1)
   S2: Serial interface (SIO2)
   L   : LAN interface

*4. Values from 1 will be written at the time an error occurs, but 0 clear will not be performed. When using to detect storage abnormality use values other than "0" for error detection and be sure to write 0 after the error has been solved.

*5. If the storage is not inserted or if storage setting is disabled, -1 is acquired.

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11. **Storage**

11.1 **Storage**

A removable media can be used as an external storage for InfoSOSA.

Storage can be used for a particular application such as backup for Global Memory or saving log data.

11.1.1 Storage Usable Models

Depending on the model, you may or may not be able to use the storage.

Storage devices and specifications differ also.

List of Storage and Device Availability of each model

Model	Availability	Device	Format	Storage Overall Capacity	Size per 1 file
IS7 Series	×	-	-	-	-
IS9 Series	○	SD Card *1	FAT	up to 2GB	up to 2GB

*1. Available by using an optional "SD memory card board" (sold separately).

　　SDHC and SDXC standard SD memory card is not supported.

　　No data can be written while write protect is enabled.

　　Do not attempt to remove during access. Data may be damaged.

　　All commercial SD memory cards available in the market are not guaranteed to operate.

11.1.2 Setting Procedure

Select "System Settings" - "H/W Settings" from the menu and open H/W Settings Dialog.

Select storage device from the "Storage Configuration".

* Setting item will not be displayed for models with storage not available.

11.1.3   Available Functions

The following functions are available by using the storage.

Function	Description
Data backup	Saves to storage in a time-series change in the value of the group memory (a set of Global Memory).
Logging	Logs in time-series change the value of the Global Memory will be logged in a time-series.
Ideal curve	Stores the ideal curve data to display in the Trend Graph Parts.
Read/write of Global Memory *1	Reads the Global Memory value to storage and store to file, or writes back to Global Memory.
Project download *2	Stores the created data project data to the storage by computer and writes the screen data to the InfoSOSA unit from the storage.

*1. For more information, please refer to "Read from the Storage" and "Write to Storage" action.

*2. For more information, please refer to the "Operation Manual".

11.2 **Data Backup Function**

Data backup is the function to save the value of the Global Memory to the storage sequentially. Storage is carried out when Action is executed.

11.2.1 Fromat

Folder Structure

It is stored directly under the root of storage

File name

<Group ID>_LOG.csv

Example) If the group ID is GRP00001, GRP00001_LOG.csv

File Format

It will be saved in a text file format.

【Character code】
UTF16-LE

[Header Part (Common)]

Line Number	File contents (example)	Description
1	[Header]	Header part (fixed characters)
2	UTF-16	Character encode (currently fixed to "UTF-16")
3	GMG_LOG	File format (currently fixed to "GMG_LOG")
4	"", 1.0.0	Project name (currently fixed to "NULL"), user version
5	GRP00001, GME00001, GME00002	List of group ID, memory ID
6	1,1,0,0,0,65535,99	Backup parameters (currently fixed to "1,1,0,0,0,65535,99")

[Data Part (with time stamp)]

Line Number	File contents (example)	Description
7	[Data]	Shows the data part (fixed characters)
8	"DATE", "GME00001", "GME00002"	Fixed character indicating the time stamp, the list of memory IDs (each memory ID is enclosed in double quotation marks.)
9	"2012/04/21 12:48:09", "30","5"	Time stamp, first time backup data (each data is enclosed in double quotation marks)
10	"2012/04/21 12:47:55", "60","4"	Time stamp, second time backup data (each data is enclosed in double quotation marks)
11	"2012/04/21 13:47:55, "40", "3"	Time stamp, third time backup data (each data is

Line Number	File contents (example)	Description
		enclosed in double quotation marks)
12	"0000000003"	Backup count (enclosed in double quotes)

[Data Part (without time stamp)]

Line Number	File contents (example)	Description
7	[Data]	Shows data part (fixed characters)
8	GME00001, "GME00002"	List of memory IDs (each memory ID is enclosed in double quotation marks.)
9	"30","5"	First time backup data (each data is enclosed in double quotation marks)
10	"30","5"	Second time backup data (each data is enclosed in double quotation marks)
11	"30","5"	Third time backup data (each data is enclosed in double quotation marks)
12	"0000000003"	Backup count (enclosed in double quotes)

* The above is an example with two Global Memories (GME00001, GME00002) registered and backed up data three times.

* Global Memory corresponds to Numeric Type and String Type.
* To take back up, place a check in the front of "Data Backup" of group memory property.
* To save the time stamp, place a check in the front of "Time Stamp" of group memory property.
* Value is retained when "Collect Data" action is executed for each group memory specified. It will not be automatically retained at change.
* Data will not be created to storage when "Collect Data" action is executed. It will be saved at "Save Data".
* If "Collect Data" is executed again after "Collect Data" and before "Save Data" and "Clear Data", data will not be updated.
* Set "Data Store" action to execute with 5 second intervals between actions or it may not be written correctly. However, the necessary time will vary depending on other processing and the situation of the files in the storage.
* It is not possible to display the backup data stored in the storage on the InfoSOSA. (Please use a computer, etc.)

11.2.2 How to Use

(1) Register the Global Memory to data backup in the Global Memory group.

(2) Check "Data Backup" of the "Group Settings dialog".
Check "Time Stamp" if recording at the same time.

(3)   Execute "Collect Data" - "Save Data" - "Data Clear" in order.
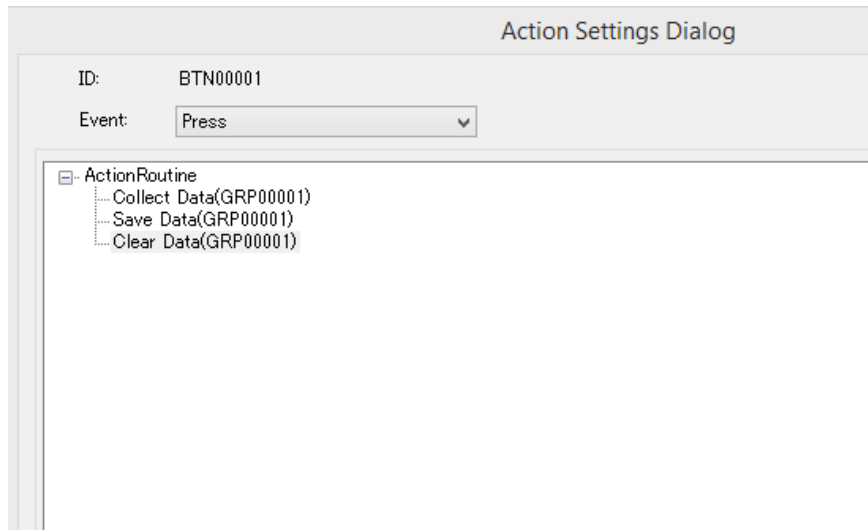
*   If you periodically log data, register the above action mentioned in (3) to run periodical data backup, or we recommend that you use the "11.3 Logging Function".

11.3 Logging Function

Logging is a function that will save the value of the Global Memory sequentially to the storage along the time series.

The timing of storage is at the period set in advance or when it is specified in the action or Host Communication.

11.3.1　Format

Folder Structure

It will be saved in the folder from the storage of the root,
/LOGGING/<log data ID>/<year>/

It will be a different folder for each year that has acquired the log data

File Name

<Month>_<Day>.csv

File will be a separate file for each date that has been acquired by the log data.

Example) If the log data ID is LOG00001

Folder	File	Description
/LOGGING/LOG00001/2000/	01_01.csv to 12_31.csv	Log data from 1/1/2000 to 12/31/2000
/LOGGING/LOG00001/2001/	01_01.csv to 12_31.csv	Log data from 1/1/2001 to 12/31/2001
/LOGGING/LOG00001/2037/	01_01.csv to 12_31.csv	Log data from 1/1/2037 to 12/31/2037

File Format

It will be saved in a text file format.

There are 2 types of files: one is Periodical Log (log data acquired automatically every fixed period) in the file, another is User Triggers Log (log data acquired at the timing that gave the trigger on the action or Host Communication).

【Character Code】

UTF16-LE

[Header part (Common)]

Line Number	File contents (example)	Description
1	[Header]	Shows header part (fixed characters)
2	UTF-16	Character encode (currently fixed "UTF-16")
3	(empty)	(reserved)

[Header part (Periodical Log)]

Line Number	File contents (example)	Description
4	DATETIME	Indicates time format of data unit is date and time (fixed)
5	SCHEDULED,"hh1:mm1", "hh2:mm2", "mm", "Sun", "Mon", "Tue", "Wed", "Thu", "Fri", "Sat" * It is expressed in a single line	Shows that it is a cycle log "hh:mm1": start time 00: 00 to 24: 00 "hh2:mm2": End Time 00: 00 to 24: 00 "mm": Cycle period 1 to 1440 "Sun" to "Sat": day of the each week On/Off 0 to 1
6	(empty)	(reserved)

[Header part (User Trigger Log)]

Line Number	File contents (for example)	Description
4	DATETIME	Indicates time format of data unit is date and time (fixed)
5	USERTRIG	Indicates user trigger log
6	(empty)	(reserved)

[Data]

Line Number	File contents (for example)	Description
7	[Data]	Indicates data part (fixed)
8 and up	"yyyy/MM/dd hh:mm:ss" ," value"	A pair of time and value of log data Time format is year, month, day, hour, minute and second Example) "2000/01/01 00:00:00", " 123"

11.3.2   How to Use

(1)   Open the "Logging" tab on the screen editor.
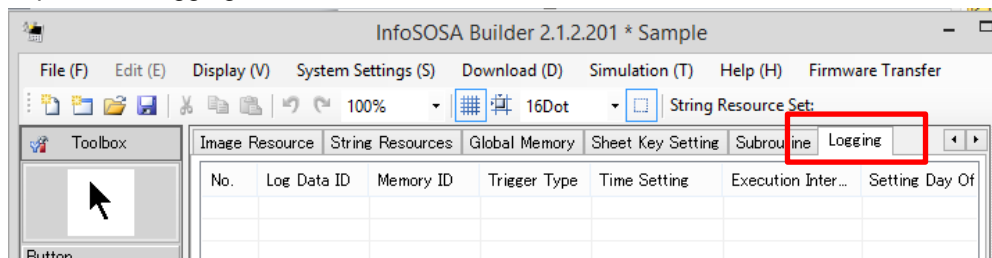
(2)   Press "Add" to open the "Logging Advanced Properties Dialog
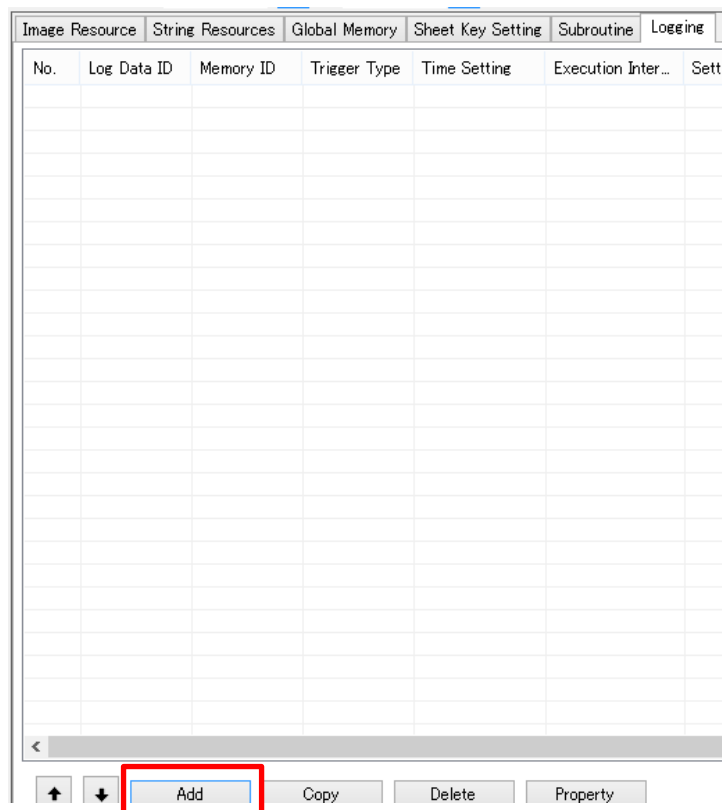
(3) Set Log Data ID, Memory ID and Trigger Type.

If you select "Periodical Log" for the "Trigger Type", be sure to specify "Execution Timing", "Start Time", "End Time", "Interval" and the "Day of Week Setting".

Logs will be taken according to the specified "Trigger Type" to the "Memory ID" registered here.

Basic Settings

Trigger Type	Description
Log Periodically	Logs will be taken automatically in a constant cycle according to setting of Periodical Logging Settings, specified hereafter. Logs will also be taken when a trigger is issued in Action or Host Communication.
User Trigger	Logs will be taken only when a trigger is issued in Action or Host Communication.

Setting for "Log Periodically"

Item	Description

Execution timing	- Always
	    Regardless of the time, it will be run periodically
	- Only At Fixed Time
	    It will execute only during time specified in Start Time/End Time

Item	Description
Start Time/End Time	Set start time/end time when set to "do only for the duration of the fixed time."
Interval	Execution interval of logging Will be performed at the timing of the "start time + interval × N"
Weekday	Only log on selected weekdays.

(4)　When displaying the log data set in (3) to the Trend Graph Parts, set the graph line "data type" = log data, and set the "data ID" = Log Data ID set at (3).

11.4 **Ideal Curve**

This is a function to store the data for displaying the ideal curve on Trend Graph.
It is possible to display as an ideal curve on parts by saving ideal curve data to a certain folder in advance.

11.4.1 Format

Folder Structure

Save the file in the following folder,

/IDEALDATA/*<Ideal Curve ID>*/DAILY/

it is possible to display an ideal curve on parts by associating the <Ideal Curve ID> with Trend Graph parts in the graph line.

Ideal Curve ID

Available characters are alphanumeric characters, "- (hyphen)", and "_ (underscore)".
Set in 32 characters or less.

File Name

01_01.csv

Example) If you want the Ideal Curve ID to be IDEAL001, you will have to save the file to the storage below:

/IDEALDATA/IDEAL001/DAILY/01_01.csv

File Format

Create a text file format.
There are 2 types of logs for the ideal curve as same as log data: one is Periodical Log and another is User Trigger Log.
There is no difference on how it will be displayed on the Trend Graph Parts, it merely shows whether the ideal curve data is the periodic or non-periodic.

[Character Code]
UTF16-LE

[Header Part (Common)]

Line Number	File contents (for example)	Description
1	[Header]	Shows header part (fixed characters)
2	UTF-16	Character encode (currently fixed to "UTF-16")
3	(empty)	(reserved)

[Header Part (Periodical Log)]

Line Number	File contents (for example)	Description
4	TIMESPAN,DAILY	Indicates time format of data unit is time from 00:00 to 24:00 (fixed)
5	SCHEDULED,"hh1:mm1", "hh2:mm2", "mm", "Sun", "Mon", "Tue", "Wed", "Thu", "Fri", "Sat" * It is expressed in a single line	Shows that it is cycle log "hh:mm1": Start Time 00: 00 to 24: 00 "hh2:mm2": End Time 00: 00 to 24: 00 "mm": Cycle period 1 to 1440 "Sun" to "Sat": day of each week On/Off 0 to 1
6	(empty)	(reserved)

[Header Part (User Trigger Log)]

Line Number	File contents (example)	Description
4	TIMESPAN,DAILY	Indicates time format of data unit is time from 00:00 to 24:00 (fixed)
5	USERTRIG	Indicates that the user trigger log
6	(empty)	(reserved)

[Data]

Line Number	File contents (example)	Description
7	[Data]	Indicates that the data part (fixed)
8 and up	"hh:mm:ss" ," value"	A pair of time and the value of log data The time format is hour, minute and second Example) "00:00:00", " 123"

11.4.2   How to Use

(1)   Create and save a csv file in a predetermined folder of storage in accordance with the format of Ideal Curve.

(2)   Set "Data Type" = Ideal Curve and "Data ID" = Ideal Curve ID (storage folder name) as set in (1) graph line of Trend Graph Parts.

(3)   Download to InfoSOSA unit the screen project file that was created in (2) and insert storage that was created in (1) and startup.

11.5　**Notes on Storage Insertion and Removal**

When the storage is inserted and/or removed from InfoSOSA during access, it might cause the damage to the data.

Environment Variable "STRG1EN" is in conjunction with the storage of the mount/unmount, and when 0(=disable) is written then it will unmount. When 1(=enable) is written, it will mount.
Using this, you can avoid such situation by performing the insertion and removal of storage in the following procedure; it is possible to perform insertion and removal reliably.

Procedure at the time of storage removal
(1)　Write 0 (= disabled) in the Environment Variable "STRG1EN"
(2)　Read and wait until the Environment Variable "STRG1EN" is 0
(3)　Remove the storage from InfoSOSA

Procedure at the time of storage insertion
(1)　Make sure that the Environment Variable "STRG1EN" is 0 (= disabled)
　　　If it is not 0, write 0
(2)　Insert the storage to InfoSOSA
(3)　Write 1 (= enabled) in the Environment Variable "STRG1EN"
(4)　Read and wait until the Environment Variable "STRG1EN is" 1

12.   Function Description OF InfoSOSA Unit

12.1 Backlight Control of LCD

This section describes the backlight setting of the LCD.

12.1.1   LCD Backlight ON/OFF Function

The LCD backlight setting can be done by rewriting the value of the Environment Variable "LCD_MODE" in Action or by Host Communication command "Backlight ON/OFF Setting".

Set Value	State	State of the backlight	Touch input
0	Backlight ON	On	Enable
1	Backlight OFF	Off	Disable
2	Screen protection mode	Off	Enable (When restoring only)

*   The backlight will change to ON state when touch input during Screen Protection Mode. only the restore process is done and the buttons on the touch location will not work at this point.

*   Host Communication command is needed to change the state of the Backlight OFF to ON.

*   Host Communication and Timer Type Memory is enable even in the state of Backlight OFF

12.1.2   Automatic Backlight OFF Function

This is a feature in which LCD Backlight is automatically turned off if touch input and sheet key input are not in use for a certain time.

The LCD Backlight state transits from "Backlight ON" state to "Screen Protection Mode" when there is no touch input nor sheet key input for a certain amount of time and not to the "Backlight OFF" state.

The initial value can be set from H/W Setting Dialog.

Change during operations can be made by rewriting the value of the Environmental Variable of "AUTOOFF" in Action, or by Host Communication command "Backlight auto-off setting" to change in operation.

Automatic backlight OFF time setting is retained even when the power is turned OFF.

List of settable initial values for automatic OFF time

Settings	Description
"No"	Backlight will not automatically shut OFF over time
1 to 10 minutes	It can be set in 1 minute increment
20 to 50 minutes	It can be set in 10 minute increments
1 to 24 hours	It can be set in 1 hour increment

*   This is a list of setting of configurable initial value in the H/W Setting Dialog

Change during operation can be set by minutes from 1 to 1440 minutes (24 hours)

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12.1.3 LCD Brightness Adjustment Function

LCD brightness can be set in 8-stage.
The initial value can be set from H/W Setting Dialog.
The default middle brightness is "4".
Rewrite the value of the Environment Variable "BRIGHT" in action, or Host Communication command "Backlight Brightness Setting" to change during operation.
Brightness setting is retained even when the power is OFF.

Setting	Description
1 - 81	1: Darkest to 8: Brightest

12.2 **Buzzer**

This section describes the ON/OFF of the buzzer.

ON/OFF of the buzzer can be set in the action setting of Builder or by Host Communication command.

The buzzer sound can be set from 9 patterns by Action setting, and the Host Communication command allows you to set the frequency (500 - 5,000Hz) and ring time (100 milliseconds to 10 seconds).

Pattern of Buzzer Sound

Name	Frequency
Pattern 1	261Hz
Pattern 2	330Hz
Pattern 3	392Hz
Pattern 4	522Hz
Pattern 5	660Hz
Pattern 6	784Hz
Pattern 7	1000Hz
Pattern 8	1320Hz
Pattern 9	1568Hz

*   Value of the frequency is only an approximation. It may slightly differ depending on the model.

12.3 Input from Touch Screen

This section describes the input function from the touch screen.

The input from the touch screen will be referred to as "Touch Input" in this manual.

12.3.1   Touch Input

InTouch screen of InfoSOSA supports only one-point touch input.

Event is generated when touch input is performed.

Do not attempt multiple inputs since the input of multiple points can cause incorrect input.

* Some models do support two-point input.

12.3.2   Touch Sound

When touch input to touch valid parts, the buzzer will sound.

The buzzer sound that goes off at this time is referred to as "Touch Sound".

When you touch the touchscreen while the buzzer is sounding, the buzzer will stop and a new touch sound will go off by Host Communication command.

Duration and volume of the Touch Sound cannot be changed.

Touch sound can be set from 9 patterns to each part.

Pattern 1 has the lowest sound and pattern 9 has the highest.

The default setting is "Pattern 6".

Name	Frequency
None	No touch sound
Pattern 1	261Hz
Pattern 2	330Hz
Pattern 3	392Hz
Pattern 4	522Hz
Pattern 5	660Hz
Pattern 6	784Hz
Pattern 7	1000Hz
Pattern 8	1320Hz
Pattern 9	1568Hz

* Value of the frequency is only an approximation. It may slightly differ depending on the model.

12.4 **Calibration**

If the input coordinate has shifted, it is possible to properly correct the coordinates of the touch screen by using the calibration function.
Calibration is done by Action setting of the Builder or by Host Communication command.
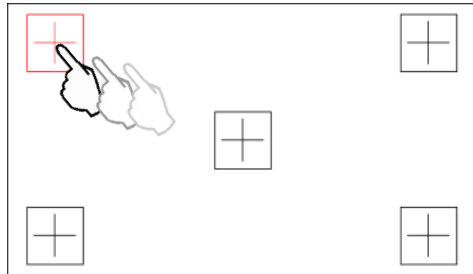
How to Start by Action

Perform the following actions.

Action	Content
To display the calibration screen	Calibrate the coordinates by displaying the built-in screen

How to Start by Host Communication Command

How to Start by Host Communication Command
Use the display screen switching command (SC10) by Host Communication during the run.
Send a command to switch to the coordination calibration screen.

Screen ID	Content
OSD00001	Calibrate the coordinates by displaying the built-in screen

Command example (data portion only)   * <CR> indicates 0x0d.
SC10,OSD0001[CR]

Other Starting Procedures

If the calibration data is corrupted, it will start at start up.

Execution Procedure

Calibration should be performed using a touch pen.

Touch the center of the cross for more than one second until the beep of confirmation sounds.

Touch all of the crosses that will appear in the following order shown below.

Two beeps will sound if failed, so please try again.

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
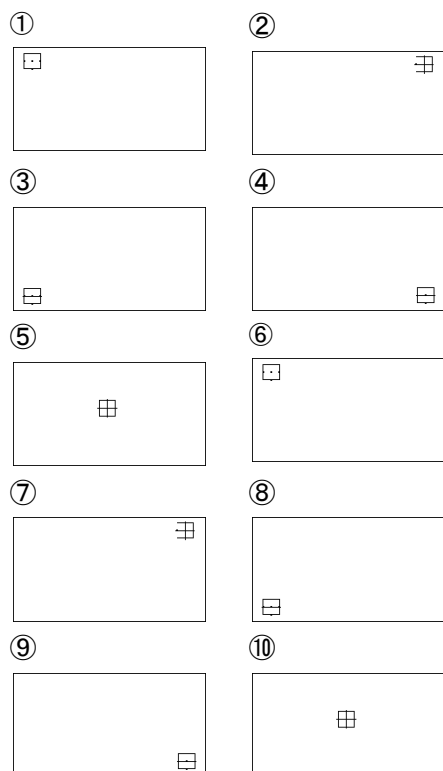
12.5 Input to Sheet Key and Output to LED

This section describes the functions that can be used if you wish to use the sheet key.
Sheet key is structured of switches and LEDs.
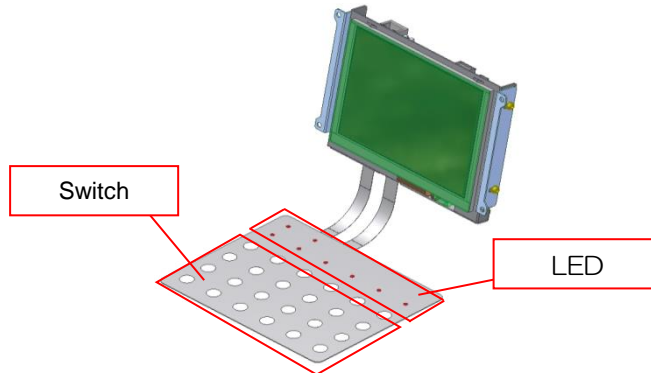
* Design of the sheet key in the figure is only an example.

* Sheet key is optional.

* If sheet key is connected while the power of InfoSOSA is ON, it will cause failures.
  Turn the power of InfoSOSA OFF when connecting or disconnecting the sheet key.

12.5.1 Input of Sheet Key

Input of sheet key switch can be made to a maximum of 24 points.
Input of the switch generates an event in the same way as the touch input.
Different actions can be set to the switch for each screen.
The sound when the switch is pressed will be the same settings as the touch sound.
(Refer to "12.3.2 Touch Sound".)

* Do not simultaneously press the switch since it is likely to be erroneously recognized.

* Switch does not retain the state of the ON/OFF.

Properties

Below describes the properties of the sheet key switch.

Property Name	Default value	Description	Changes with Host Communication	Changes with Action
SW existence	(Blank)	Target switch is disabled when x.	×	×
SW ID	XSW01 - 24	ID to determine switch No.	×	×
SW Name	(Blank)	Comments can be added in order to determine on the Builder.	×	×
Input Method	Operation SW input	Currently operation SW input is fixed.	×	×
Screen ID	BAS00001	Settings can be made for each screen.	×	×
Touch Sound	None	Sound when sheet key is pressed can be selected	×	×
Holding Time	0	Time until LongPress event occurs	×	×
Start Time	0	Time until RepeatPress event occurs	×	×
Interval	0.2	Basic interval of RepeatPress	×	×

Property Name	Default value	Description	Changes with Host Communication	Changes with Action
		events generated		
Minimum Interval	0.2	Minimum interval of RepeatPress events generated	×	×
Step Up	0	Time shortened for each RepeatPress event occurrence	×	×

*　　SW ID is fixed for each switch.

*　　If the LongPress event is used, set the number of seconds to long press to one or more.

*　　If the RepeatPress event is used, set the start time to one or more.

*　　Number of seconds for Long Press and the start time cannot be set at the same time.
　　　(One or the other must be 0)

*　　For more information about the properties, refer to "5.4 Events".

Events

Event	Overview
Press	Generated when pressed
Release	Generated when released
Long Press	Generated when pressed and held
Repeat Press	Generated repeatedly when pressed and held

*　　Refer to "5 Events" for details.

12.5.2　ON/OFF of LED

The output to the LED can be made up to a maximum of 8 points.

The initial value of the LED is OFF.

LED ON/OFF can be set in the action setting of the Builder or by Host Communication command.

Properties

Below describes the properties of the sheet key switch.

Property Name	Default Value	Description	Changes in Host Communication	Changes in action
LED Enable/Disable	(Blank)	Target LED is disabled when ×.	×	×
LED ID	XLED01 - 08	The ID to determine the LED No.	×	×
LED Name	(Blank)	A comment can be added in order to determine on the Builder.	×	×

*　　LED ID is fixed for each LED.

12.6 **Clock Function**

This section describes the clock function.

- InfoSOSA is equipped with a clock valid from 0:00:00a.m. of January 1, 2000 to 3:14:07 a.m. of January 19, 2038.

- Clock can be displayed/set on InfoSOSA, or acquired/set by Host Communication.

To display on the InfoSOSA, link individually the following Environment Variables and the Number Indicator Parts.
To set on the InfoSOSA, change the following Environment Variable in the action.
  * Attribute "R" cannot be changed.

ID	Attribute	Content
YEAR	R/W	Shows "year" of system clock.
MONTH	R/W	Shows "month" of system clock.
DAY	R/W	Shows "day" of system clock.
HOUR 24	R/W	Shows "hour" of system clock in 24-hour clock.
HOUR 12	R	Shows "hour" of system clock in 12-hour clock.
MINUTE	R/W	Shows "minute" of system clock.
SECOND	R/W	Shows "seconds" of system clock.
WEEK	R	Shows "day of week" of system clock. 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday
AMPM	R	Shows "AM/PM" of system clock. 0: AM 1: PM

Use the "Time Acquisition" command to acquire with the Host Communication.
Use the "Time Setting" command to set with the Host Communication.
  * The attribute "R" cannot be set.
  * The setting is disabled if set to a time that does not exist.
  * The Environment Variable is set to a value (0-6) in "WEEK" and "AMPM".
     It is possible to display the value as character or image by using Multi-State Lamp.

- Depending on the model, the clock will operate when the power is OFF by connecting a battery (optional).The battery will go back to the setting 00:00:00 of January 1, 2000 at start up if it is not connected.
  * If the power is OFF just for a split second, the time might be maintained.

12.7 SRAM Save (Battery Backup)

This section describes the SRAM storage of Global Memory (battery backup).
By connecting the battery, it is possible to maintain the value of the Global Memory when the power is OFF.
To initialize the Global Memory, run the "Clear SRAM and Reboot" action or "Clear SRAM and Reboot" command.
   * Only the Global Memory that is set to "Retention" in the SRAM property in the Builder is retained.
   * Screen memories and parts properties are not supported.

When the battery is connected, the operations when the SRAM property of the Global Memory is set to "Retention" are shown below.

Operation	IS7 Series	IS9 Series
Restart from power OFF	Initialized (Retention setting not possible)	Retained
Restart from power ON		Retained
Screen download		Initialized
SRAM clear by Action or Host Communication command		Initialized

Below is the list of actions when the battery is not connected and the SRAM property of the Global Memory is set to "Retention".

Operation	IS7 Series	IS9 Series
Restart from power OFF	Initialized (Retention setting not possible)	Initialized
Restart from power ON		Retained
Screen download		Initialized
SRAM clear by Action or Host Communication command		Initialized

   *   The restart with the power ON means the "Restart" action or Host Communication "Restart".
   *   If the power OFF time is of a moment, the contents of the SRAM might be held even when the battery is not connected.

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12.8 Confirmation Procedure of IP address

If the IP address of the unit is unknown, it can be checked by switching to download mode in the following way.

* Execute "Restart in Download Mode" action.

For download mode, refer to "12.9.2 Download Mode".

12.9　**Operation Mode**

This section describes the InfoSOSA operation mode.

There are two modes to the InfoSOSA; Normal Mode and Download Mode.

12.9.1　Normal Mode

This mode is the InfoSOSA running normally with project data downloaded.

You can operate the screen and communicate with the Host.

12.9.2　Download Mode

This mode is for downloading the project data.

"DOWNLOAD MODE" will be shown on the screen as well as the information of each communication port and system information.

It will be transited to the Download Mode in the following cases:

- **There is no correct project data in the InfoSOSA unit.**
- **When you start to download to InfoSOSA Unit from the Builder.**
  It will transit back to Normal Mode when writing of project data is complete.
- **When action "Reboot in Download Mode" is executed.**
  It will transit back to Normal Mode when writing of project data is complete.
  It will also transit back to Normal Mode by pressing button on the screen for more than 2 seconds or by restarting by power.

The following information is displayed on the screen.

SIO setting value

Items	Display on the screen	Set value
Communication speed	Baud Rate	115200bps
Data length	Data Bit	8-bit
Parity	Parity	None
Stop bit length	Stop Bit	1bit
Flow control	Flow Control	None

   *　　SIO setting in this mode will be fixed regardless of the SIO settings in the project.

LAN setting value (LAN device equipped model only)

Items	Display on the screen	Set value
IP address	IP Address	InfoSOSA IP address of unit will be displayed
Sub-net mask	Subnet Mask	InfoSOSA subnet mask of unit will be displayed
Default gateway	Default Gateway	Default gateway of InfoSOSA unit will be displayed

System Information

Items	Display on the screen	Set value
Serial number	S/N	InfoSOSA unit serial number will be displayed
Model name	Model	Model name will be displayed
Firmware version	F.Ver	Version of the firmware will be displayed

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13. **Host Communication**

13.1   Communication Specifications (Serial)

13.1.1   Communication Specifications (RS232/RS422 (Full Duplex))

Below shows the communication specifications when Host Communication interface is RS232/422 (full duplex).

Items	Specifications
Communication Speed	4800/9600/19200/38400/57600/115200bps (Set with InfoSOSA Builder)
Data Length	8 Bit
Parity	None/Even/Odd (Set with InfoSOSA Builder)
Stop Bit Length	1 Bit
Flow Control	Yes (RTS/CTS Control) / No (Set with InfoSOSA Builder)
Transmission Code	ASCII Code However, string uses ASCII code or Unicode (UTF-16LE) (Character code can be switched by communication command)

13.1.2 Communication Format (RS232/422 (Full Duplex))

Below shows the communication format when Host Communication interface is RS232/422 (full duplex).

Type	Items	No. of bytes	Set value	Description
Header	Start	1	0x02	STX code (0x02)
	Destination Address	2	'00'	Not used in RS232/422
	Message Type	1	-	Indicates type of message. For more information, refer to "13.1.5 Message Type (Serial)Message Type (Serial)".
	Sequence Number	1	'0'	Sequence number indicates that it is invalid.
			'1' - 'F'	Shows sequence number. For more information, refer to "13.3 Communication Mode".
	Source Address	2	'00'	Not used in RS232/422
	Reserved	1	'0'	Not used
	Data Length	4	'0000' - '0200'	Number of data in the data portion * 1
Data	Data	0 - 512	-	Command + parameters and response
Footer	Checksum * 2	4	-	Error detection sign * 1
	End	1	0x03	ETX code (0x03)

*1.   May exceed 512 bytes when responding to a multi-command.

*2.   Checksum calculation method: Checksum targets the transmission data between <STX> and the end of the data part

(1)   Add the message 1 byte at a time from the beginning to the end of the target range.

(2)   Divide the sum of (1) with 65536 and round to 2 byte value.

(3)   Express the 2 byte value of (2) in 4 digit ASCII character code.

InfoSOSA will not execute the command if the checksum of the message received is incorrect.

However, if the checksum is '0000' it will run without detecting the error.

【Example】
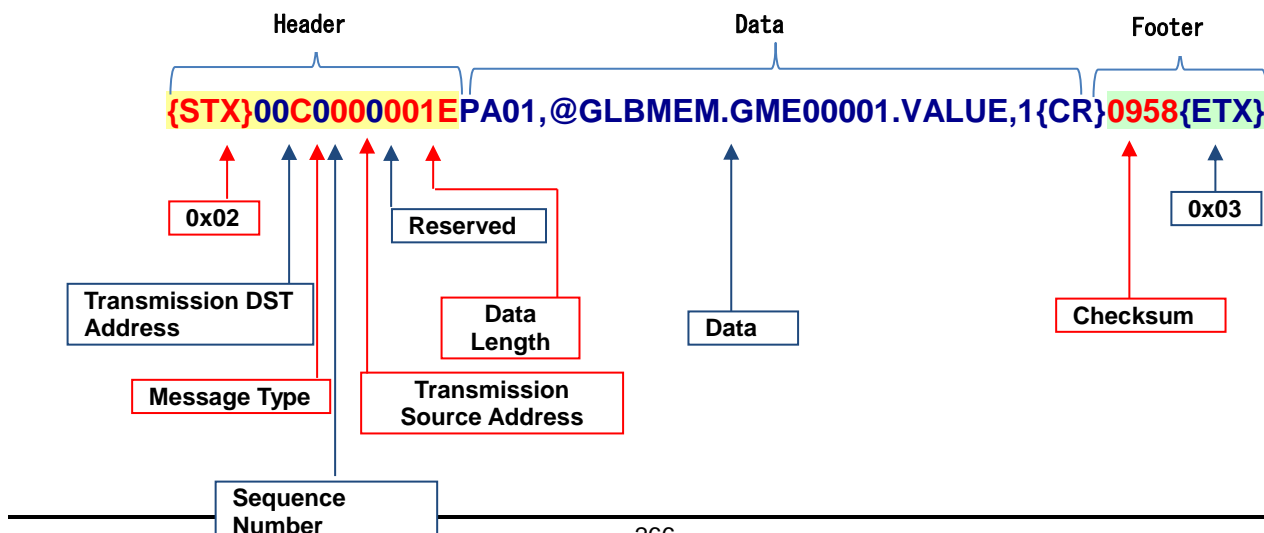
13.1.3　Communication　Specifications　(RS485　(Half Duplex))

Below shows the communication specifications when Host Communication interface is RS485 (half duplex).

Items	Specifications
Communication Speed	4800/9600/19200/38400/57600/115200bps (Set with InfoSOSA Builder)
Data Length	8 Bit
Parity	None/Even/Odd (Set with InfoSOSA Builder)
Stop Bit Length	1 Bit
Flow Control	None
Transmission Code	ASCII Code However, string using the ASCII code or Unicode (UTF-16LE) (Character code will be switched by communication command)
Device ID	0: Indicates Host device. 1 to 31: Configurable device ID

*　After receiving command from InfoSOSA, do not send data from the host device for 20 milliseconds. There is a possibility that it cannot be carried out correctly.

13.1.4 Communication Format (RS485 (half duplex))

Below shows the communication format when Host Communication interface is RS485 (half duplex).

Type	Items	No. of bytes	Set value	Description
Header	Start	1	0x02	STX code (0x02)
	Destination Address	2	'00'	RS485 address of Host Device
			'01'〜 '1F'	RS485 address of InfoSOSA Unit
	Message type	1	-	Indicates type of message For more information, see 13.1.5 Message Type (Serial).
	Sequence Number	1	'0'	Sequence number indicates that it is invalid.
			'1' ~ 'F'	Shows sequence number. For more information, refer to 、 13.3 Communication Mode.
	Source Address	2	'00'	RS485 address of Host Device
			'01'〜 '1F'	RS485 address of InfoSOSA Unit
	Reserved	1	'0'	Unused
	Data length	4	'0000' - '0200'	Number of data in data portion * 1
Data	Data	0-512	-	Command + parameters and response
Footer	Checksum * 2	4	-	Error detection for sign * 1
	End	1	0x03	ETX code (0x03)

*1. There is a case more than 512 bytes in case of the response of a multi-command.

*2. Checksum calculation method: Checksum targets the transmission data between <STX> and the end of the data part

(1) Add the message 1 byte at a time from the beginning to the end of the target range.

(2) Divide the sum of (1) with 65536 and round to 2 byte value.

(3) Express the 2 byte value of (2) in 4 digit ASCII character code.

InfoSOSA will not execute the command if the checksum of the message received is incorrect. However, if the checksum is '0000' it will run without detecting the error.

【Example】
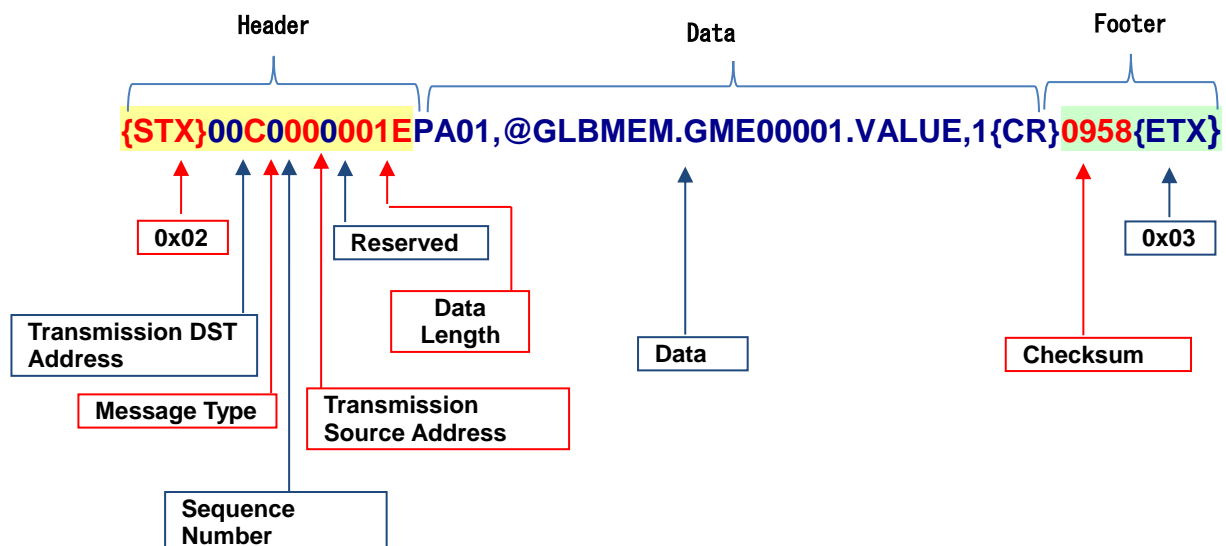
13.1.5 Message Type (Serial)

Below shows the transmission type of communication with the serial communication.

Message type	Direction of Communication Message	Description
'C'	Host device to InfoSOSA unit	Command Message For more information, refer to "13.5 Command Message (C) and Response Message (r) ".
'A'	Host device to InfoSOSA unit	Acknowledgment Message For more information, refer to "13.7 ACK Message (A) (a)".
'N'	Host device to InfoSOSA unit	Negative Response Message For more information; refer to "13.8 NAK Message (N) (n)".
'P'	Host device to InfoSOSA unit	Polling Message For more information, see "13.10 Polling Message (P)".
's'	InfoSOSA unit to Host device	Start Message (When InfoSOSA unit is started, notifies it to Host device) For more information, refer to "13.4 Start Message (s)".
'r'	InfoSOSA unit to Host device	Response Message For more information, refer to "13.5 Command Message (C) and Response Message (r)".
'b'	InfoSOSA unit to Host device	Busy Response Message (At command receive, transmitted when execution waiting command exceeds specified amount) For more information, refer to "13.9 Busy Message (b)".
'a'	InfoSOSA unit to Host device	Acknowledgment Message For more information, refer to "13.7 ACK Message (A) (a)".
'n'	InfoSOSA unit to Host device	Negative Response Message For more information, refer to "13.8 NAK Message (N) (n)".
'e'	InfoSOSA unit to Host device	Notification Message For more information, refer to "13.6 Notification Message (e)".

13.2 Communication Specifications (LAN)

13.2.1 Communication Specifications (LAN)

Below shows the communication specifications when Host Communication interfaces is a LAN.

Items	Specifications
Transport Layer Protocol	TCP/IP, UDP/IP (Set with InfoSOSA Builder)
InfoSOSA Unit IP Address	192.168.0.130 (Default value, set with InfoSOSA Builder)
InfoSOSA Unit Receiving Port	51111 (Default value, set with InfoSOSA builder *) * Value set in host notification destination port will be used.
InfoSOSA Unit Sub-net Mask	255.255.255.0 (Default value, set with InfoSOSA Builder)
InfoSOSA Unit Default Gateway	192.168.0.254 (Default value, set by InfoSOSA Builder)
Host Device IP Address	IP address of host device to communicate with InfoSOSA Set by InfoSOSA Builder Up to 4 TCP clients, 4 UDP clients configurable
Host Device Send and Receive Port	Port of host device to communicate with InfoSOSA Set by InfoSOSA Builder * Use same number of both sending port and receiving port of host device.
Transmission Code	ASCII code However, string uses ASCII code or Unicode (UTF-16LE) (Character code will be switched by communication command)

12A4A5-00078E-9

Communication ports

Host device should be set as the figures shown below when the InfoSOSA Builder is set as the table below.

Items	Set value
InfoSOSA Unit IP address	192.168.0.130
Host Notification IP address	192.168.0.100
Host Notification port	51111

TCP/IP

InfoSOSA (TCP Client)   Host Device (TCP Server)

IP Address：
192.168.0.130

IP Address：
192.168.0.100

Transceiver port: Any   Transceiver port: 51111

UDP/IP

InfoSOSA   Receive port: 51111   Transmitter port: 51111   Host Device

IP Address：
192.168.0.130

IP Address：
192.168.0.100

Transmitter port: Any   Receiver port: 51111
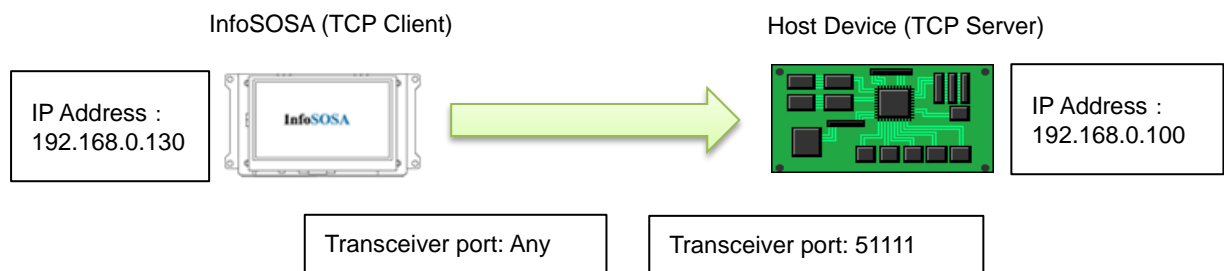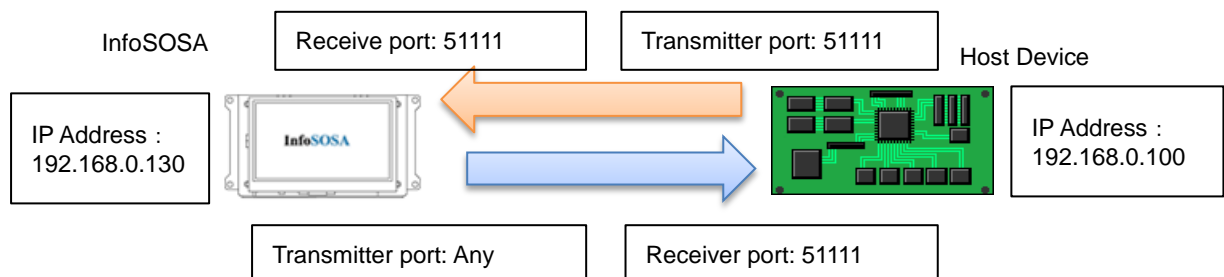
13.2.2　Communication Format (LAN）

Below shows the communication format when Host Communication interface is a LAN.

Type	Items	No. of bytes	Set value	Description
Header	Message type	1	-	Indicates type of message For more information, see "13.2.3Message Type (LAN)".
	Sequence number	1	'0'	Indicates that sequence number is invalid.
			'1' - 'F'	Shows sequence number. For more information, refer to "13.3 Communication Mode1".
	Reserved	2	00'	Unused
	Data length	4	'0000' - '0200'	Number of data in data portion * 1
Data	Data	0～512	-	Command + parameters and response

*　　May exceed 512 bytes when responding to a multi-command.

[Example]

Header　　　　　　　　　　**Data**

C000001EPA01,@GLBMEM.GME00001.VALUE,1{CR}

Reserved

Data Length

Data

Message Type

Sequence Number
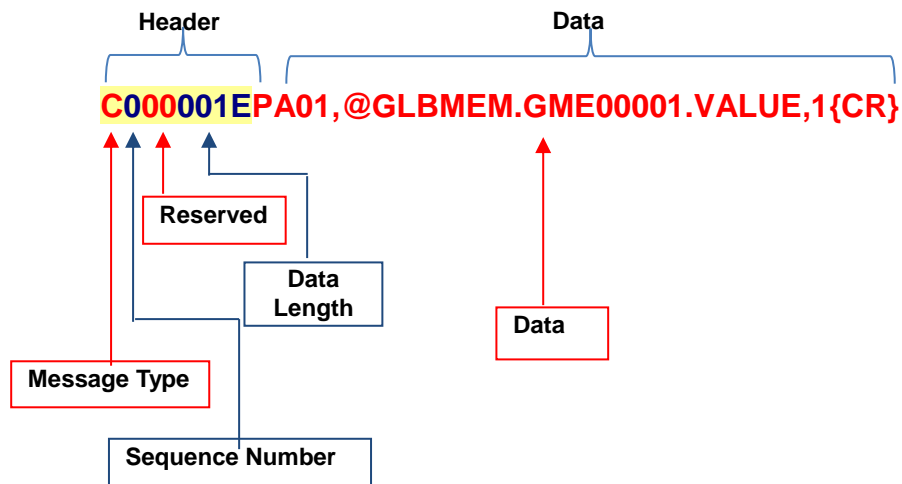
13.2.3 Message Type (LAN)

Below shows the transmission type of communication with the LAN communication.

Message type	Direction of communication Message	Description
'C'	Host device to InfoSOSA unit	Command Message For more information, refer to "13.5 Command Message (C) and Response Message (r)1".
'A'	Host device to InfoSOSA unit	Acknowledgment Message For more information, refer to "13.7 ACK Message (A) (a)".
'N'	Host device to InfoSOSA unit	Negative response Message For more information, refer to "13.8 NAK Message (N) (n)".
'P'	Host device to InfoSOSA unit	Polling Message For more information, see "13.10 Polling Message (P)".
'K'	Host device to InfoSOSA unit	Connection confirmation Message at time of TCP/IP communication For more information, refer to "13.11 Connection Confirmation Message (K)".
's'	InfoSOSA unit to Host device	Start Message (When InfoSOSA unit is started, notifies it to Host device) For more information, refer to "13.4 Start Message (s)".
'r'	InfoSOSA unit to Host device	Response Message For more information, refer to "13.5 Command Message (C) and Response Message (r)".
'b'	InfoSOSA unit to Host device	Busy Response Message (Transmitted when command waiting to be executed exceeds specified amount at command receive.) For more information, refer to "13.9 Busy Message (b)".
'a'	InfoSOSA unit to Host device	Acknowledgment Message For more information, refer to "13.7 ACK Message (A) (a)".
'n'	InfoSOSA unit to Host device	Negative Response Message For more information, refer to "13.8 NAK Message (N) (n)".
'e'	InfoSOSA unit to Host device	Notification Message For more information, refer to "13.6 Notification Message (e)".

13.3 **Communication Mode**

There are two types of communication mode in the InfoSOSA. One is "Normal Protocol" and the other is "InfoSOSA Protocol".

Normal Protocol

InfoSOSA unit always returns a response message to the message from the host device. Normal Protocol is the "handshake" communication mode in which the host device and the InfoSOSA unit communicates with a handshake.

[The Behavior of InfoSOSA Unit]

- InfoSOSA will return a NACK if the message from the host device is the same sequence number as the previous one.
- InfoSOSA will return a response message in the same sequence number to the message from the host device.
- The sequence number added to the transmission message of action "Notify event (value) to Host" will increase by 1 each time executed. * The range is "1 to F". After "F" it will return to "1".
- InfoSOSA will be in ACK wait after the execution of the action "Notify event (value) to Host".
- ACK wait of InfoSOSA will terminate upon reception of ACK of the same sequence number as the transmission message from the Host.
- InfoSOSA will ignore ACK and NACK received from the Host while in ACK wait.
- InfoSOSA will resend the same sequence number after "Event Response Monitoring Time" has elapsed or if NACK is received after the start of ACK wait.
- Commands other than ACK and NACK will be executed as usual even i in ACK wait.
  - * InfoSOSA will hold the response transmission until ACK is complete while communicating with RS485.
- InfoSOSA will hold the action "Notify event (value) to Host" if it is re-executed while in ACK waits.

InfoSOSA Protocol

InfoSOSA Protocol is the "no handshake" communication mode that returns only the necessary response to the message from the host device.

- * Sequence number cannot be managed because there is no response message.
- * Only the necessary response is performed in multi-command.
- * A busy response will be sent if the execution waiting command exceeds the specified amount when commands are received.

13.4 **Start Message (s)**

Start Message is the communication data that notifies the start from the "InfoSOSA" to the "Host devices". It will be transmitted to all valid ports and communication destination.

*   Start packet will be sent even if the Notification Method is set to "Upon Request".

Start Message

InfoSOSA

Host Device
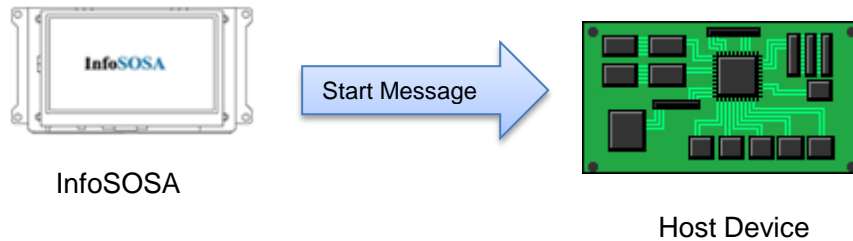
Detail

<<Message Type>>

s

<<Data>>

< Host Communication major version> <Host Communication minor version>

Parameters	Contents
<Host Communication major version>	4 byte Host Communication major version ASCII code string.
<Host Communication minor version>	4 byte Host Communication minor version ASCII code string.

*Sequence number is always 0.

Message Example

【Serial】

Header   Data   Footer

{STX}00**s**00000008**00010000**03DC{ETX}

Message Type (s)

Data

【LAN】

Header   Data

s00000008**00010000**

Message Type (s)

Data

12A4A5-00078E-9
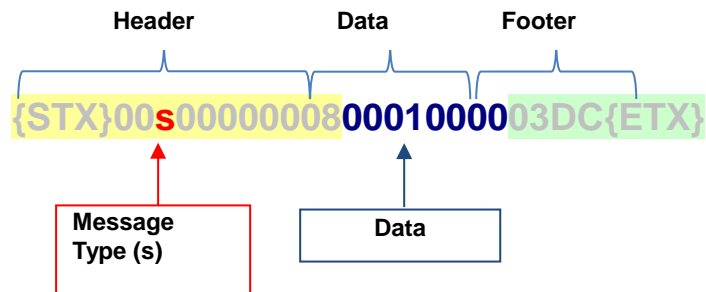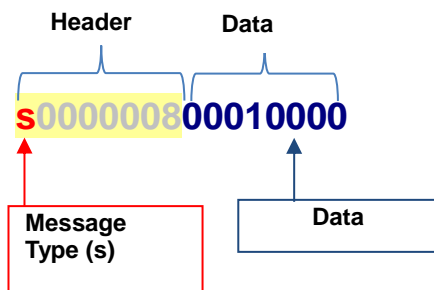
13.5 Command Message (C) and Response Message (r)

The command message is a communication data that gives commands to the "InfoSOSA" from the "host device".
Depending on the type of instruction, communication command will change.
The response message is a communication data that notifies the execution results of the command message from the "InfoSOSA unit" to the "host device".

Command Message(C)

Response Message(r)*※

InfoSOSA

Host Device
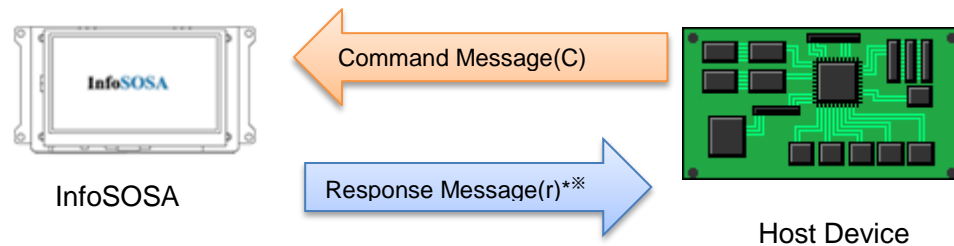
For InfoSOSA protocol, response message of the set command will not be sent.

Communication Mode	Command section	Response from InfoSOSA
InfoSOSA Protocol	Setting	No
	Acquisition	Yes
Normal Protocol	Setting	Yes
	Acquisition	Yes

Detail

<<Message Type>>
　Command Message：C
　Response Message：r
<<Data>>
　It will vary by communication command.
　For more information on communication commands, refer to"13.12Communication Command Detail".

Message Example

[Serial (Command Message)]

Header **Data** **Footer**

{STX}00**C**0000001CPA02,@GLBMEM.GME00001.VALUE{CR}08FA{ETX}

Message Type (C)

Data

[Serial (Response Message)]

Header **Data** **Footer**

{STX}00**r**0000001EPA02,@GLBMEM.GME00001.VALUE,1{CR}0988{ETX}

Message Type（r）

Data

[LAN(Command Message)]

Header **Data**

C000001CPA02,@GLBMEM.GME00001.VALUE{CR}

Message Type (C)

Data

[LAN(Response Message)]

Header **Data**

r000001EPA02,@GLBMEM.GME00001.VALUE,1{CR}

Message Type （r）

Data
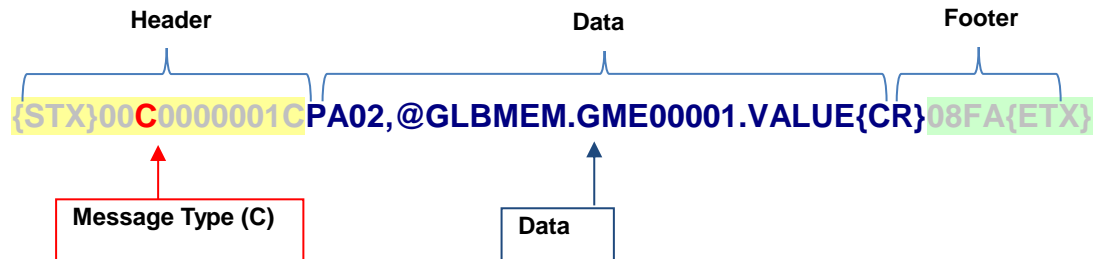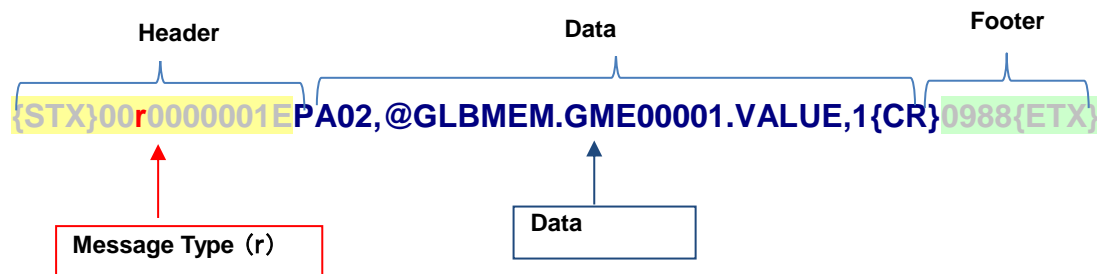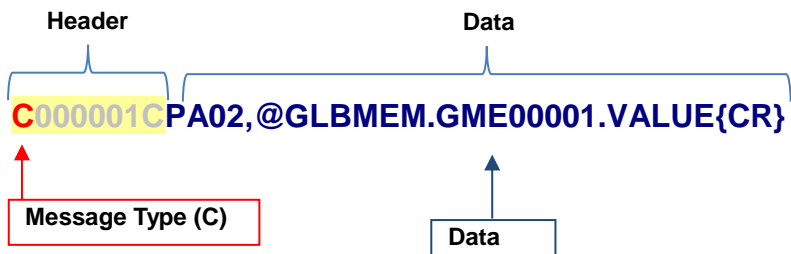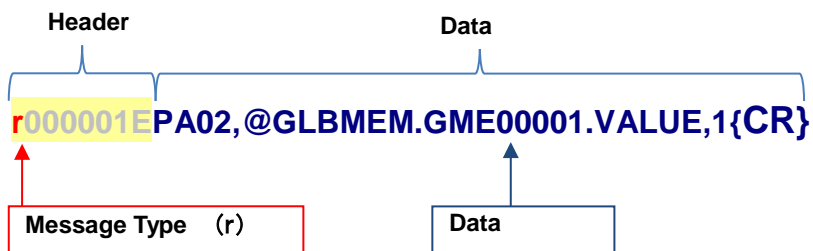
13.5.1 Communication Command List

Communication command has the following types.

Communication Command	Communication Command Name	Classification	Description
SI01	Model name acquisition	Acquisition	Acquire the model name.
SI02	Version acquisition	Acquisition	Acquire a firmware version of InfoSOSA unit.
SI03	Character code setting	Configuration	Set the character code to be used in the specified string.
SC01	Backlight ON/OFF setting	Configuration	Set ON/OFF of backlight.
SC02	Backlight ON/OFF state acquisition	Acquisition	Acquire ON/OFF state of backlight.
SC04	Backlight auto-off time setting	Configuration	Set auto-off time of backlight.
SC05	Backlight auto-off time acquisition	Acquisition	Acquire auto-off time of backlight.
SC06	Brightness setting of the backlight	Configuration	Set brightness of backlight.
SC07	Brightness acquisition of backlight	Acquisition	Acquire brightness of backlight.
SC10	Display screen switching	Configuration	Switch display screen.
SC11	Display screen acquisition	Acquisition	Acquire screen being displayed.
SC13	Display ON of Pop-up Screen A	Configuration	Turn ON display of Pop-up Screen A.
SC14	Display ON of Pop-up Screen B	Configuration	Turn ON display of Pop-up Screen B.
SC15	Display OFF of Pop-up Screen A	Configuration	Turn OFF display of Pop-up Screen A.
SC16	Display OFF of Pop-up Screen B	Configuration	Turn OFF display of Pop-up Screen B.
SC17	Display state acquisition of Pop-up Screen	Acquisition	Acquire display state of Pop-up Screen.
TP01	Touch input enable/disable setting	Configuration	Set enable/disable setting of touch input.
TP02	Touch input enable/disable acquisition	Acquisition	Acquire enable/disable state of touch input.
TP06	Touch input coordinate acquisition	Acquisition	Acquire coordinates of last pressed touch screen.
SW01	State acquisition of sheet key switch	Acquisition	Acquire state of switch sheet key.
LD01	Output to sheet key LED	Configuration	Turn On/Off LED of sheet key.
LD02	Output state acquisition of sheet key LED	Acquisition	Acquire output state of LED of sheet key.
BZ01	Buzzer ON	Configuration	Turn ON buzzer.
BZ02	Buzzer state acquisition	Acquisition	Acquire ON/OFF state of buzzer.
TC01	Time setting	Configuration	Set time.
TC02	Time acquisition	Acquisition	Acquire time.
PA01	Property setting	Configuration	Set property.
PA02	Property acquisition	Acquisition	Acquire property.
PA03	Method execution	Configuration	Run method.
PA05	Group data set	Configuration	Set value to group data.
PA06	Group data acquisition	Acquisition	Acquire value of group data.
PA07	Subroutine execution	Configuration	Run any of subroutine.

Communication Command	Communication Command Name	Classification	Description
RS01	Reboot	Acquisition	Reboot InfoSOSA.
RS02	Restart SRAM clear	Acquisition	Clear SRAM and reboot InfoSOSA.
LG01	Delete all logging data	Configuration	Delete all log data created by logging function
LG02	Generate a logging trigger	Configuration	Generate trigger and log specified log data

13.5.2　Single Command and Multi-Command

Command message has a single command that sends one communication command and a multi-command that sends multiple communication commands.

Single Command

One communication message executes one communication command.

[Example]

{STX}00C0000001E**PA01,@GLBMEM.GME00001.VALUE,1{CR}****0958{ETX}**

Communication Command

Multi-Command

One communication message executes communication commands with multiple communication commands.
The response will be returned only to the acquisition command for InfoSOSA protocol.
Please note that it will not run if the data portion exceeds 512 bytes.

[Example]

{STX}00C0000003C**PA01,@GLBMEM.GME00001.VALUE,1{CR}****PA01,@GLBMEM.GME00002.VALUE,5{CR}****107C{ETX}**

Communication Command 1　**Communication Command 2**

13.6 Notification Message (e)

The notification message is a communication data that notifies from the "InfoSOSA" to the "host device". It transmits by executing action "6.5.1 Notify Event to Host" or "6.5.3 Notify Event to Host ".

It can inform events to the host device such as the button of InfoSOSA has been pressed.
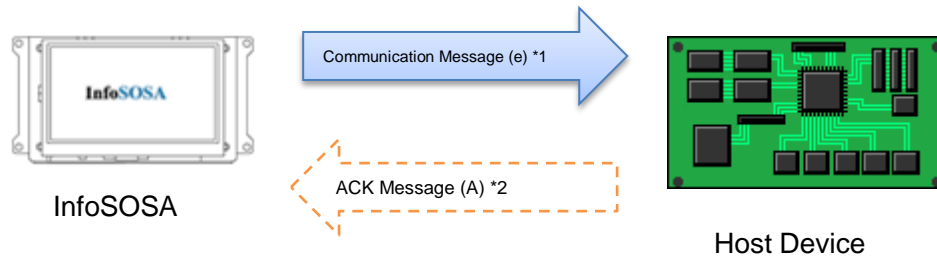
*1.   Transmission will be held until "13.10Polling Message (P) " is received when Notification Method is set to "Upon Request".

*2.   ACK message is not required for InfoSOSA protocol.

Communication Mode	Acknowledgment of Host Device
InfoSOSA protocol	Unnecessary
Normal protocol	Necessary

13.6.1   Event Notification

When the action "6.5.1 Notify Event to Host" is executed in the InfoSOSA unit, it will notified in the following format.

Detail

<<Message Type>>
e
<<Data>>
PA04,<Event>{CR}

*   {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

*   If the Communication Mode is "Normal Protocol", the host device should send an ACK message.

Parameter	Contents
<Event>	Shown in the following format. Format: [Screen ID].[Parts ID].[Event ID] * Delimiter of each ID is "." Period (0x2e). For more information, please refer to "13.13.1Property/Event".

Message Example

[Serial]

Header　　　　　　**Data**　　　　　**Footer**

{STX}00**e**1000001DPA04,BAS00001.BTN00001.PRESS{CR}090E{ETX}

↑
Message Type（e）

↑
Data

〖LAN〗

Header　　　　　　**Data**

e100001DPA04,BAS00001.BTN00001.PRESS{CR}

↑
Message Type（e）

↑
Data

12A4A5-00078E-9
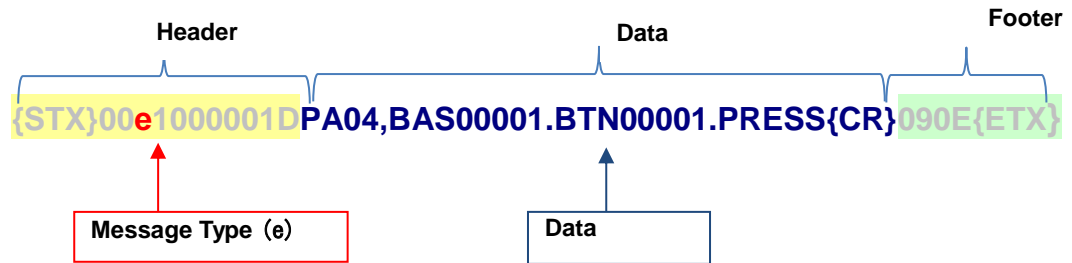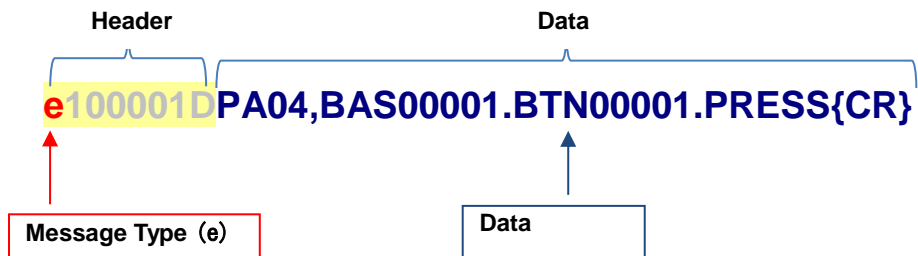
13.6.2　Value Notification

When action "6.5.3 Notify Event to Host " is executed in InfoSOSA unit, it will be notified in the following format.

Detail

<<Message Type>>

e

<<Data>>

PA04,<event>,<value 1>,<value 2>,<value 3>,<value 4>,<value 5>,<value 6>{CR}

* Only the parameters set in the Builder of <value 1> to <value 6> is sent.
* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* If the communication mode is "Normal Protocol", host shall send an ACK message.

Communication Mode	Acknowledgment of Host Device
InfoSOSA protocol	Unnecessary
Normal protocol	Necessary

Parameter	Contents
<Event>	Shown in the following format. Format: [Screen ID].[Parts ID].[Event ID] * Delimiter of each ID is "." Period (0x2e). For more information, please refer to "13.13.1Property/Event."
<Value*>	Shown in the following format. [Memory ID]=[Value] * Delimiter of [Memory ID] and [Value] is "=" Equal (0x3d). It is ASCII code string.

Message Example

[Serial]

Header **Data**

{STX}00**e**10000034PA04,BAS00001.BTN00001.PRESS,GME00001=23,GME
00002=5{CR}0E01{ETX}

Messag Type（e）

Footer

Data

〔LAN〕

Header **Data**

e1000034PA04,BAS00001.BTN00001.PRESS,GME00001=23,GME00002=5{CR}

Message Type （e）
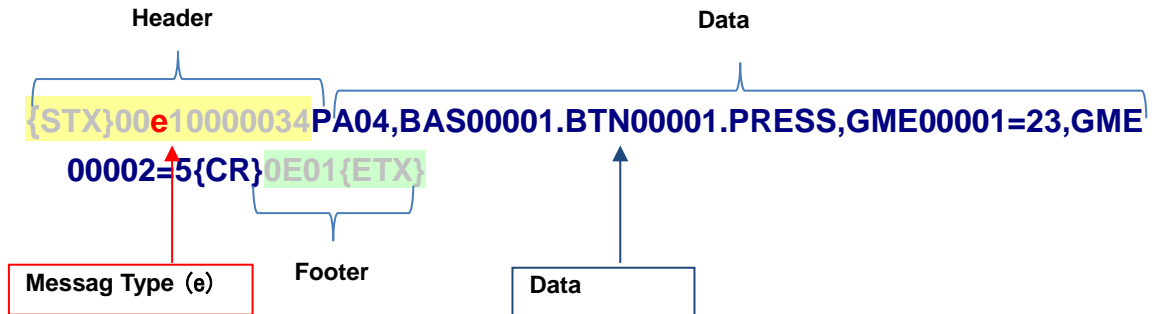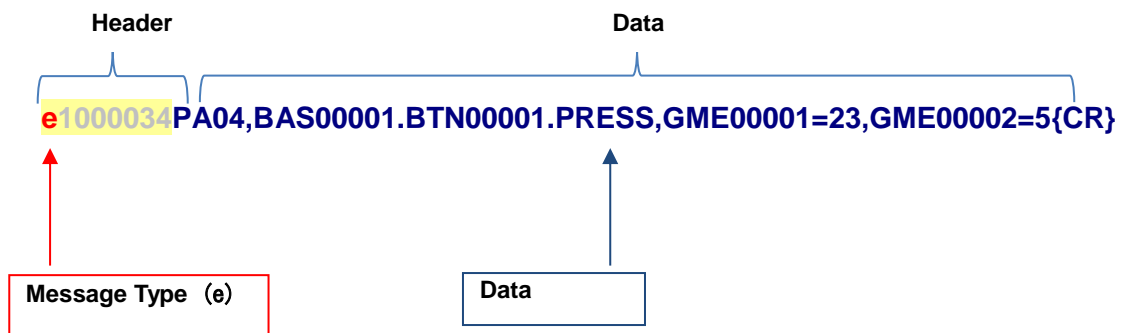
Data

13.7 **ACK Message (A) (a)**

The ACK message is a communication data for indicating that the receiver has received correctly to the transmitter.

There are 2 cases of transmissions. One is from the "host devices" to "InfoSOSA", and the other is from "InfoSOSA" to the "host device".

13.7.1 Host device to InfoSOSA

For normal protocols, the host device always sends an ACK message to the notification message from the InfoSOSA unit.

If an ACK message is not sent within the set time, InfoSOSA will resend the notification message and will continue to do so according to the number of times set to "Retry Count" in the Builder.)

* Setting can be done from the "Communication Settings (Target Side) Dialog" of the InfoSOSA Builder.

InfoSOSA   Host Device
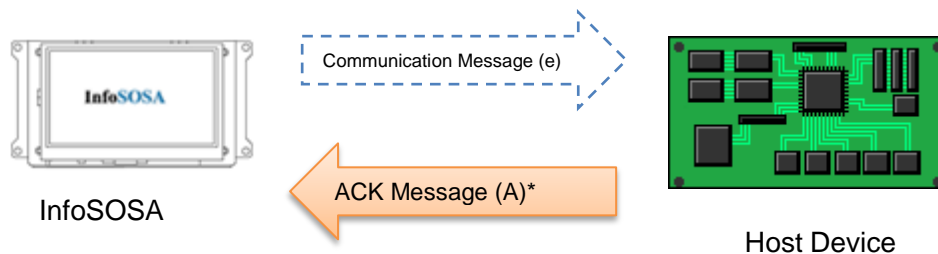
*   ACK message is not required in the case of InfoSOSA protocol

Communication Mode	Acknowledgment of Host Device
InfoSOSA protocol	Unnecessary
Normal protocol	Necessary

Details

<<Message Type>>
A
<<Data>>
None
* Data length is 0.

Message Example

[Serial]

Header   **Footer**

{STX}00**A**100000000222{ETX}

Message Type （A）

【LAN】

Header

A1000000

Message Type （A）
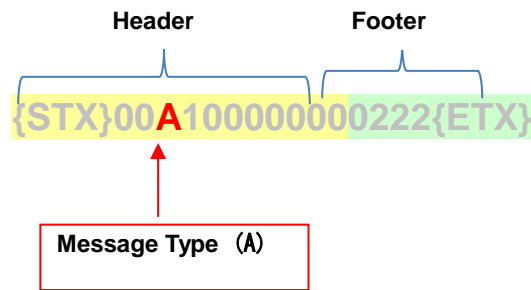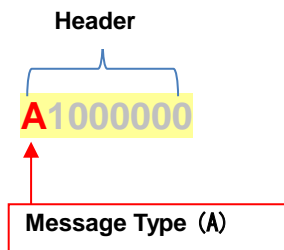
13.7.2   InfoSOSA to Host Device

Here described is ACK from InfoSOSA unit to the host device.

*A response message will be returned to the command message and an ACK message will not be returned in this case.
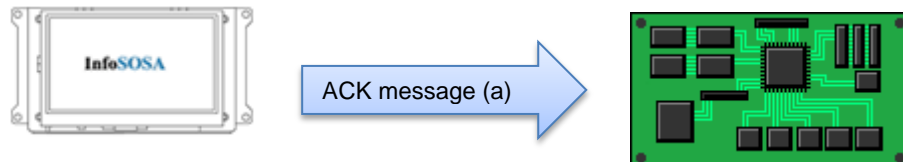
ACK message (a)

InfoSOSA

Host Device

Detail

<<Message Type>>
    a

<<Data>>
  None
   *Data length is 0

Message Example

[Serial]

Header   Footer

{STX}00a100000000242{ETX}

Message Type（A）

[LAN]

Header

a1000000

Message Type（A）
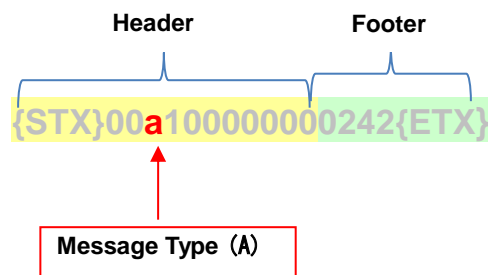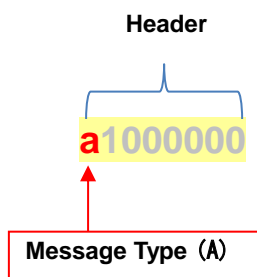
13.8 **NAK Message (N) (n)**

The NAK message is a communication data for indicating to the transmitter that the receiver could not receive correctly.
There are 2 cases of transmissions. One is from the "host devices" to "InfoSOSA" and the other is from "InfoSOSA" to the "host device".

13.8.1 Host Device to InfoSOSA

For normal protocols, InfoSOSA retransmits the event message to NAK from the host device.
*Only the number of "Retry Count" still remains.

Communication Message (e)

NAK Message (N)

InfoSOSA

Communication Message (e)
(Retransmit)
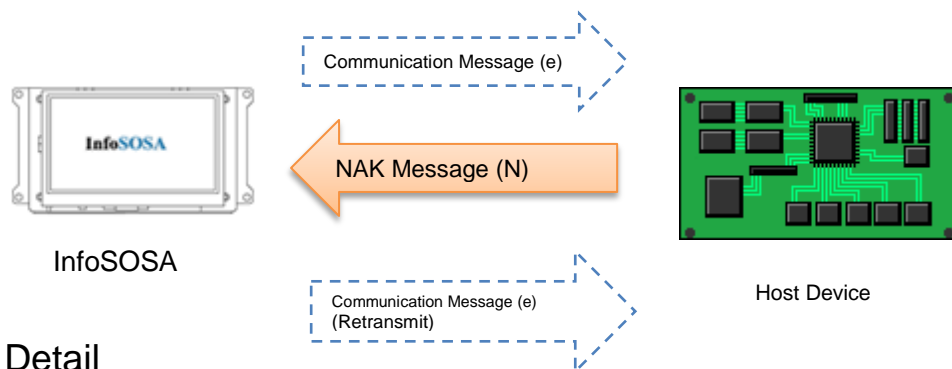
Host Device

Detail

<<Message Type>>
    N
<<Data>>
    None
* Data length is 0.

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Message Example

[Serial]

Header   **Footer**

{STX}00**N**10000000022F{ETX}

Message Type （N）

[LAN]

Header

N1000000

Message Type (N)
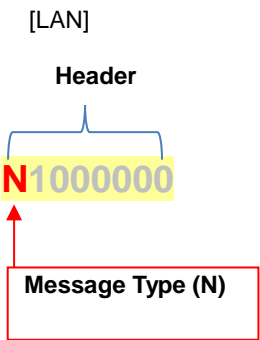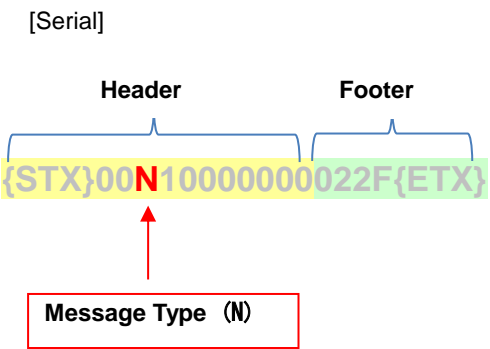
13.8.2   InfoSOSA to Host Device

Here described is NAK from InfoSOSA unit to the host device.

* InfoSOSA will return response message for the command message. (NAK message will not be returned in this case).

InfoSOSA

NAK Message (n)

Host Device
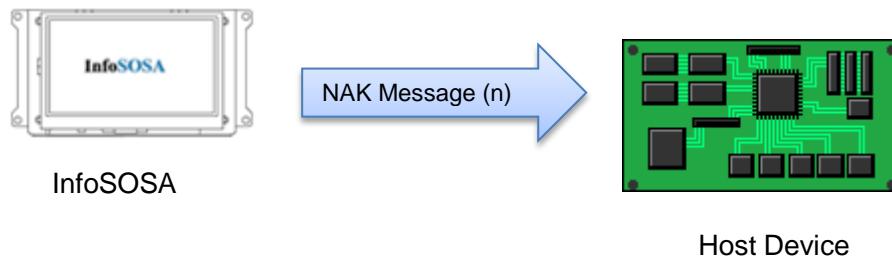
Detail

<<Message Type>>
     n
<<Data>>
      <Error Code>

Parameter	Contents
<Error Code>	8-byte error code 00000001: Data error 00000002: Sequence No. error It will be ASCII code string.

Message Example

[Serial]

Header **Data** **Footer**

{STX}00**n**10000008**00000002**03D1{ETX}

Message Type（n）

[LAN]

Header **Data**

n1000008**00000002**
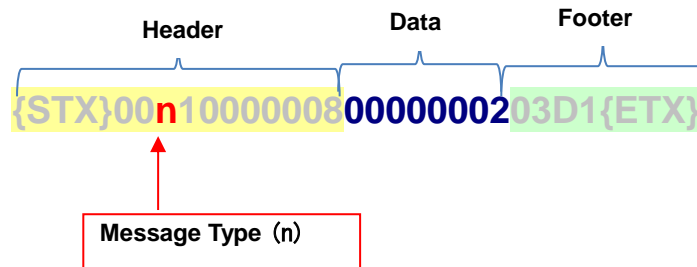
Message Type (n)
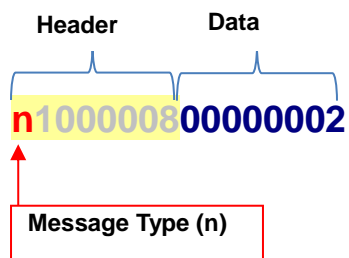
13.9 Busy Message (b)

The Busy message is a communication data that is sent from the InfoSOSA to the host device when InfoSOSA cannot process the command message sent from the host device.

It applies to the InfoSOSA protocol and the normal protocol.

Communication Mode	Busy Response
InfoSOSA protocol	Yes
Normal protocol	Yes

Command Message(C)

InfoSOSA

Busy Message (b)※
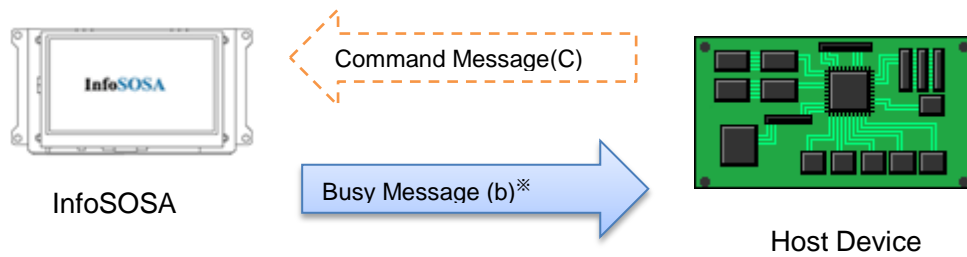
Host Device

* There maybe cases where busy response may not be returned to the host from InfoSOSA such as host device sending large numbers of commands that cannot be received, or commands could not be reached properly due to noises, and etc.

Detail

<<Message Type>>
    b
<<Data>>
    <Command at time of busy>

Parameter	Contents
<Command when busy>	Command received when busy will be returned from InfoSOSA

Message Example

[Serial]

Header **Data** **Footer**

{STX}00**b**1000001CPA02,@GLBMEM.GME00001.VALUE{CR}091A{ETX}

Message Type（b）

[LAN]

Header **Data**

b100001CPA02,@GLBMEM.GME00001.VALUE{CR}

Message Type（b）

12A4A5-00078E-9
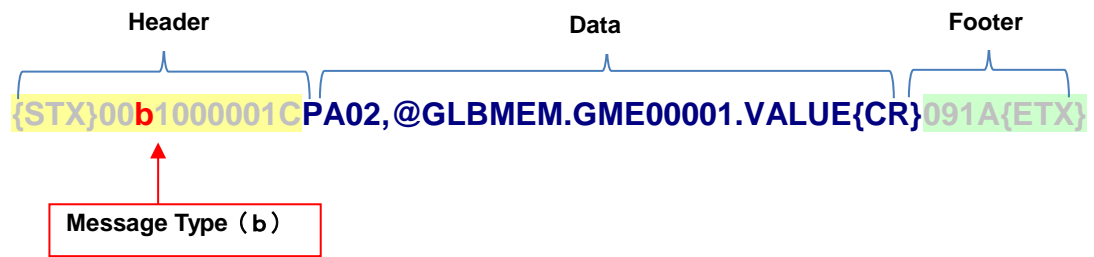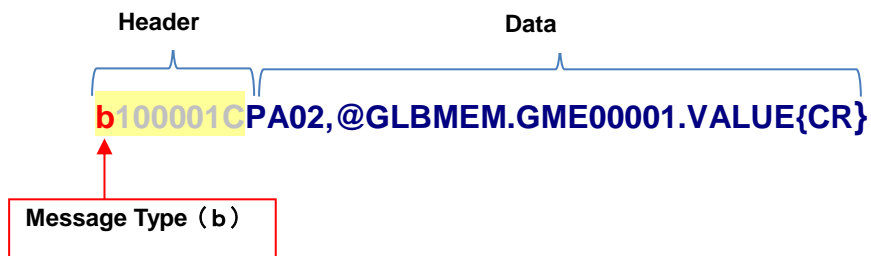
13.10 Polling Message (P)

The Polling message is a communication data to acquire the notification messages that are pending.

The sending of the notification message from InfoSOSA is kept pending when "Notification Method" is set to "Upon Request".

One pending event can be acquired when a Polling message is sent to InfoSOSA.

The maximum number of events can be held in the InfoSOSA unit is 10 events.

If 10 events are already pending, it is likely that they will be lost from the old ones.

InfoSOSA	Host Device
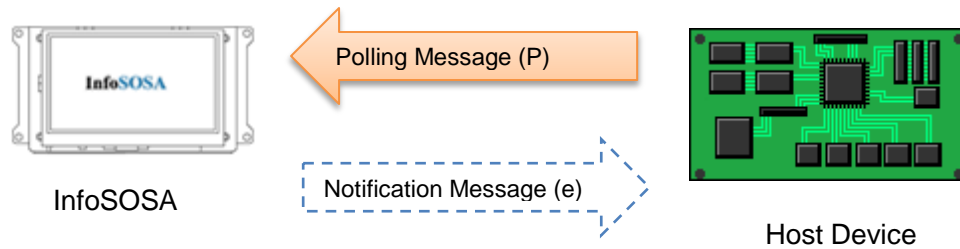
Detail

<<Message Type>>
 P
<<Data>>
 PL01{CR}

<<Reply format>>
 When the pending number of events is 0
 PL01,0{CR}
 The pending number of events is 1 or more
 PL01,<notification remaining number>,<notification>

 * {CR} indicates 0x0d. Delimiter of each parameter is "," comma(0x2c).

Parameter	Contents
<Notification Remaining Number>	Remaining number of notification message pending in InfoSOSA unit. ASCII code string.
<Notification>	Pending notification

Message Example

[Serial (Polling Message)]

Header **Data** **Footer**

{STX}00**P**10000005**PL01{CR}**0340{ETX}

Message Type　(P)
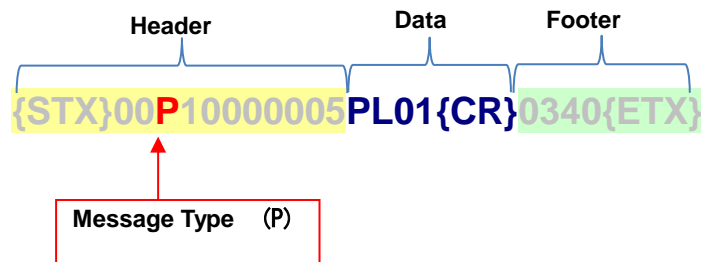
[Serial (Notification Message)

Header **Data** **Footer**

{STX}00**e**1000001F**PL01,0,BAS00001.BTN00002.PRESS{CR}**0955{ETX}

Message Type (e)

[LAN (Polling Message)]

Header **Data**

P1000005**PL01{CR}**

Message Type (P)

[LAN (Notification Message)]

Header **Data**

e100001F**PL01,0,BAS00001.BTN00002.PRESS{CR}**
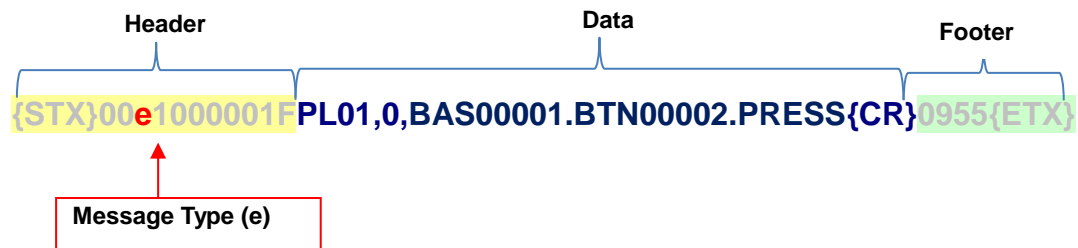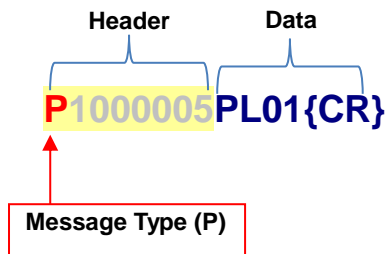
Message Type (e)
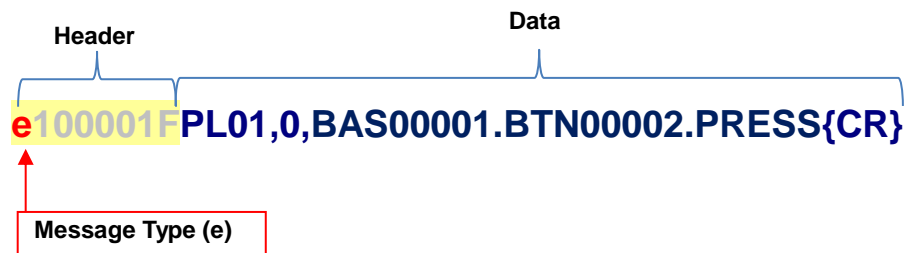
13.11 Connection Confirmation Message (K)

The connection confirmation message is the communication data to confirm that the host device has a valid connection to InfoSOSA while communicating with TCP/IP.

InfoSOSA will return an ACK message.

Communication Method	Connection Confirmation Message
Serial	✕
LAN (UDP/IP)	✕
LAN (TCP/IP)	○

InfoSOSA

Connection Confirmation Message（K）

ACK Message (a)

Host Device
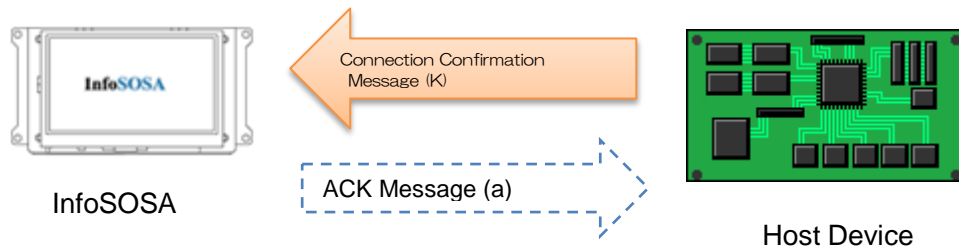
Detail

<<Message Type>>
    K
<<Data>>
    None
* Data length is 0

Message Example

[LAN]

Header

K000000

Message Type (K)

13.12 Communication Command Detail

This section describes the details of the communication command.

13.12.1 Model Name Acquisition

Command Name

Command name: SI01

Message Type 　: 'C'

Function

Acquire model name and serial number of the InfoSOSA unit.

Detail

<<Command Format>>
　　　SI01{CR}
<<Response Format>>
　　SI01, <model name>, <serial number> {CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Model name>	ASCII code string
<Serial number>	ASCII code string

13.12.2 Version Acquisition

Command Name

Command Name：SI02

Message Type ：'C'

Function

Acquire OS version, application version, and user version of InfoSOSA unit.

Detail

<<Command Format>>

　　SI02{CR}

<<Response Format>>

　　SI02, <OS version>,<firmware version>,<user version>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma(0x2c).

Parameters	Contents
<OS Version>	ASCII code string
<Firmware Version>	ASCII code string
<User Version>	ASCII code string User version shows the value set in the "H/W Settings Dialog" in the Builder.

13.12.3 Character Code Setting

Command Name

Command Name：SI03

Message Type ：'C'

Function

Set character code of string used in the string type property and string type Memory such as PA01 (property settings) and PA02 (property acquisition) .

* Numeric Type Memory will be ASCII code.
* When set to UTF-16LE, a distinguishing code indicating that it is UTF-16LE must be attached to the beginning and end of the string. For more information, check the following about the string transmission in Unicode (UTF-16LE)

Detail

<<Command Format>>

　　SI03,<Character Code>{CR}

<<Response Format>>

　　SI03,< execution result>{CR}

* CR} indicates 0x0d. Delimiter of each parameter is "," comma(0x2c).
* Character code setting will be valid only during power On and will go back to its default setting (ASCII) at power OFF.
* Response will not return for InfoSOSA protocol.

Parameters	Contents
<Character code>	Set the character code. 0: Treat string as ASCII code 1: Treat string as Unicode (UTF-16LE). Specify the ASCII code string. Available characters are 0 or 1 (0x30 or 0x31).
<Execution result>	Execution result of command 0: Normal termination 1: The number of command parameters are outside of defined 2: There is a non-specified value in the command 9: Error other than the above It will be ASCII code string.

Restrictions When Using Multi-commands

When the SI03 command is used in the multi-command, the switching of the character code will be executed "after all of the commands contained within the multi-command has been processed".

Please note, character code will not be applied to string transmission when character code changes and string transmitting commands are sent with the same multi-command, .

Example) When changing a character code to Unicode (UTF-16LE) and string transmission of string "Name" are combined.

{STX}00C0000002BSI03,1{CR}
PA01,@GLBMEM.GME00001.TEXT,{0xfe}{0xff}Name{0xff}{0xfe}{CR}0F4A{ETX}

> Character code changes "SI03,1" command(UTF-16LE) does not apply.
> It will be interpreted as ASCII

Be sure to send the string transmission command after sending the SIO3 command as a single command.

String Transmission With Unicode (UTF-16LE)

An identification code indicating that the string is set to Unicode(UTF-16LE) must be added to the beginning and end of string when character code is set to UTF-16LE.

UTF-16LE identification code

Start code	0xfe, 0xff
Exit code	0xff, 0xfe

Example)When the string "Name" in UTF-16LE is sent
[Serial]

{STX}00C00000**24**PA01,@GLBMEM.GME00001.TEXT,**{0xfe}{0xff}**Name**{0xff}{0xfe}**{CR}0DD9{ETX}

Start Code   UTF16-LE String   End Code

Data length and checksum must be a value that includes the start code/exit code.

[LAN]

C00000**24**PA01,@GLBMEM.GME00001.TEXT,**{0xfe}{0xff}** Name **{0xff}{0xfe}**{CR}

Start Code   UTF16-LE String   End Code

Data length must be a value that includes the start code/exit code.
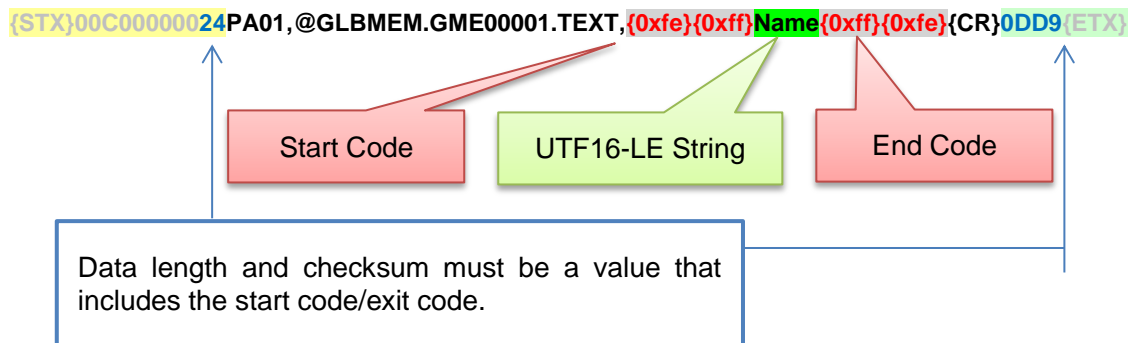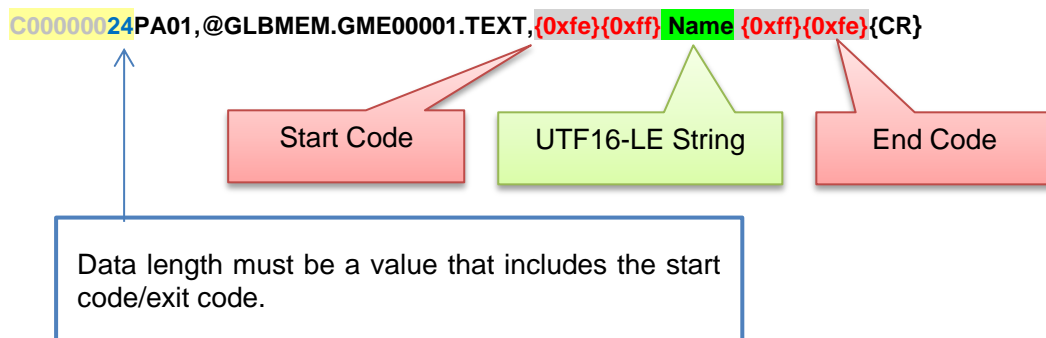
*   Be sure to enclose the entire string in between start code/exit code
If you want to send more than one string in the group data transmission, etc., be sure to enclose at the start code/exit code each string individually.

*   Valid only in Unicode (UTF-16LE). Any other will be considered as invalid message.

*   This is the specification of communication only for [Host Device to InfoSOSA].
Start /Exit code will is not needed for "InfoSOSA to Host Device"

*   It is possible to send the Unicode the (UTF-16LE) string without enclosing it between start/exit command/
However, if the entire message that contain characters such as those shown below, it might be determined as invalid.

[References]

Characters with same codes as 0x02{STX}.

Byte code	Character	Byte code	Character	Byte code	Character
0x0222	∂	0x0225	∣	0x0230	
0x0253	勻	0x0258	堂	0x025c	專
0x025e	市	0x0266	昂	0x0268	栂
0x026f	漂	0x0278	砂	0x0281	脂
0x0283	茂	0x0287	蜂	0x028a	訂
0x028b	謂	0x0298	頂		

Characters with same codes as {ETX}(0x03)

Byte code	Character	Byte code	Character	Byte code	Character
0x9103	A	0x9203	B	0x9303	Γ
0x9403	Δ	0x9503	E	0x9603	Z
0x9703	H	0x9803	Θ	0x9903	I
0x9a03	K	0x9b03	Λ	0x9c03	M
0x9d03	N	0x9e03	Ξ	0x9f03	O
0xa003	Π	0xa103	P	0xa303	Σ
0xa403	T	0xa503	Y	0xa603	Φ
0xa703	X	0xa803	Ψ	0xa903	Ω
0xb103	α	0xb203	β	0xb303	γ
0xb403	δ	0xb503	ε	0xb603	ζ
0xb703	η	0xb803	θ	0xb903	ι
0xba03	κ	0xbb03	λ	0xbc03	μ
0xbd03	ν	0xbe03	ξ	0xbf03	ο
0xc003	π	0xc103	ρ	0xc303	σ
0xc403	τ	0xc503	υ	0xc603	φ
0xc703	χ	0xc803	ψ	0xc903	ω
0x0321	℃	0x0322	Э	0x0325	∣
0x0330	〃	0x034e	七	0x0352	刃
0x0354	吃	0x0357	圃	0x035a	娃
0x035e	布	0x0368	栃	0x0374	球
0x0380	考	0x038f	較	0x0390	逃
0x0398	頃	0x03ff	♯		

Characters with same codes as {CR}(0x0d)

Byte code	Character	Byte code	Character	Byte code	Character
0x0d30	亅	0x0d4e	不	0x0d4f	伍
0x0d50	倍	0x0d54	名	0x0d64	損
0x0d67	服	0x0d69	植	0x0d7d	納
0x0d92	鈍	0x0d9c	鰍		

* The above is only a part of an example.

13.12.4 Backlight ON/OFF Setting

Command Name

Command Name：SC01

Message Type ：'C'

Function

Set ON/OFF of backlight.

Detail

<<Command Format>>
SC01,<backlight ON/OFF>{CR}

<<Response Format>>
    SC01,<execution results>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
  * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Backlight ON/OFF>	Set the ON/OFF of the backlight. 0: OFF the backlight. 1: ON the backlight 2: Screen protection mode. Specify ASCII code string. Available characters are 0 to 2 (0x30 to 0x32).
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined outside 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

  * If the backlight OFF (set value: 0) is set, touch screen and sheet key input will be disabled. The backlight must be set to ON by S01 to release this mode.

  * When the backlight is in Screen Protection Mode, the backlight will turn ON by touch screen and sheet key input even if it is in the OFF state.

  * Refer to "12.1.1LCD Backlight ON/OFF Function".

13.12.5   Backlight ON/OFF State Acquisition

Command Name

Command Name：SC02
Message Type ：'C'

Function

Acquisition of ON/OFF state of the backlight.

Detail

<<Command Format>>
　　SC02{CR}

<<Response Format>>
　　SC02, < backlight state>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Backlight State>	Indicates state of the backlight. 0: Backlight is OFF. 1: Backlight is ON. 2: Screen protection mode. It will be ASCII code string.

13.12.6 Backlight Auto-off Setting

Command Name

Command Name：SC04

Message Type ：'C'

Function

Set the automatic OFF time of the backlight.
Value is retained even after the power is OFF.

Detail

<<Command Format>>
    SC04,<Auto OFF time>{CR}

<<Response Format>>
  SC04,<execution result>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
   * For InfoSOSA protocol, response will not be returned.

Parameters	Contents

<Auto OFF Time>	Set automatic OFF time of backlight.
	0: Backlight does not turn OFF automatically.
	    Backlight Auto OFF function is disabled.
	1 to 1440: Backlight Auto OFF time (in minutes)
	                Backlight Auto OFF function is enabled.
	                Set time until backlight off.
	Specify ASCII code string.
	Available characters are 0 to 9 (0x30 to 0x39).

<Execution Result>	Execution result of the command 0: Normal termination 1: The number of command parameters are out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

   * Also refer to "12.1.2   Automatic Backlight OFF Function".

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13.12.7 Backlight Auto-OFF Acquisition

Command Name

Command Name ：SC05

Message Type   ：'C'

Function

Acquisition of automatic OFF time of the backlight.

Detail

<<Command Format>>
    SC05{CR}

<<Response Format>>
  SC05,<Auto OFF time>{CR}

:
    *{CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Auto OFF time>	Acquire Backlight Auto OFF time. 0: Backlight does not turn OFF automatically. 1 to 1440: Backlight Auto OFF time (in minutes) It will be ASCII code string.

13.12.8 Brightness Setting

Command Name

Command Name：SC06
Message Type ：'C'

Function

Set the brightness of the backlight.
Value is retained even after the power is OFF.

Detail

<<Command Format>>
     SC06,<brightness>{CR}

<<Response Format>>
  SC06,<execution result>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
   * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Brightness>	Set the brightness of backlight. 1: backlight brightness level 1 (dark) 2: backlight brightness level 2 3: backlight brightness level 3 4: backlight brightness level 4 5: backlight brightness level 5 6: backlight brightness level 6 7: backlight brightness level 7 8: backlight brightness level 8 (bright) Specify ASCII code string. Available characters are 1 to 8 (0x31 to 0x38).
<Execution result>	Execution result of command 0: Normal termination 1: The number of command parameters are out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.9　Brightness Acquisition

Command Name

Command Name：SC07

Message Type 　：'C'

Function

Acquisition of the backlight brightness.

Detail

<<Command Format>>
　　SC07{CR}

<<Response Format>>
　　SC07,<brightness>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Brightness>	Acquire the brightness of the backlight. 1: backlight brightness level 1 (dark) 2: backlight brightness level 2 3: backlight brightness level 3 4: backlight brightness level 4 5: backlight brightness level 5 6: backlight brightness level 6 7: backlight brightness level 7 8: backlight brightness level 8 (bright) It will be ASCII code string.

13.12.10 Change Screen

Command Name

Command Name：SC10

Message Type ：'C'

Function

Switch the screen displayed.

    * When Change Screen command is executed while other actions are being executed, it may interrupt the action in process and execute Change Screen.

If the action that was in process had been referring to a resource from the screen before the switch, it will lose access to that resource. Therefore, please note any executing of a communication command while other action is in process will make that action indefinite.

Detail

<<Command Format>>

     SC10, <screen ID> {CR}

<<Response Format>>

  SC10, <execution result> {CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

  * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Screen ID>	Specifies screen ID of screen transition destination. Screen ID and Pop-up screen cannot be specified. Display of Pop-up Screen is done with SC13 or SC14. Specify the ASCII code string. The available characters are according to the ID rule.
<OSD Screen ID>	Make the special operation if the following is set. OSD00001: Calibrate the coordinates
<Execution Result>	Execution result of the command 0: Normal termination 1: The number of command parameters are out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.11 Acquire Current Screen

Command Name

Command Name：SC11

Message Type 　：'C'

Function

Acquisition of the Screen ID being displayed.

Detail

<<Command Format>>
　　SC11{CR}

<<Response Format>>
　　SC11,<screen ID>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
　* When you issue this command during the screen transition you might get the screen ID of the previous screen due to the screen transition.

Parameters	Contents
<Screen ID>	Acquire the screen ID of the screen being displayed. It will be ASCII code string.

13.12.12 Display Pop-up Screen A

Command Name

Command Name ：SC13

Message Type ：'C'

Function

Turn ON the display of Pop-up Screen A.

Detail

<<Command Format>>

　　SC13,<screen ID of Pop-up Screen A>,<X coordinate>,<Y coordinate>{CR}

<<Response Format>>

　SC13,<execution result>{CR}

* 　{CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* 　For InfoSOSA protocol, response will not be returned.
* 　Note that there is a case where the pop-up might be displayed outside of the screen area depending on the specified position of the coordinates.
* 　If "Display Pop-up Screen A" is executed when Pop-up Screen A is already displayed, it will erase the Pop-up Screen A that was originally displayed and the specified Pop-up Screen A will be displayed.

Parameters	Contents
<Screen ID of the Pop-up Screen A>	Set screen ID of Pop-up Screen A to be displayed. Specify ASCII code string. Available characters are according to the ID rules.
<X coordinate>	Set display location of Pop-up screen (upper left X coordinate). <X coordinate> = 0 to (display screen width - Pop-up Screen width) Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Y coordinate>	Set display location of Pop-up Screen (upper left Y coordinate). <Y coordinate> = 0 to (display screen height - the Pop-up Screen height) Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters are out of range 2: There is a non-specified value in command 9: An error other than the above It will be ASCII code string.

13.12.13　Display Pop-up Screen B

Command Name

Command Name ：SC14

Message Type 　：'C'

Function

Turn ON the display of Pop-up Screen B.

Detail

<<Command Format>>

　　　SC14,<screen ID of Pop-up Screen B>,<X coordinate>,<Y coordinate>{CR}

<<Response Format>>

　　SC14,<execution result>{CR}

*　　　{CR} indicates 0x0d. Delimiter of each parameter is ",", comma (0x2c).
*　　　For InfoSOSA protocol, response will not be returned.
*　　　*Note that there is a case where the pop-up might be displayed outside of the screen area depending on the specified position of the coordinates.
*　　　If "Display Pop-up Screen B" is executed when Pop-up Screen B is already displayed, it will erase the Pop-up Screen b that was originally displayed and the specified Pop-up Screen B will be displayed.

Parameters	Contents
<Screen ID of the Pop-up Screen B>	Set screen ID of Pop-up Screen B to be displayed. Specify ASCII code string. Available characters are according to the ID rules.
<X coordinate>	Set display location of Pop-up screen (upper left X coordinate). <X coordinate> = 0 to (display screen width - Pop-up Screen width) Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Y coordinate>	Set display location of Pop-up Screen (upper left Y coordinate). <Y coordinate> = 0 to (display screen height - the Pop-up Screen height) Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters are out of range 2: There is a non-specified value in command 9: An error other than the above It will be ASCII code string.

13.12.14　Erase Pop-up Screen A

Command Name

Command Name：SC15

Message Type　：'C'

Function

Turn OFF the display of Pop-up Screen A with respect to the display screen.

Detail

<<Command Format>>

SC15{CR}

<<Response Format>>

SC15,<execution result>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

　* For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.15 Erase Pop-up Screen B

Command Name

Command Name：SC16
Message Type ：'C'

Function

Turn OFF the display of Pop-up Screen B with respect to the display screen.

Detail

<<Command Format>>
    SC16{CR}

<<Response Format>>
   SC16,<execution result>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
  * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.16 Acquires Current Pop-up Screen

Command Name

Command Name：SC17

Message Type ：'C'

Function

Acquisition of the state of the Pop-up Screen that is displayed on the screen.

Detail

<<Command Format>>
    SC17{CR}

<<Response Format>>
    SC17,<display state of the Pop-up Screen A>,<display state of the Pop-up Screen B>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* Time is necessary for the screen to turn ON/OFF after turning ON/OFF the Pop-up screen with commands SC13 to SC16. If SC17 is executed during this procedure, unintended results might be obtained due to the screen still being displayed.

Parameters	Contents
<Display state of the Pop-up Screen A>	If Pop-up Screen A is displayed, then 1(0x31), otherwise 0 (0x30).
<Display state of the Pop-up Screen B>	If Pop-up Screen B is displayed, then 1(0x31), otherwise 0 (0x30).

13.12.17 Touch Input Setting

Command Name

Command Name：TP01

Message Type ：'C'

Function

Enable/disable touch input

Detail

<<Command Format>>

TP01,<touch input Enable/Disable>{CR}

<<Response Format>>

TP01,<execution result>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* For InfoSOSA protocol, response will not be returned.
* This setting is valid only when the power is ON.

Parameters	Contents
<Touch Input Enable/Disable>	Set the input enable/disable of the touch screen. 0: touch screen input is disabled 1: Touch screen input is enabled Specify the ASCII code string. Available characters are 0 or 1 (0x30 or 0x31).
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.18 Touch Input Acquisition

Command Name

Command Name ：TP02

Message Type ： 'C'

Function

Acquisition of the touch input enable/disable state.

Detail

<<Command Format>>
>   TP02{CR}

<<Response Format>>
>   TP02,<touch input Enable/Disable>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Touch Input Enable/Disable>	Shows the input enable/disable of the touch screen. 0: touch panel input is disabled 1: Touch panel input is enabled It will be ASCII code string.

13.12.19 Touch Input Axis Acquisition

Command Name

Command Name：TP06

Message Type ：'C'

Function

Acquisition of the last touched coordinates of the touch screen.

Detail

<<Command Format>>
      TP06{CR}

<<Response Format>>
   TP06,<X coordinate>,<Y coordinate>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
   * If not pressed from the start, the return value is (0,0).
   * Physical coordinates are returned regardless of the screen rotation angle.

Parameters	Contents
<X coordinate>	X coordinate of the touch screen 0 to LCD Horizontal resolution -1 It will be ASCII code string.
<Y coordinate>	Y coordinates of the touch screen 0 to LCD Vertical resolution -1 It will be ASCII code string.

13.12.20 Sheet Key State Acquisition

Command Name

Command Name：SW01

Message Type ：'C'

Function

Acquisition of the sheet key switch state.

Detail

<<Command Format>>
     SW01,<switch ID>{CR}

<<Response Format>>
    SW01,<switch ID>,<switch state>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
  * This command cannot be used by models that do not have the sheet key functions.

Parameters	Contents
<Switch ID>	Set the switch ID. Switch ID: XSW01 to XSW24 Specify the ASCII code string.
<Switch state>	It indicates the state of the switch. 0: switch OFF 1: switch ON It will be ASCII code string.

13.12.21 LED State Setting

Command Name

Command Name：LD01

Message Type ：'C'

Function

Turning ON/OFF of the sheet key LED.

Detail

<<Command Format>>

    LD01,<LED ID>,<LED output>{CR}

<<Response Format>>

  LD01,<execution result>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

   * For InfoSOSA protocol, response will not be returned.

   * This command cannot be used by models that do not have the sheet key functions.

Parameters	Contents
<LED HID>	Set the LED ID. LED ID: XLED01 to XLED08 Specify the ASCII code string.
<LED output>	Set the output of the LED. 0: OFF the LED 1: ON the LED Specify the ASCII code string. Available characters are 0 or 1 (0x30 or 0x31).
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined outside 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.22 LED State Acquisition

Command Name

Command Name：LD02

Message Type ：'C'

Function

Acquire the output state of the sheet key LED.

Detail

<<Command Format>>
LD02,<LED ID>{CR}

<<Response Format>>
SW01,<LEDID>,<LED state>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* This command cannot be used by models that do not have the sheet key functions.

Parameters	Contents
<LED ID>	Set the LED ID. LED ID: XLED01 to XLED08 Specify the ASCII code string.
<LED output>	It shows the output state of the LED. 0: LED is OFF 1: LED is ON It will be ASCII code string.

13.12.23 Ring Buzzer

Command Name

Command Name：BZ01

Message Type ：'C'

Function

Activate the buzzer.

Detail

<<Command Format>>

    BZ01,<buzzer ON ring time>,<buzzer ON time>{CR}

<<Response Format>>

    BZ01,<execution result>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
   * For InfoSOSA protocol, response will not be returned.
   * Please refer to "12.2Buzzer" for frequency of the buzzer.
   * Frequency will be fixed regardless of the specified frequency if the buzzer sound is a single tone model.
   * If Buzzer ON Setting is made again during Buzzer ON, the last Ring Buzzer command will overwrite the previous one.

Parameters	Contents
<Buzzer ON Frequency>	Set the frequency to sound the buzzer. Value: 500 to 5000 (unit: Hz) Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Buzzer ON Time>	Set the time to sound the buzzer. Setting: 100 to 10,000 (unit: msec) Set in 100msec unit. Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined outside 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.24 Buzzer State Acquisition

Command Name

Command Name：BZ02
Message Type ：'C'

Function

Acquire the state of the buzzer.

Detail

<<Command Format>>
　　BZ02{CR}

<<Response Format>>
　　BZ02,<buzzer state> {CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Buzzer state>	It indicates the state of the buzzer. 0: Buzzer OFF 1: Buzzer ON It will be ASCII code string.

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13.12.25 RTCSetting

Command Name

Command Name：TC01

Message Type ：'C'

Function

Set the clock of InfoSOSA.

Detail

<<Command Format>>

TC01,<year>,<month>,<day>,<hour>,<minute>,<seconds>{CR}

<<Response Format>>

TC01,<execution result>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* For InfoSOSA protocol, response will not be returned.
* If an invalid time is set, the setting will be ignored.

Parameters	Contents
<Year>	Set the "year". Value: 2000 to 2038 Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Month>	Set the "month". Set value: 1 to 12 Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Day>	Set the "day". Set value: 1 to 31 Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Hour>	Set the "hour". Value: 0 to 23 (24-hour time) Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Minutes>	Set the "minute". Value: 0 to 59 Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Seconds>	Set the "seconds". Value: 0 to 59 Specify with ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).

Parameters	Contents
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined outside 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

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13.12.26 RTC Acquisition

Command Name

Command Name：TC02

Message Type ：'C'

Function

Acquire the time of InfoSOSA.

Detail

<<Command Format>>
    TC02{CR}

<<Response Format>>
  TC02,<year>,<month>,<day>,<hour>,<minute>,<seconds>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Year>	Shows "year" in ASCII code string
<Month>	Shows "month" in ASCII code string
<Day>	Shows "day" in ASCII code string
<Hour>	Shows "hour" in ASCII code string
<Minutes>	Shows "minute" in ASCII code string
<Seconds>	Shows "second" in ASCII code string

13.12.27 Property Setting

Command Name

Command Name：PA01
Message Type ：'C'

Function

Set the properties of parts, memories, etc.

Detail

<<Command Format>>
   PA01,<property>,<setting value>{CR}

<<Response Format>>
    PA01,<property>,<execution result>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
   * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	Refer to "13.13.1 Property/Event" to specify the properties.
<Setting value>	Refer to "13.13.2 How to Specify Setting Value" to configure settings.
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are out of provisions 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.28 Property Acquisition

Command Name

Command Name：PA02

Message Type ：'C'

Function

Set the properties of parts, memories, etc.

Detail

<<Command Format>>

PA01,<property>,<setting value>{CR}

<<Response Format>>

PA01,<property>,<execution result>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Property>	Property is retrieved in format of "13.13.1 Property/Event"
<Setting value>	Setting value is acquired in format specified in "13.13.2 How to Specify Setting Value "

13.12.29 DPOINT Method Execution (Picture Box)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：DPOINT

Function

Draw a point of one dot in a Picture Box Part.

Detail

<<Command Format>>
PA03,<property>,<X coordinate>,<Y coordinate>,<color>{CR}

<<Response Format>>
PA03,<property>,<execution result>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
  * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	It is shown in the following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to "13.13.1Property/Event."
<X coordinate> <Y coordinate>	<X coordinate>: Sets the X coordinate of point to be drawn. <Y coordinate>: Sets the Y coordinate of point to be drawn. ∗ The upper left corner of the parts will be the origin (0, 0). Specify the ASCII code string. Available characters are 0 ~ 9 (0x30 ~ 0x39).
<Color>	Specify with the format of "R-G-B". R: Red (0 to 255) G: Green (0 to 255) B: Blue (0 to 255) Color number is specified in the ASCII code string. Available characters are 0 to 9 (0x30 to 0x39) and delimiter "-", hyphen (0x2d).
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined out of provision 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.30 DLINE Method Execution (Picture Box)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：DLINE

Function

Draw a line or a rectangle in a Picture Box part.

Detail

<<Command Format>>

PA03,<property>,<starting point X>,<starting point Y>,<end point X>,<end point Y>,<color>,<instruction>{CR}

<<Response Format>>

PA03,<property>,<execution result>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	It is shown in the following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1Property/Event for more information.
<Starting point X> <Starting point Y> <End point X> <End point Y>	<Starting point X>: starting point X-coordinate <Starting point Y>: starting point Y-coordinate <End point X>: end point X-coordinate (line drawing), or width (square drawing) <End point Y>: end point Y coordinates (line drawing), or height (square drawing) * The upper left corner of the parts will be the origin (0, 0). Specify the ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Color>	It specifies the format of "R-G-B". R: Red (0 to 255) G: Green (0 to 255) B: Blue (0 to 255) Color number is specified in the ASCII code string. Available characters are 0 to 9 (0x30 to 0x39) and delimiter "-", hyphen (0x2d).
<Instruction>	Specify the behavior when you run the DLINE method. 0: line drawing (Draw a line with <Starting point X>,<starting point Y> - <end point X>,<end point Y>). 1: rectangle (frame only, not filled) 2: rectangle drawing (inside of shape filled) (Draw or fill a rectangle with <Starting point X>,<starting point Y> as a starting point, and width (<end point X>) or height (<end point Y>).

Parameters	Contents
	Specify the ASCII code string. Available characters are 0 to 2 (0x30 to 0x32).
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.31 DCIRCLE Method Execution (Picture Box)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：DCIRCLE

Function

Draw a circle in a Picture Box part.

Detail

<<Command Format>>
　　PA03,<property>,<X coordinate>,<Y coordinate>,<radius>,<color>,<instruction> {CR}

<<Response Format>>
　　PA03,<property>,<execution result>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
　* For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	It is shown in the following format. Format: [Screen ID].[parts ID].[method ID] * Delimiter of each ID is "." period (0x2e). For more information, refer to 13.13.1Property/Event.
<X coordinate> <Y coordinate>	It shows the coordinates of the center of the circle. * The upper left corner of the parts will be the origin (0,0). Specify the ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Radius>	It shows the radius of the circle. Specify the ASCII code string. Usable the characters are 0 to 9 (0x30 to 0x39).
<Color>	It specifies the format of "R-G-B". R: Red (0 to 255) G: Green (0 to 255) B: Blue (0 to 255) Color number is specified in the ASCII code string. Available characters are 0 to 9 (0x30 ~ 0x39) and delimiter "-", hyphen (0x2d).
<Instruction>	Specify the filling of the inside of the shape . 0: not fill 1: filled Available characters are 0 or 1 (0x30 or 0x31).
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.32 LPICTURE Method Execution (Picture Box)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：LPICTURE

Function

Draw an image to a Picture Box part.
Image must be registered to the Image Resource in advance using the Builder.

Detail

<<Command Format>>
PA03,<property>,<X coordinate>,<Y coordinate>,<image resourceID>{CR}

<<Response Format>>
　　PA03, <property>,<execution result>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
　* For InfoSOSA protocol, response will not be returned.
　* Image will be displayed in the size registered in the Image Resource.
　* It will not be resized to match the size of the Picture Box part.

Parameters	Contents
<Property>	It is shown in the following format. Format [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<X coordinate> <Y coordinate>	It shows the upper left corner of the coordinates of the image. The upper left corner of the parts will be the origin (0,0). Specify the ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Image resource ID>	It sets the image resource ID. Specify the ASCII code string. The available characters according to the ID rule.
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.33 ADDLAST Method Execution (Simple Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：ADDLAST

Function

Add data to the end of the Simple Graph part.

Detail

<<Command Format>>
    PA03, <property>,<Setting data>{CR}

<<Response Format>>
    PA03, <property>,<execution result>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
  * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	It is shown in following format. Format [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Setting data>	Set data in order of CH1, CH2, CH3... and CH8. Data to be set is optional, and omitted value is set (-2,147,483,648). Setting value is -2,147,483,647 to 2,147,483,647 (double word type). Double word type will be in range up to -2,147,483,648, as setting value because it is treated as a missing value. -2,147,483,648 cannot be used. Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39). Delimiter of each parameter is "," comma (0x2c).
<Execution result>	Execution result of command 0: Normal termination 1: number of command parameters are defined out of range 2: re is a non-specified value in command 9: An error or than above It will be ASCII code string.

13.12.34 ADDDATA Method Execution (Simple Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：ADDDATA

Function

Add the data of lines that have been set in the "CH Number" property to the end of the Simple Graph part.

Detail

<<Command Format>>
PA03, <property>,<Setting data>{CR}

<<Response Format>>
PA03, <property>,<execution result>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
   * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	It is shown in following format. Format [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event.

<Setting data>	It is possible to add data to line of maximum 40 ÷ "CH Number" property.
	Data is set in following order.
	  CH1[n],CH2[n],...,CHX[n],CH1[n+1], ...,CHX [n+40÷X]
	  n indicates end line of graph data.
	  X will be value specified in "CH Number" property.
	If you set number of data is less than a multiple of X, lack of data is set as value (-2,147,43,648).
	Setting value is -2,147,483,647 to 2,147,483,647 (double word type).
	Double word type, but will be in range up to -2,147,483,648, as setting value because it is treated as a omitted value. -2,147,483,648 cannot be used.
	Specify ASCII code string.
	Available characters are 0 to 9 (0x30 to 0x39).
	Delimiter of each parameter is "," comma (0x2c).

<Execution result>	Execution result of command 0: Normal termination 1: number of command parameters are defined out of range 2: re is a non-specified value in command 9: An error other than above It will be ASCII code string.

13.12.35 ALLCLR Method Execution (Simple Graph)

Command Name

Command Name：PA03

Message Type ：'C'

Method ID：ALLCLR

Function

Clear the data of the Simple Graph part.

Detail

<<Command Format>>

    PA03, <property>{CR}

<<Response Format>>

  PA03, <property>,<execution result>{CR}

   * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

   * For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	It is shown in the following format. Format [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Execution result>	Execution result of the command 0: Normal termination 1: The number of command parameters are defined out of range 2: There is a non-specified value in the command 9: An error other than the above It will be ASCII code string.

13.12.36 DRAWAXIS Method Execution (Simple Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：DRAWAXIS

Function

Change the X-Axis/Y-Axis configuration of the Simple Graph part.
The graph's appearance will be updated after this operation

Detail

<<Command format>>
PA03,<property>,<X-Axis No. of Data>,<Y-Axis Upper Limit>, <Y-Axis Lower Limit>,<X-Axis Scale Unit>,<Y-Axis Scale Unit>, <Y-Axis Scale Interval>,<Y-Axis Characters>{CR}

<<Response format>>
PA03,<property>,<execution result>{CR}

 * {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
 * For InfoSOSA protocol, response will not be returned..

Parameters	Contents
<Property>	Shown in following format. Format [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<X axis number of displayed data>	Set number of data to be displayed on X-axis. Setting range: 1 to 400 Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Y axis display upper limit value>	Set display upper limit of Y-axis. Setting range: -2147483645 to 2147483647 * Specify value greater than Y axis display lower limit. * There is case of setting is not possible where difference between Y-axis display upper limit and lower limit value is large. * If you want to display scale values, set display number of digits of Y-axis is greater than or equal to value. * Depending on Y-axis scale interval, it displays Y-axis upper limit value or more. Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Y axis display lower limit value>	Set display lower limit value of Y-axis. Range: -2147483646 ~ 2147483646 * Specify value smaller than Y-axis display upper limit. * There is case of setting is not possible where difference between Y-axis display upper limit and lower limit value is large. * If you want to display scale values, set display number of digits of Y-axis is greater than or equal to value. Specify ASCII code string.

Parameters	Contents
	Available characters are 0 to 9 (0x30 to 0x39).
<X-axis scale interval>	Set scale interval of X-axis. Setting range: 1 to 400 Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Y-axis scale interval>	Set scale interval of Y-axis. Setting range: 1 to 2147483647 * Specify interval to be 1 to 100. * Cannot be set to interval to be greater than or equal to number of pixels graph display area. Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Y-axis scale display interval>	Based on Y-axis scale interval, set value display interval of Y-axis. Setting range: 0 to 3 * If you specify 0, scale value does not display. Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Y axis display digits>	Set number of digits of display value of Y-axis. * Scale value will not be displayed if specified number of digits is more than scale value. Setting range: 1 to 12 Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters are defined out of range 2: There is non-specified value in command 9: An error other than above It will be ASCII code string.

13.12.37 GETAXIS Method Execution (Simple Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：GETAXIS

Function

Acquire the X-axis/Y-axis configuration of the Simple Graph part.

Detail

<<Command format>>
PA03,<property>{CR}

<<Response format>>
　PA03,<property>,<execution result>,<X-Axis No. of Data><Y-Axis Upper Limit>, <Y-Axis Lower Limit>,<X-Axis Scale Unit>,<Y-Axis Scale Unit>, <Y-Axis Scale Interval>,<Y-Axis Characters>{CR}
Or
　PA03,<property>,<execution result>{CR} (* at the time of error)

　* {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).

All parameters will be in ASCII code string.

Parameters	Contents
<Property>	Shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Execution result>	Execution result of command 0: Normal termination 1: number of parameters command provisions out of range 2: There is a non-specified value in command 9: An error other than above
<Number of data displayed on X axis>	Indicates number of data to be displayed on X-axis.
<Y axis display upper limit>	Indicates an upper limit value of Y-axis.
<Y axis display lower limit value>	Indicates display lower limit value of Y-axis.
<X axis scale interval>	Shows scale interval of X-axis.
<Y axis scale interval>	Shows scale interval of Y-axis.
<Y axis scale display interval>	Shows value display interval of Y-axis relative to Y-axis scale interval,.
<Y axis display digits>	Indicates number of digits of display value of Y-axis.

13.12.38 SETOP Method Execution (Trend Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：SETOP

Function

Change the operation status of the Trend Graph part.

Detail

<<Command format>>
　　PA03,<property>,<operation state>{CR}

<<Response format>>
　　PA03,<property>,<execution result>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
　* For InfoSOSA protocol, response will not be returned.

　All parameters will be in ASCII code string.

Parameters	Contents
<Property>	It is shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Operation state>	Specify operation state. Refer to "3.13 Trend Graph " for corresponding values.
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above

13.12.39 GETOP Method Execution (Trend Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：GETOP

Function

Acquire the operation state of the Trend Graph part.

Detail

<<Command format>>
    PA03,<property>{CR}

<<Response format>>
    PA03,<property>,<execution result>,<operation state>{CR}
Or
    PA03,<property>,<execution result>{CR} (* At the time of error)

  * {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).

  All parameters will be in ASCII code string.

Parameters	Contents
<Property>	It is shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1Property/Event for more information.
<Operation state>	Specify operation state. Refer to 3.13Trend Graph for corresponding values.
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above

13.12.40 SCROLL Method Execution (Trend Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：SCROLL

Function

Scroll the Trend Graph part.
It will not scroll if the operation state is "real-time".
The unit of time per one scroll varies depending on the X-axis time scale at the time the
command is executed.

Detail

<<Command Format>>
    PA03,<property>,<scroll direction>{CR}
<<Response format>>
    PA03,<property>,<execution result>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
  * For InfoSOSA protocol, response will not be returned.

All parameters will be in ASCII code string.

Parameters	Contents
<Property>	It is shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Scroll direction>	It specifies operation state. Refer to "3.13 Trend Graph" for corresponding values.
<Execution result>	Execution result of command 0: Normal termination 1: Number of parameters command provisions out of range 2: There is a non-specified value in command 9: An error other than above

13.12.41 SETTSA Method Execution (Trend Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：SETTSA

Function

Change the time scale of the Trend Graph part.
Specifies the time scale directly.

Detail

<<Command format>>
    PA03,<property>,<time scale>{CR}

<<Response format>>
    PA03,<property>,<execution result>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
  * For InfoSOSA protocol, response will not be returned.

All parameters will be in ASCII code string.

Parameters	Contents
<Property>	It is shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Operation state>	It specifies time scale. Refer to 3.13 Trend Graph for corresponding values.
<Execution result>	Execution result of command 0: Normal termination 1: Number of parameters command provisions out of range 2: There is a non-specified value in command 9: An error other than above

13.12.42 SETTSB Method Execution (Trend Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：SETTSB

Function

Change the time scale of the Trend Graph part.
With this method, the Time Scale is changed indirectly: "One-step zoom in" or "One-step zoom out".

Detail

<<Command format>>
　　PA03,<property>,<zoom of time scale>{CR}

<<Response format>>
　　PA03,<property>,<execution result>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
　* For InfoSOSA protocol, response will not be returned.

All parameters will be in ASCII code string.

Parameters	Contents
<Property>	Shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Zoom designation of time scale>	Specifies zoom of time scale. 0: 1 step zoom in (time scale will be expanded by one step) 1: 1 step zoom out (time scale will be one step reduction)
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above

13.12.43 GETTS Method Execution (Trend Graph)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：GETTS

Function

Acquire the time scale of the trend graph.

Detail

<<Command Format>>
PA03, <property>{CR}

<<Response format>>
    PA03,<property>,<execution result>,<time scale>{CR}
Or
    PA03,<property>,<execution result>{CR} (* At the time error)

 * {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).

  All parameters will be in ASCII code string.

Parameters	Contents
<Property>	Shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Time scale>	Specifies time scale. Refer to 3.13 Trend Graph for corresponding values.
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above

13.12.44 AUTOCNT Method Execution (Global Memory)

Command Name

Command Name：PA03
Message Type ：'C'
Method ID：AUTOCNT

Function

The value of the Global Memory (numeric type) will automatically be counted.
When this command is executed, the Global Memory will either count up or count down from the current value to the directed value

Detail

<<Command format>>
    PA03,<property>,<target value>,<increment or decrement per one time>{CR}

<<Response format>>
    PA03,<property>,<execution result>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
* For InfoSOSA protocol, response will not be returned.
* Count display does not necessarily show all of the value increased or decreased. There may be a skip in numeric display.

Parameters	Contents
<Property>	It is shown in following format. Format: [Screen ID].[Parts ID].[Method ID] * Delimiter of each ID is "." period (0x2e). Refer to 13.13.1 Property/Event for more information.
<Count end point>	Set count end point. Set within range of numeric memory. Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Count increase or decrease amount>	Set count increase or decrease value. Set value: 1 to (count end point - current count) -1 Specify ASCII code string. Available characters are 0 to 9 (0x30 to 0x39).
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above It will be in ASCII Code

13.12.45 Group Data Setting

Command Name

Command Name：PA05

Message Type ：'C'

Function

Set value in Global Memory that is grouped in batch.

Detail

<<Command format>>

　　PA05,<Group ID>,<value 1>,<value 2>, ...,<value n>{CR}

<<Response format>>

　　PA05,<Group ID>,<execution result>{CR}

　　* Values should be aligned in order of "No." property in the <Group ID>.
　　* Number n of setting value must match the number of memories that belong to <group ID>. If they do not, the entire command will be ignored.
　　* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
　　* For InfoSOSA protocol, response will not be returned.

Parameters	Contents
<Property>	Set group ID set by group memory of InfoSOSA Builder. Specify ASCII code string. Available characters are according to ID rule.
<Setting value>	Refer to 13.13.2 How to Specify Setting Value for instructions on how to specify setting value.
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above It will be in ASCII Code

13.12.46 Group Data Acquisition

Command Name

Command Name：PA06

Message Type ：'C'

Function

Acquire the value of Global Memory that is grouped in batch.

Detail

<<Command format>>
  PA06,<Group ID>{CR}

<<Response format>>
  PA06,<Group ID>,<value 1>,<value 2>,...,<value n>{CR}

  * Values should be aligned in order of "No." property in the <Group ID>.
  * The number n of the set value is the number of memory that belongs to <group ID>.
  * {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).

Parameters	Contents
<Group ID>	Set group ID set by group memory of InfoSOSA Builder. Specify ASCII code string. Available characters are according to ID rule.
<Setting value>	Refer to 13.13.2How to Specify Setting Value for instructions on how to specify setting value.

13.12.47 Subroutine Call

Command Name

Command Name：PA07

Message Type ：'C'

Function

Execute the subroutines that have been pre-registered to InfoSOSA.

Detail

<<Command format>>

PA07,<subroutine ID>{CR}

<<Response format>>

PA07,<subroutine ID>,<execution result>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is "," comma (0x2c).
* For InfoSOSA protocol, response will not be returned.
*Execution results for the subroutine execution will return to 0 at the time the execution starts. Therefore execution results will be "0=normal termination" even when an error occurs in subroutine.

Parameters	Contents
<Subroutine ID>	Set subroutine ID that has been set in InfoSOSA Builder. Specify ASCII code string. Available characters are according to ID rule.
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above It will be in ASCII Code

13.12.48 Restart

Command Name

Command Name：RS01
Message Type　：'C'

Function

Reboot the InfoSOSA unit.

Detail

<<Command Format>>
　　RS01{CR}

<<Response Format>>
　　RS01,<execution result>{CR}

　* {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
　* Response is sent regardless of the communication mode.

Parameters	Contents
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above It will be in ASCII Code

13.12.49 SRAM Clear and Restart

Command Name

Command Name：RS02

Message Type ：'C'

Function

Clear SRAM and reboot the InfoSOSA unit.
The Global Memory is loaded with the initial value after restart.

Detail

<<Command Format>>
RS02{CR}

<<Response Format>>
RS02,<execution result コード>{CR}

* {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
* Response is sent regardless of the communication mode.
* For models that do not have a SRAM, only restart will be executed.

Parameters	Contents
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above It will be in ASCII Code

13.12.50 Delete Logging Data

Command Name

Command Name：LG01

Message Type ：'C'

Function

Delete all the log data created by the logging function.

Target storage for deleting will be the device that has been set in "11 Storage".

For more information about files to be deleted, refer to the ""11.3 Logging Function".

* If the environment variable "STRG1EN" is "0 (= disable)", execution will fail.

Detail

<<Command Format>>

    LG01{CR}

<<Response Format>>

    LG01,<execution result code>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).

  * For InfoSOSA protocol, response will not be returned.

  All parameters will be in ASCII code string.

Parameters	Contents
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters out of range 2: Non-specified value in command 9: Error other than above

13.12.51 Generate a Logging Trigger

Command Name

Command Name：LG02
Message Type ：'C'

Function

Generate a trigger for logging to the specified log data ID.
Log data which the trigger is issued will log once at that time.

Log data that can be issued by the trigger of this command will be both "Periodical" and "user trigger ".
(It is possible to execute the logging with this command even if it set to "Periodical logging".)

For more information on log data, refer to the "11.3 Logging Function".

* If the environment variable "STRG1EN" is "0 (= disabled)", execution will fail.

Detail

<<Command format>>
    LG02,<log data ID>{CR}

<<Response format>>
    LG02,<execution result code>{CR}

  * {CR} indicates 0x0d. Delimiter of each parameter is a "," comma (0x2c).
  * For InfoSOSA protocol, response will not be returned.

  All parameters will be in ASCII code string.

Parameter	内容
<Log data>	Specifies log data ID. Refer to "11.3 Logging Function" for more information.
<Execution result>	Execution result of command 0: Normal termination 1: Number of command parameters are out of range 2: There is a non-specified value in command 9: An error other than above

13.13 **The Parameters of the Communication Command**

This section describes the parameters of the communication command.

13.13.1 Property/Event

When using Property Setting (PA01), Property Acquisition (PA02), and Method Execution (PA03) command, the way of specifying ID should follow the format below.
In addition, the notification from the InfoSOSA (PA04) will also be represented in the same format.

Format: [Affiliation ID].[parts/memory ID].[property/method/event ID]

The message should be represented with ASCII string.
The characters that can be used in ID are 0 to 9 (0x30 to 0x39), A to Z (0x41 to 0x5A), a hyphen "-" (0x2D), and "_" underscore (0x5F).
Delimiter of each ID is a ".", a period (0x2e).

* In the case of the screen (BASE), [parts/memory ID] is no longer required.
Example: PA01.BAS00001.BCOLOR.0-240-0[CR]
        PA04.BAS00001.ON_DISPLAY[CR]

[Affiliation ID]

Below specifies the affiliation area that the parts and memories belong to.

Type	ID	Description
Parts	Screen ID	Specify screen ID set with Builder. Example: BAS00001
Screen Memory	Screen ID	Specify screen ID set with Builder. Example: BAS00001
Global Memory	@GLBMEM	Specify ID in left column when specifying Global Memory.
String Resources	@STRRES	Specify ID in left column when specifying String Resource.
Environment Variable	@SYSENV	Specify ID in left column when specifying environment variable.
Sheet Key	Screen ID	Screen ID of screen being displayed. Specify screen ID set with Builder. Example: BAS00001

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[Parts/Memory ID]

Below specifies the ID representing the target of the Parts/Memory.

Type	ID	Description
Parts	Parts ID	Specify Parts ID set with Builder. Example: BTN00001
Screen Memory	Memory ID	Specify Memory ID set with Builder. Example: MEM00001
Global Memory	Memory ID	Specify Memory ID set with Builder. Example: GME00001
String Resources	String ID	Specify String ID set with Builder. Example: STR00001
Environment Variable	Memory ID	Specify memory ID listed in 10.2 List of Environmental Variables Example: BRIGHT
Sheet Key	Sheet key ID	Specify memory ID described in 12.5 Input to Sheet Key and Output to LED. Example: XSW01
Log data	Log data ID	Specify Log data ID set with Builder. Example: LOG00001

[Property/Method/Event ID]

Below specifies the properties, method IDs, etc. of the target Parts/Memories.
Event ID will also be in the same format.

Type	ID	Description
Parts	Property ID Method ID Event ID	Refer to section of each part in 3. Parts about operation possible/viable properties/methods and occurrence event.
Screen Memory		Refer to 4.1 Memory about operation possible/viable properties/methods and occurrence event.
Global Memory		
String Resources	TEXT	String Resource is read only.
Environment Variable	Property ID	Refer to 10.2 List of Environmental Variables about operation possible/viable property.
Sheet Key	Event ID	Refer to 12.5 Input to Sheet Key and Output to LED for occurrence event.

13.13.2 How to Specify Setting Value

Specify by the following format when specifying a set value by property setting (PA01), method execution (PA03), and etc.

Type	Target ID	Description
Numeric value	VALUE	Specify by ASCII code string. Available characters are 0 to 9 (0x30 to 0x39). * Specify by decimal and integer. * Do not fill 0 in significant digit.
String	TEXT	String is specified in character code set. When power is turned on ASCII is set. If you change to UTF-16LE, a string UTF-16LE identification code (must be enclosed between start code (0xfe, 0xff) and end code (0xff, 0xfe)). "¥n" (0x5c, 0x6e) is treated as a new line. "¥¥" (0x5c, 0x5c) will display as a character "¥". Characters you cannot use are "," comma (0x2c) and control characters.
color	FCOLOR BGCOLOR	Specified in format of "R-G-B". R: Red (0 to 255) G: Green (0 to 255) B: Blue (0 to 255) Color number is specified in decimal ASCII code string. Available characters are 0 to 9 (0x30 to 0x39) and delimiter "-", a hyphen (0x2d). * Value actually set will be corrected depending on number of colors that can be used. Example: If you specify a 0-255-0 in IS701-4, 0-240-0 is set.
Other	-	Specify by ASCII code string. Available characters are 0 to 9 (0x30 to 0x39). * Specify a decimal and integer. * Do not fill 0 in significant digit.

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13.13.3 Operable Property List

The combinations of the operable properties in the Host Communication are shown below.

Parts

Parts name	Standard Properties									
	NAME	FCOLOR	BCOLOR	TEXT	VALUE	ENABLED	VISIBLE	BLINK	ZEROSPRS	OVERFLOW
Button	R	RW	-	RW	-	RW	RW	RW	-	-
NoImage Button	R	RW	RW	RW	-	RW	RW	RW	-	-
Touch Screen Button	R	-	-	-	-	RW	-	-	-	-
Change Screen Button	R	RW	-	RW	-	RW	RW	RW	-	-
Switch	R	RW	-	RW	R	RW	RW	RW	-	-
Image multi state switch	R	-	-	-	RW	RW	RW	RW	-	-
Color multi state switch	R	-	-	-	RW	RW	RW	RW	-	-
Numeric Keypad	R	-	-	-	-	-	R	-	-	-
Bit map lamp	R	RW	-	RW	RW	-	RW	RW	-	-
NoImage lamp	R	RW	RW	-	RW	-	RW	RW	-	-
Image Multi State Lamp	R	-	-	-	RW	-	RW	RW	-	-
Color Multi State Lamp	R	-	-	-	RW	-	RW	RW	-	-
Label	R	RW	RW	R	-	-	RW	RW	-	-
Character Display Parts	R	RW	RW	RW	-	RW	RW	RW	-	-
Number Display Parts	R	-	RW	-	RW	RW	RW	RW	R	-
Telop	R	RW	RW	RW	-	RW	RW	RW	-	-
Time Display Parts	R	-	RW	-	RW	-	RW	RW	R	R
Frame	R	-	-	-	-	-	RW	-	-	-
NoImage Frame	R	RW	RW	-	-	-	RW	-	-	-
Simple Graph * 1	R	-	RW	-	-	-	RW	-	-	-
Trend Graph * 2	R	-	RW	-	-	-	RW	-	-	-
Bar Meter	R	-	RW	-	-	-	RW	-	-	-
Picture Box	R	-	RW	-	-	-	RW	-	-	-
Line Parts	R	-	-	-	-	-	RW	RW	-	-
Arrow Parts	R	-	-	-	-	-	RW	RW	-	-
Rectangular Parts	R	-	-	-	-	-	RW	RW	-	-
Table parts	R	-	-	-	-	-	RW	-	-	-

*1 Simple graph extended property of the following is also operable.

Property Name	Property	R/W
Graph Point Size	PNTSIZE	RW
Graph Line Color	GL_COL01 to 08	RW
Graph Line Display Setting	GL_VIS01 to 08	RW
AUX Line Color	AL_COL01 to 03	RW
AUX Line Display Setting	AL_VIS01 to 03	RW
AUX Line Value	AL_VAL01 to 03	RW
Y-Axis Setting Scale Interval	Y_SCLVAL	RW

*2 Trend graph extension property of the following is also possible operation.

Property Name	Property	R/W
Graph Line Color	GL_COL01 to 08	RW
Graph Line Display Setting	GL_VIS01 to 08	RW
AUX Line Color	AL_COL01 to 03	RW
AUX Line Display Setting	AL_VIS01 to 03	RW
AUX Line Value	AL_VAL01 to 03	RW

* R: Only read value
* RW: Read and write value
* - : No read/write value

Memory

Memory category	Memory type	NAME (Memory ID)	TEXT (String)	VALUE (Value)	TIMEUP (Timeup value)	LOOPCNT (Loop count)	STATE (Timer state)
Global Memory	Numerical type	R	-	RW	-	-	-
	String type	R	RW	-	-	-	-
	Timer type	R	-	-	RW	RW	RW
Screen Memory	Numerical type	R	-	RW	-	-	-
	String type	R	RW	-	-	-	-
	Timer type	R	-	-	RW	RW	RW
	Array queue type	R	-	-	-	-	-

* R: Only read value
* RW: Read and write value
* - : No read/write value

13.13.4 Executable Method List

Combinations of executable method in the Host Communication are shown below.

Parts Name	Method															
	DPOINT	DLINE	DCIRCLE	LPICTURE	ADDLAST	ADDDATA	ALLCLR	DRAWAXIS	GETAXIS	SETOP	GETOP	SCROLL	SETTSA	SETTSB	GETTS	AUTOCOUNT
Simple Graph	-	-	-	-	○	○	○	○	○	-	-	-	-	-	-	-
Trend Graph	-	-	-	-	-	-	-	-	-	○	○	○	○	○	○	
Picture Box	○	○	○	○	-	-	-	-	-	-	-	-	-	-	-	-
Global Memory Numeric Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	○

* O: Can be executed

* -: Cannot be executed

* There are no executable methods in other parts.

14. Simulation

14.1　**Simulation**

There is a function in the InfoSOSA Builder that performs a simulation on a computer without having to actually download to the InfoSOSA unit.

It is possible to test the communication, see how it will appear on the display, and the check the behavior of the action by connecting a computer and a microcomputer board and so on.

However, the timing of display and communication when using InfoSOSA Simulator differs from that of the real unit.

15. **Appendix**

15.1 **Setting Range List**

Screen creating restrictions vary depending on the model.
It may be less than the maximum number depending on the screen configurations (such as project data size, etc.).

IS701-3/IS701-4/IS711-4 Series

Items	Specifications
Maximum number of screens that can be created	255 screens *1
Maximum image size	800x600
Maximum number of image resources	200
Maximum number of Global Memory	2,000
Maximum number of String Resources	1,000
Maximum number of String Resource set	5
Maximum number of subroutine	500 *2
Maximum number of parts that can be registered to one screen	100
Maximum Screen Memory that can be registered to one screen	100
Maximum number of actions that can be registered in one part	50
Available font size	8 to 256 point
Number of Global Memory that can be stored in the SRAM	0 (SRAM not supported)

*1. Sum of Base Screen and Pop-up Screen.

*2. Number of actions that can be registered in one subroutine is the same as the number that can be registered in one part.

IS701-5 Series

Items	Specifications
Maximum number of screens that can be created	255 screen *1
Maximum image size	800x600
Maximum number of image resources	200
Maximum number of Global Memory	2,000
Maximum number of String Resources	1,000
Maximum number of String Resource set	5
Maximum number of subroutine	500 *2
Maximum number of parts that can be registered to one screen	255
Maximum Screen Memory that can be registered to one screen	100
Maximum number of actions that can be registered in one part	50
Available font size	8 to 256 point
Number of Global Memory that can be stored in the SRAM	0 (SRAM not supported)

*1. Sum of Base Screen and Pop-up Screen.

*2. Number of actions that can be registered in one subroutine is the same as the number that can be registered in one part.

IS9 Series

Items	Specifications
Maximum number of screens that can be created	255 screen *1
Maximum image size	800x600
Maximum number of image resources	200
Maximum number of Global Memory	2,000
Maximum number of String Resources	1,000
Maximum number of String Resource set	5
Maximum number of subroutine	500 *2
Maximum number of parts that can be registered to one screen	255
Maximum Screen Memory that can be registered to one screen	100
Maximum number of actions that can be registered in one part	50
Available font size	8 to 256 point
Number of Global Memory that can be stored in the SRAM	Maximum of 2,000 However, it is limited to the size of the SRAM. (About 500 pieces in the case of all string type)

*1. Sum of Base Screen and Pop-up Screen.

*2. Number of actions that can be registered in one subroutine is the same as the number that can be registered in one part.

16.　　**Other**

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16.1 **Inquiries**

If you have any questions, feel free to contact us.

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