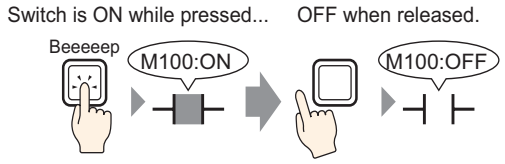
11 Switches

This chapter explains how to use "Switches" in GP-Pro EX and the basic operations to place a switch.
Please start by reading “11.1 Settings Menu” (page 11-2) and then turn to the corresponding page.

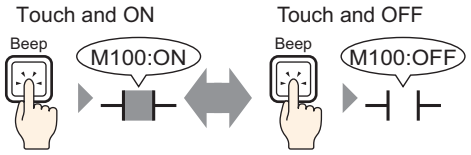
11.1 Settings Menu

Creating a Bit Switch



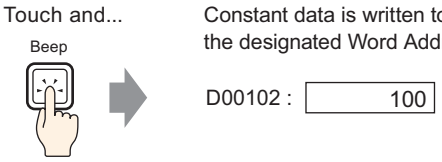
☞ Setup Procedure (page 11-4)
☞ Introduction (page 11-4)

Inverting a Bit ON/OFF



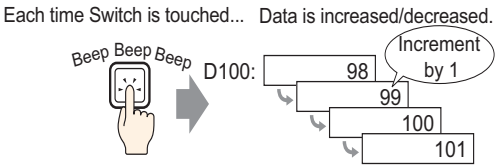
☞ Setup Procedure (page 11-6)#
☞ Introduction (page 11-6)

Writing a Value



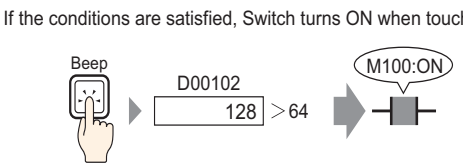
☞ Setup Procedure (page 11-8)
☞ Introduction (page 11-8)

Increasing/Decreasing a Value



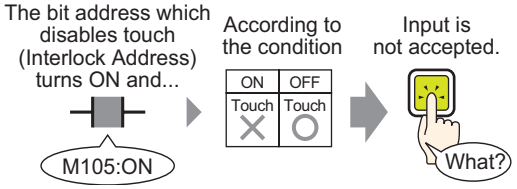
☞ Setup Procedure (page 11-11)
☞ Introduction (page 11-10)

Conditionally ON Bit Switches (Comparison)



☞ Setup Procedure (page 11-13)
☞ Introduction (page 11-13)

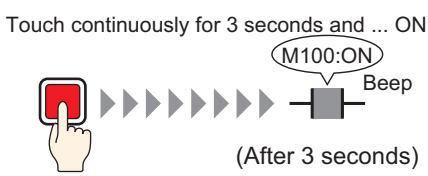
Using Interlock to Prevent Malfunctions



☞ Setup Procedure| (page 11-16)
☞ Introduction (page 11-15)

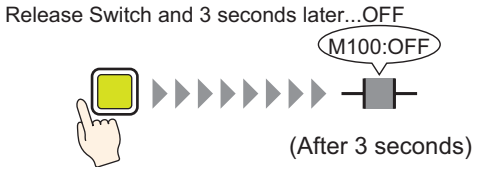
Continued

Creating a Delayed Operation Switch



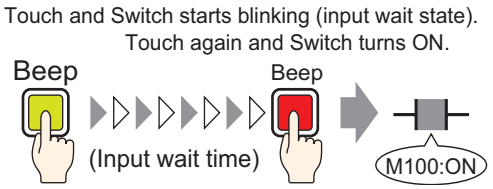
☞ Setup Procedure (page 11-19)
☞ Introduction (page 11-18)

Setting a Delay Time for Switch OFF



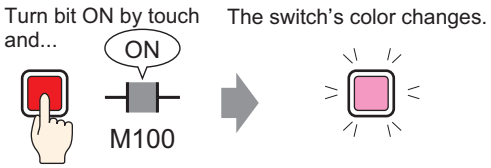
☞ Setup Procedure (page 11-21)
☞ Introduction (page 11-21)

Confirming Before Turning a Switch ON (Double Touch)



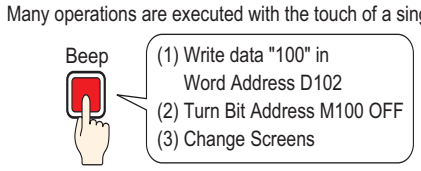
☞ Setup Procedure (page 11-24)
☞ Introduction (page 11-24)

Creating a Color-Changing Switch



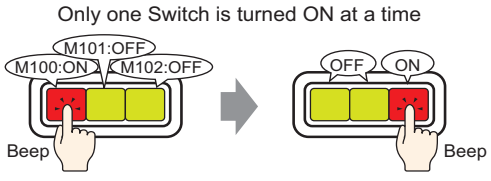
☞ Setup Procedure (page 11-27)
☞ Introduction (page 11-27)

Performing Multiple Functions with One Switch



☞ Setup Procedure (page 11-30)
☞ Introduction (page 11-30)

Creating a Radio Switch

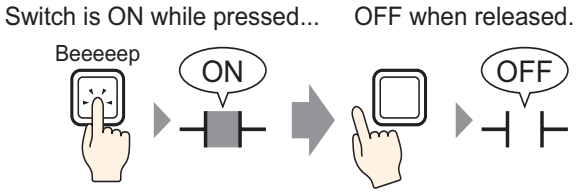


☞ Setup Procedure (page 11-35)
☞ Introduction (page 11-34)

11.2 Creating a Bit Switch

11.2.1 Introduction

■ Bit Momentary



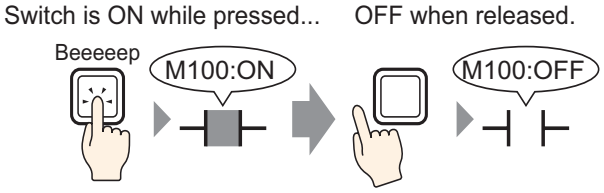
The specified bit will be turned ON as long as you press the Switch.
When you take your finger off the Switch, it turns OFF.

11.2.2 Setup Procedure

NOTE

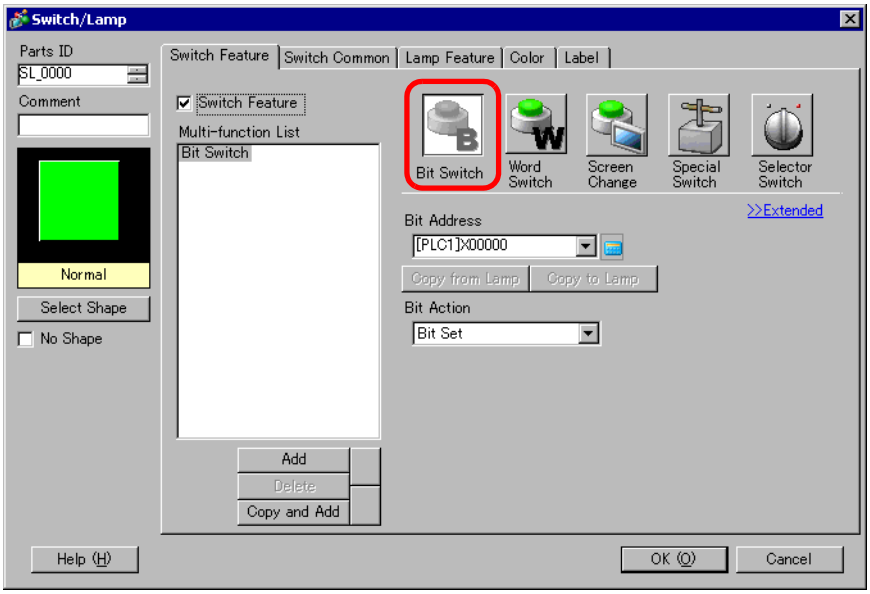
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a switch that turns ON a bit address (M100) for as long as it is pressed.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click  . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

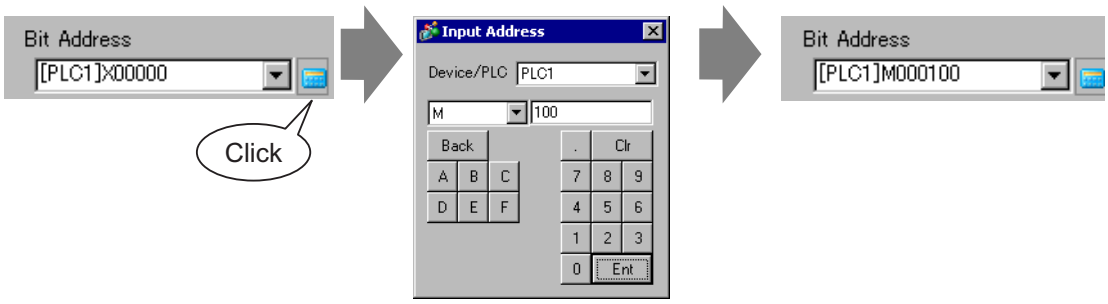


3 Select the shape from [Select Shape].

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.



5 From [Bit Action], choose [Bit Momentary].

NOTE

- If you change the [Bit Action], you can also create a bit ON switch (Bit Set) or a bit OFF switch (Bit Reset).

6 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

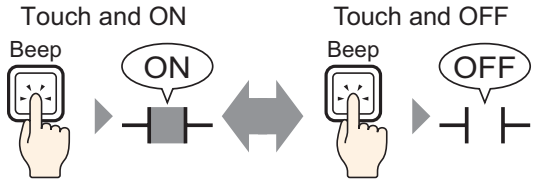
NOTE

- Depending on the shape, you may not be able to change the color.

11.3 Inverting a Bit ON/OFF

11.3.1 Introduction

■ Bit Invert



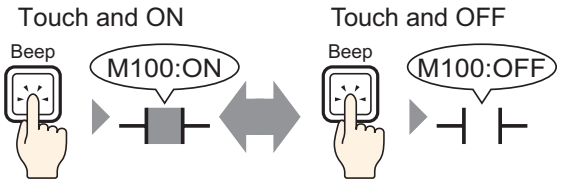
When you press the Switch, the specified bit will be turned ON and remain on until the next press.
Touch the same Switch again, and the specified bit will now be turned OFF. OFF and remain off until the next press.
The Switch alternates between ON/OFF each time it is pressed.

11.3.2 Setup Procedure

NOTE

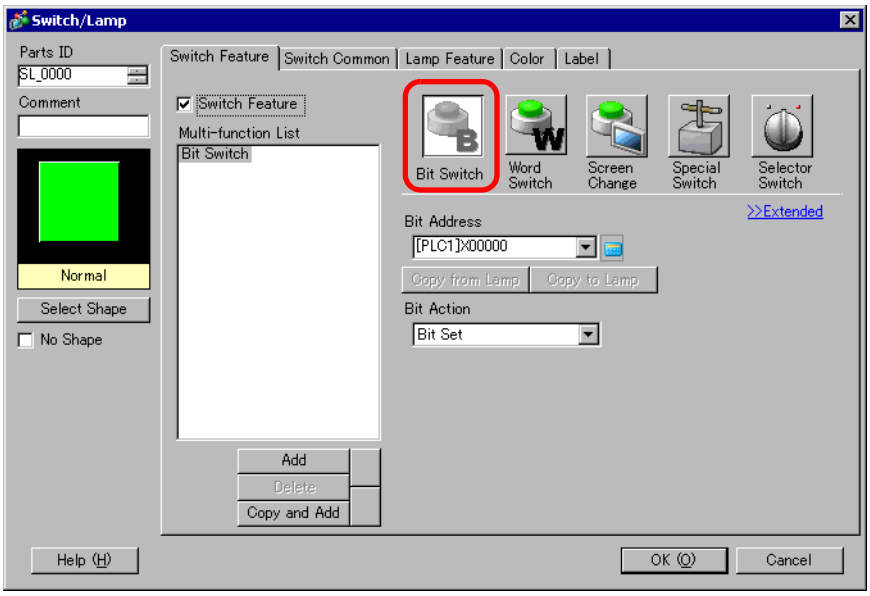
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a switch that inverts a bit address (M100) ON/OFF when pressed.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click  . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

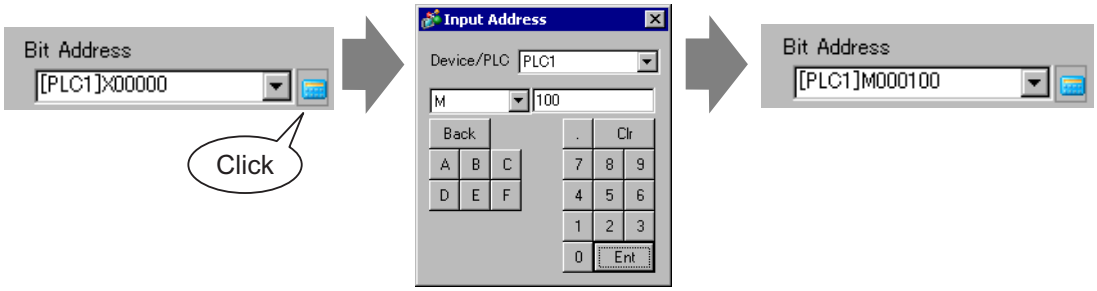


3 Select the shape from [Select Shape].

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.



5 From [Bit Action], choose [Bit Invert].

6 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

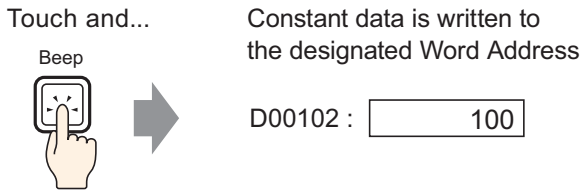
NOTE

- Depending on the shape, you may not be able to change the color.

11.4 Writing a Value

11.4.1 Introduction

■ Write Data



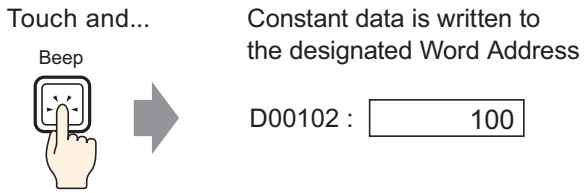
Touch the Switch and a constant (for example, 100) will be written to the address specified in [Word Address] (for example, D00102).

11.4.2 Setup Procedure

NOTE

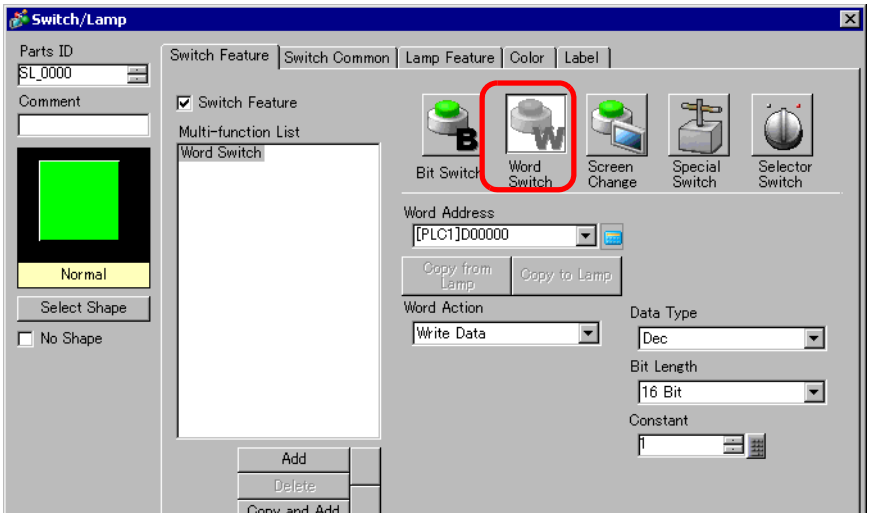
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a switch to increment the value stored in a Word Address (D102) by 1 each time the switch is pressed.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Word Switch (W)] or click  . Place the Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

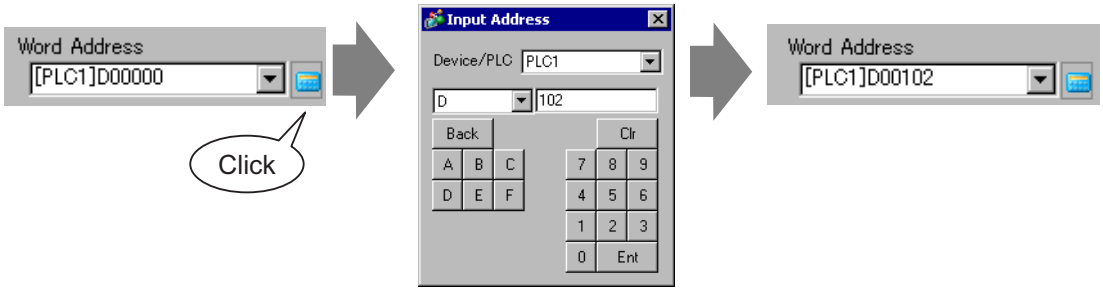


3 Select the shape from [Select Shape].

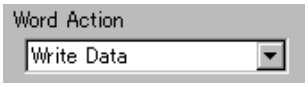
4 Set the Word Address (D102) where you want to write data in [Word Address].

Click the icon to display an address input keypad.

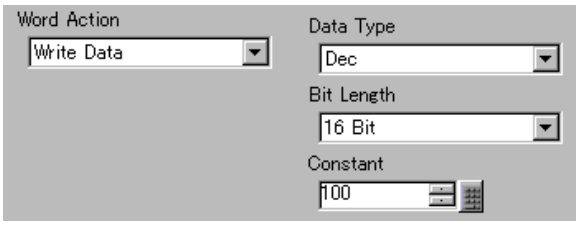
Select device "D", input "102" as the address, and press the "Ent" key.



5 From [Word Action] choose [Write Data].



6 Type "100" in [Constant].



7 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

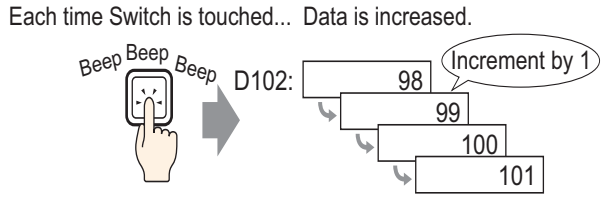
NOTE

- Depending on the shape, you may not be able to change the color.

11.5 Increasing/Decreasing a Value

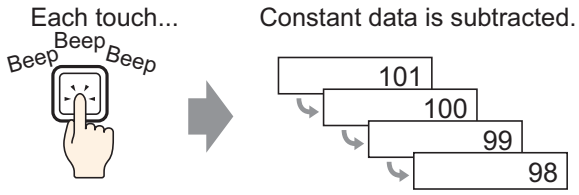
11.5.1 Introduction

■ Add Data



Every time the Switch is pressed, a positive constant (for example, 1) will be added to the current value (for example, 98) of the specified Word Address (for example, D102).

■ Subtract Data



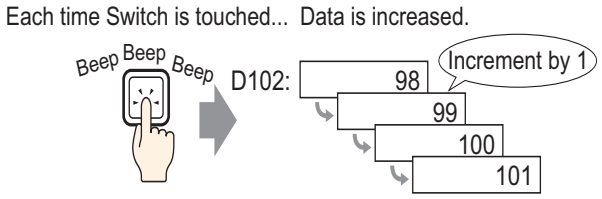
Every time the Switch is pressed, a negative constant (for example, -1) will be added to the current value (for example, 101) of the specified Word Address.

11.5.2 Setup Procedure

NOTE

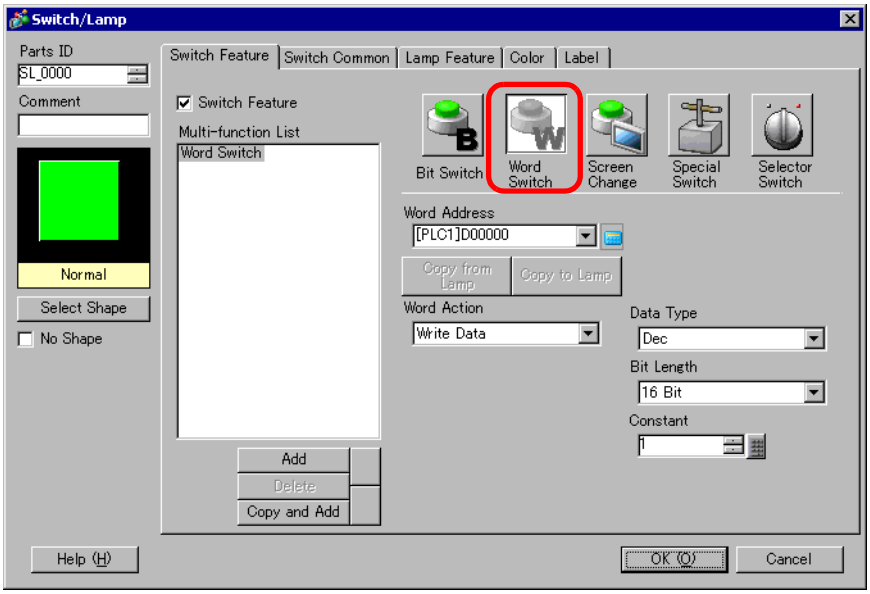
- Please refer to the settings guide for details.
  ☞ “11.14 Switch Lamp Parts Settings Guide” (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ “9.6.1 Editing Parts” (page 9-38)

Create a switch to increment the value stored in a Word Address (D102) by 1 each time.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Word Switch (W)] or click  . Place the Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

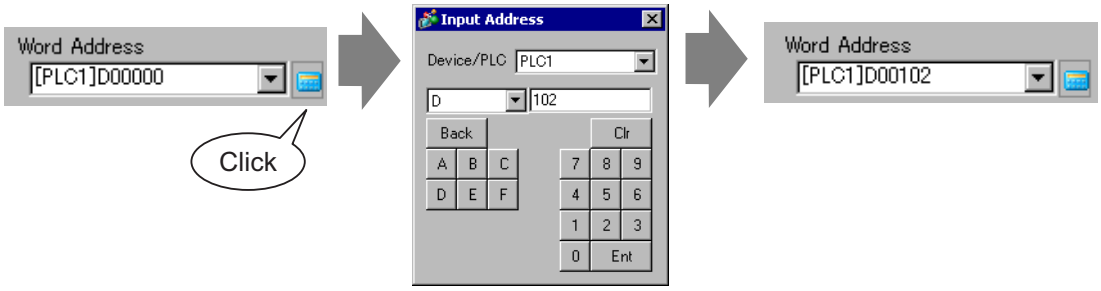


3 Select the shape from [Select Shape].

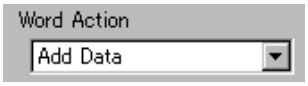
4 In [Word Address], set the address (D102) which will store the result (value) of the addition.

Click the icon to display an address input keypad.

Select device "D", input "102" as the address, and press the "Ent" key.



5 From [Word Action] choose [Add Data].



6 In [Addition Base Word Address], set the address (D102) where the source data is stored, and input "1" in [Constant].

7 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

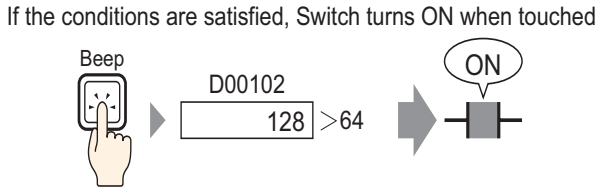
NOTE

- Depending on the shape, you may not be able to change the color.

11.6 Conditionally ON Bit Switches (Comparison)

11.6.1 Introduction

■ Comparison



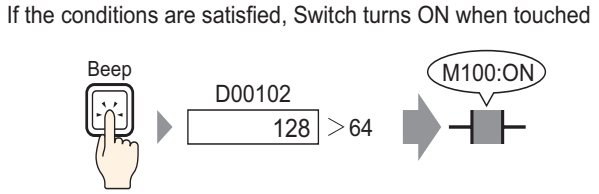
When the Switch is pressed, the Word Address data (for example, 128) and a preset constant (for example, 64) are compared. If the condition is met (for example, "Word Address data is larger than the constant", the specified bit is turned ON.

11.6.2 Setup Procedure

NOTE

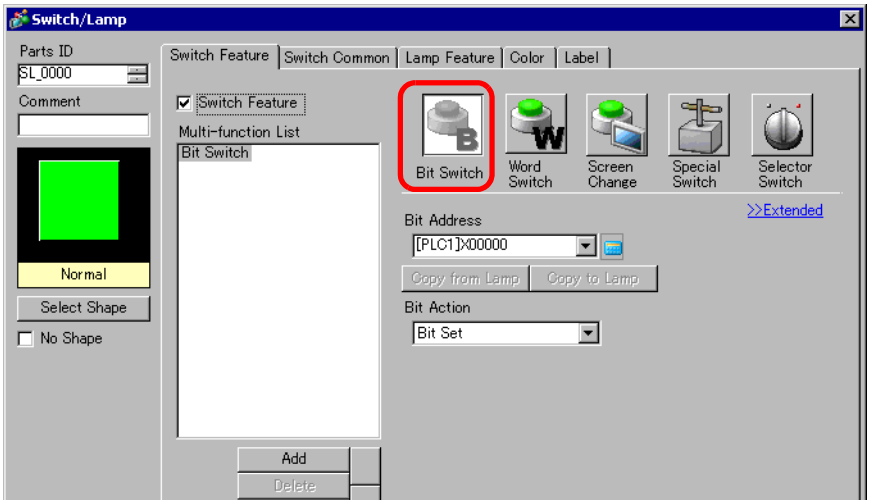
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a switch to turn ON the specified bit address by touch when the value of the world address is over 64.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click  . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

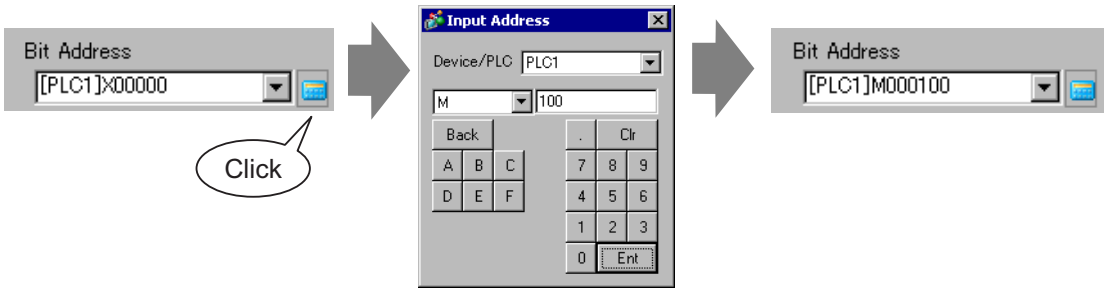


3 Select the shape from [Select Shape].

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

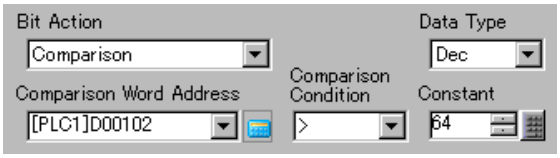
Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.



5 From [Bit Action] choose [Comparison].

6 Set the Word Address (D102) to compare in [Comparison Word Address], select ">" for the [Comparison Condition], and input "64" for the [Constant].



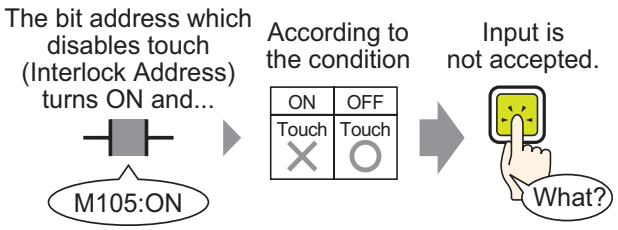
7 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

NOTE

- Depending on the shape, you may not be able to change the color.

11.7 Using Interlock to Prevent Malfunctions

11.7.1 Introduction



The touch action will only be executed if the Bit Address specified in the Interlock Address meets the Touch Enable Condition.

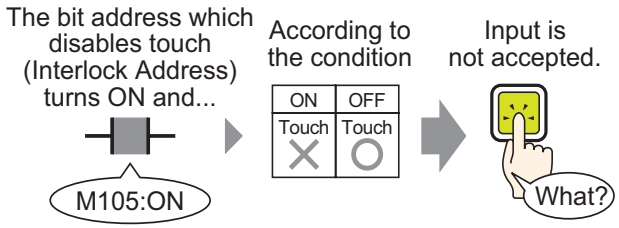
- If the Touch Enable Condition is set to [Bit ON]:The touch action will only work when the Interlock Address is ON.
- If the Touch Enable Condition is set to [Bit OFF]:The touch action will only work when the Interlock Address is OFF.

11.7.2 Setup Procedure

NOTE

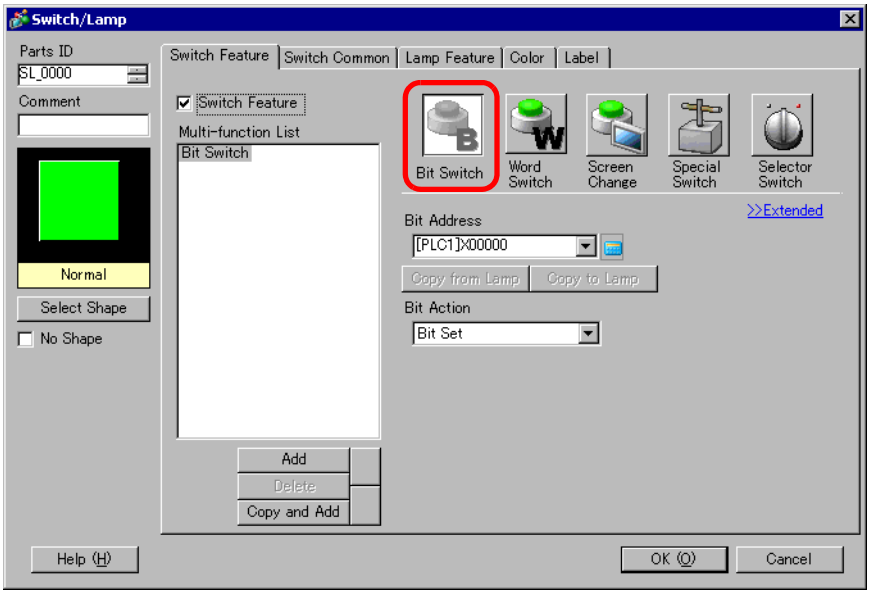
- Please refer to the settings guide for details.
  ☞ “11.14 Switch Lamp Parts Settings Guide” (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ “9.6.1 Editing Parts” (page 9-38)

Create a Switch to turn ON a Bit Address (M100) only when the designated Bit Address (M105) is OFF.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

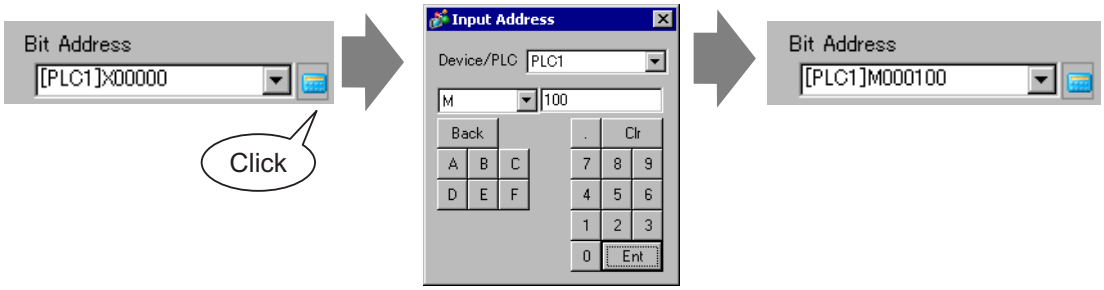


3 Select the shape from [Select Shape].

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

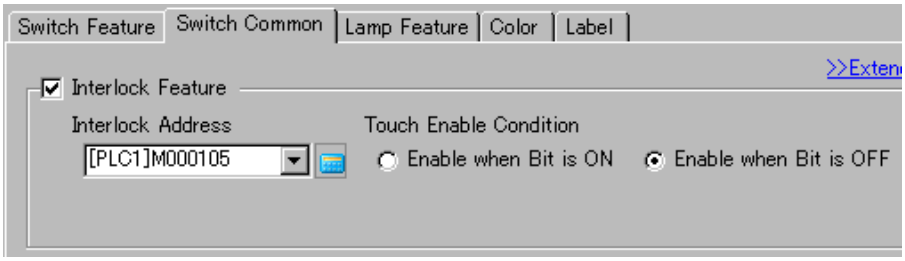
Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.



5 From [Bit Action] choose [Bit Set].

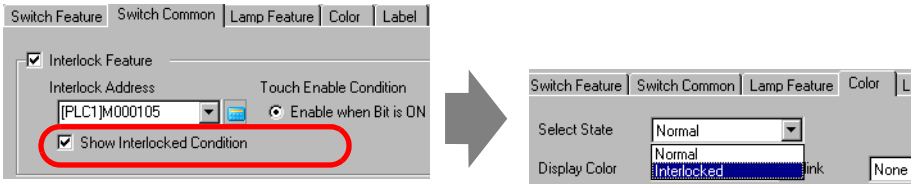
6 On the [Switch Common] tab, select the [Interlock Feature] check box.
In [Interlock Address], set the bit address (M105) to enable/disable touch, and for the [Touch Enable Condition] select [Enable when Bit is OFF].



7 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

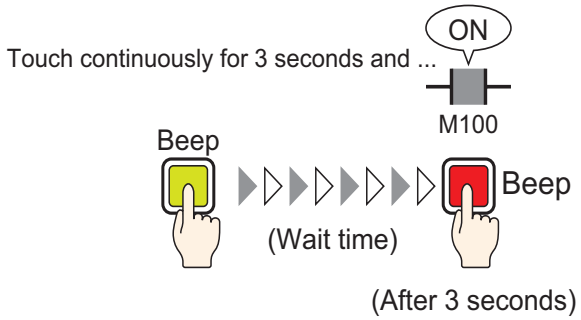
NOTE

- Depending on the shape, you may not be able to change the color.
- If you want to a color and label to change when it is Interlocked, select the [Set Interlocked Condition Display] check box in [Switch Common] tab - [Details]. You can set [Interlocked] on the [Color] and [Label] tabs' [Select State].



11.8 Creating a Delayed Operation Switch

11.8.1 Introduction



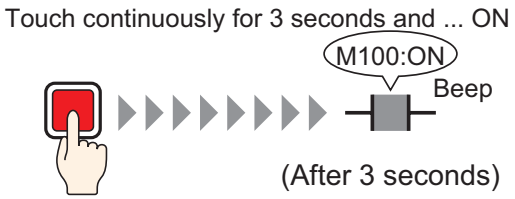
If the Switch is pressed continuously for a set time (for example, 3 seconds), the specified bit will turn ON. This is useful in preventing accidental input.
If you stop pressing the Switch before it becomes active, the Switch action will not execute and the buzzer will not sound.
As well, the switch appearance will return to its OFF state.

11.8.2 Setup Procedure

NOTE

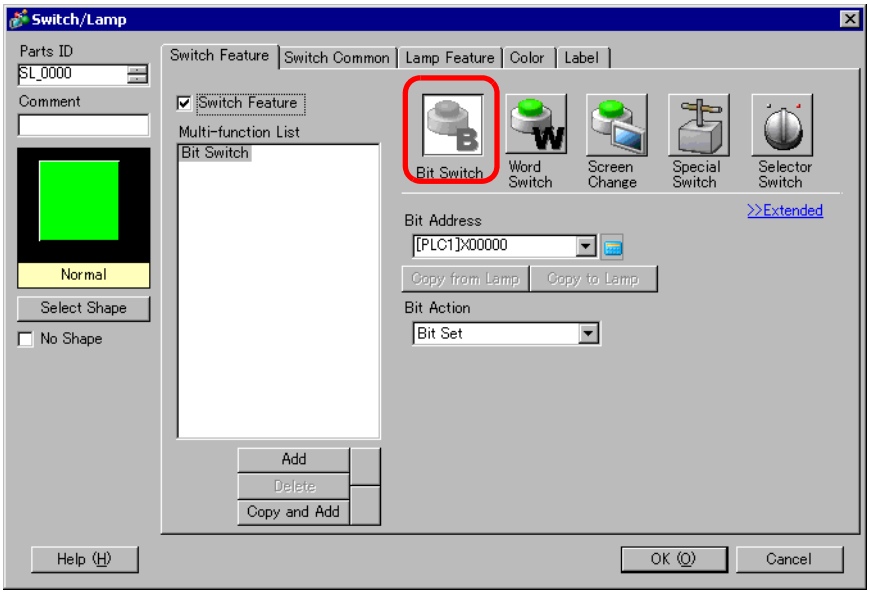
- Please refer to the settings guide for details.
  ☞ “11.14 Switch Lamp Parts Settings Guide” (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ “9.6.1 Editing Parts” (page 9-38)

Create a switch that turns ON a bit address (M100) after it is pressed for 3 seconds.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click  . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

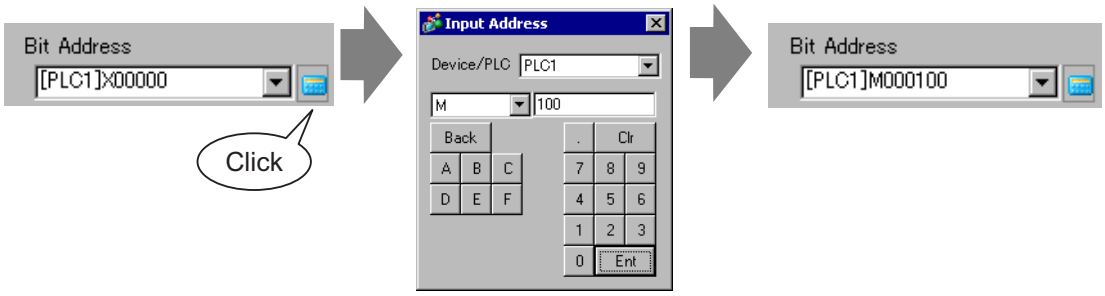


3 Select the shape from [Select Shape].

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.



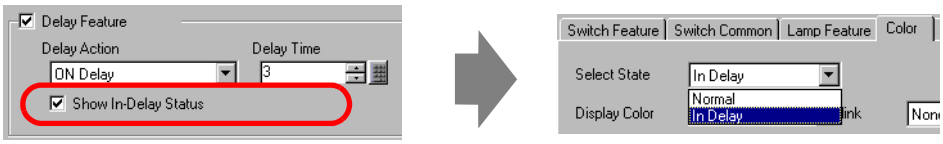
5 From [Bit Action] choose [Bit Set].

6 On the [Switch Common] tab, select the [Delay Feature] check box, and select [ON Delay] for the [Delay Action]. Set 3 seconds for the [Delay Time].

7 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

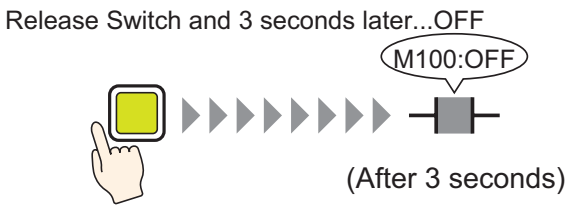
NOTE

- Depending on the shape, you may not be able to change the color.
- If you want to a color and label to change when the Delay Feature is running, select the [Show Interlocked Condition] check box in [Switch Common] tab - [Details]. You can set [Select State] to [In Delay] from the [Color] and [Label] tabs..



11.9 Setting a Delay Time for Switch OFF

11.9.1 Introduction



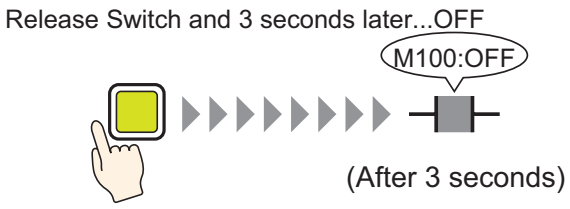
After the Switch is depressed, the specified bit will wait a set amount of time (for example, 3 seconds) before turning OFF.
If the Switch is pressed again while waiting to turn OFF, there will be another wait time (for example, 3 seconds) after it is depressed before the specified bit turns OFF.

11.9.2 Setup Procedure

NOTE

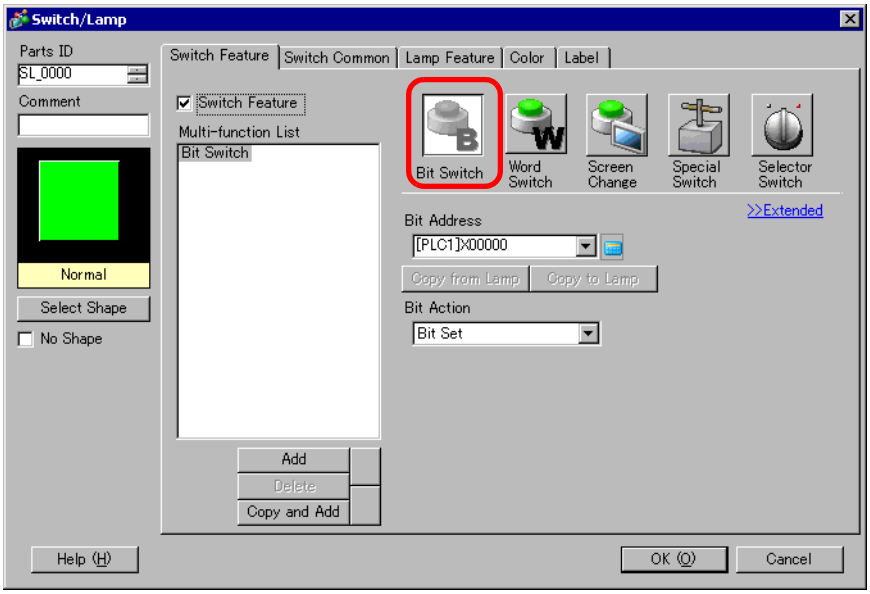
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a Momentary Switch that turns OFF a bit address (M100) 3 seconds after it is released.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click  . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

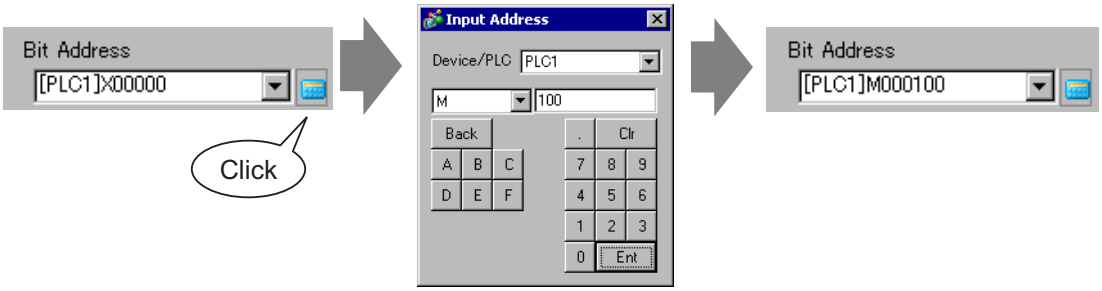


3 Select the shape from [Select Shape].

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.



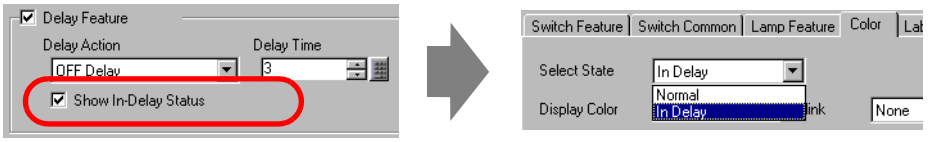
5 From [Bit Action], choose [Bit Momentary].

6 On the [Switch Common] tab, select the [Delay Feature] check box, and select [OFF Delay] for the [Delay Action]. Set 3 seconds for the [Delay Time].

7 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

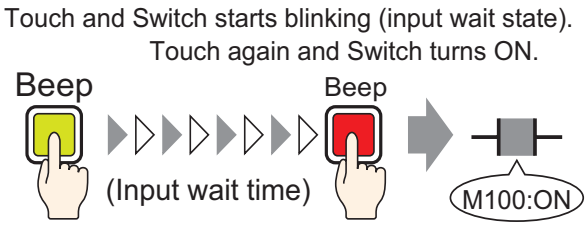
NOTE

- Depending on the shape, you may not be able to change the color.
- If you want to a color and label to change when the Delay Feature is running, select the [Show In-Delay Status] check box in [Switch Common] tab - [Details]. You can set [Select State] to [In Delay] from the [Color] and [Label] tabs.



11.10 Confirming Before Turning a Switch ON (Double Touch)

11.10.1 Introduction



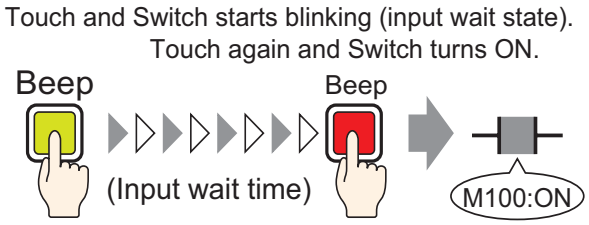
When the Switch is touched the first time, it starts flashing. It is now waiting for further input. When the Switch is touched a second time while flashing (input wait state), the specified bit turns ON. This is useful in preventing accidental input.
If the Switch is not touched a second time while flashing (input wait state), the specified bit will not turn ON.
Also, if another Switch is pressed during the wait state, the wait state ends and the specified bit does not turn ON.

11.10.2 Setup Procedure

NOTE

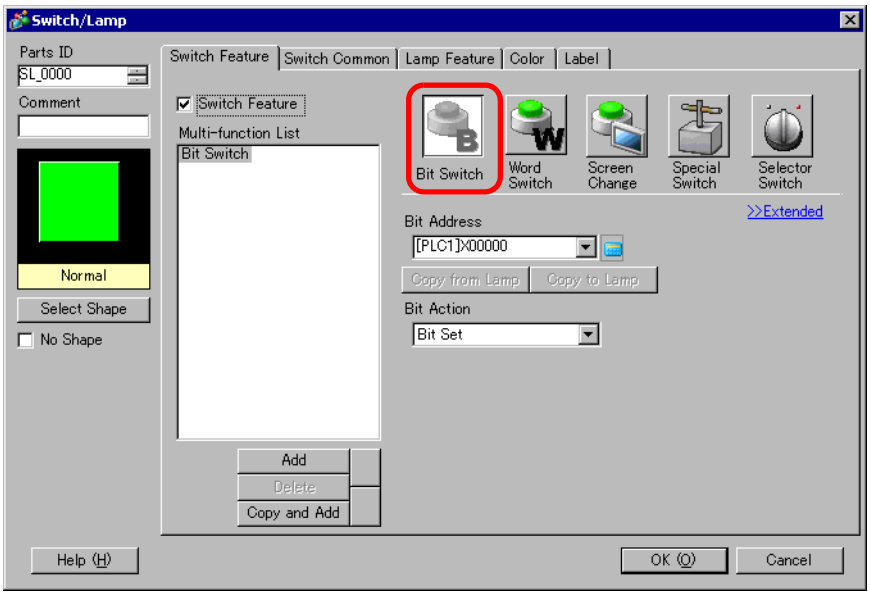
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a Switch to turn ON a Bit Address (M100) if pressed twice within 5 seconds.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click  . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

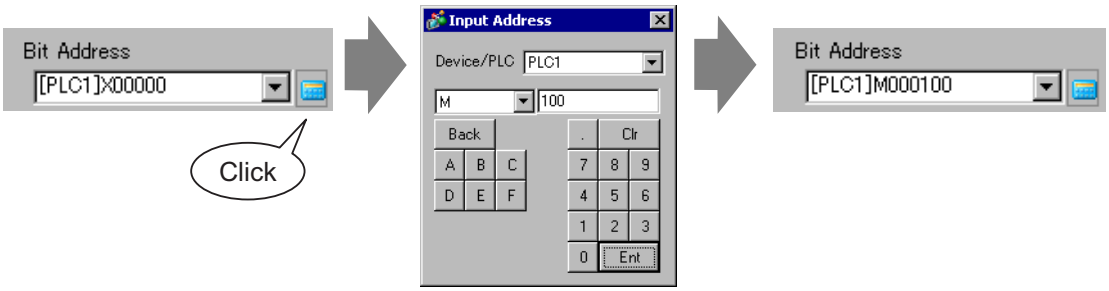


3 Select the shape from [Select Shape].

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

Click the icon to display an address input keypad.

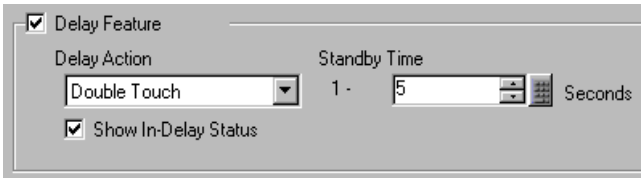
Select the device "M", input "100" in the address, and press the "Ent" key.



5 From [Bit Action] choose [Bit Set].

6 On the [Switch Common] tab, select the [Delay Feature] check box, and select [Double Touch] for the [Delay Action]. Set 5 seconds for the [Standby Time].

7 Click [Details] and select the [Show In-Delay Status] check box.



8 On the [Color] tab, set [Select State] to [In Delay]. In [Display Color], set the color while in waiting for input and set [Blink] to [Medium].

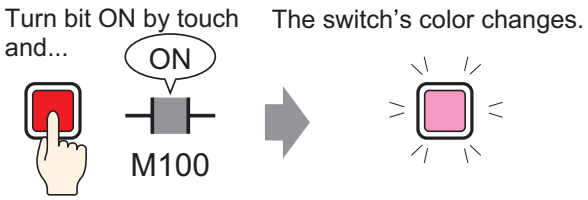
NOTE

- Depending on the shape, you may not be able to change the color.

9 As needed, set the label that will display while in delay on the [Label] tab, and click [OK].

11.11 Creating a Color-Changing Switch

11.11.1 Introduction



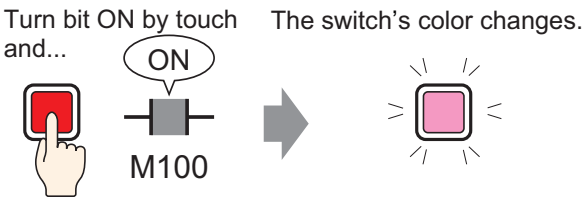
Combine a Switch with the Lamp Feature and you can change the color according to the designated state (ON/OFF).

11.11.2 Setup Procedure

NOTE

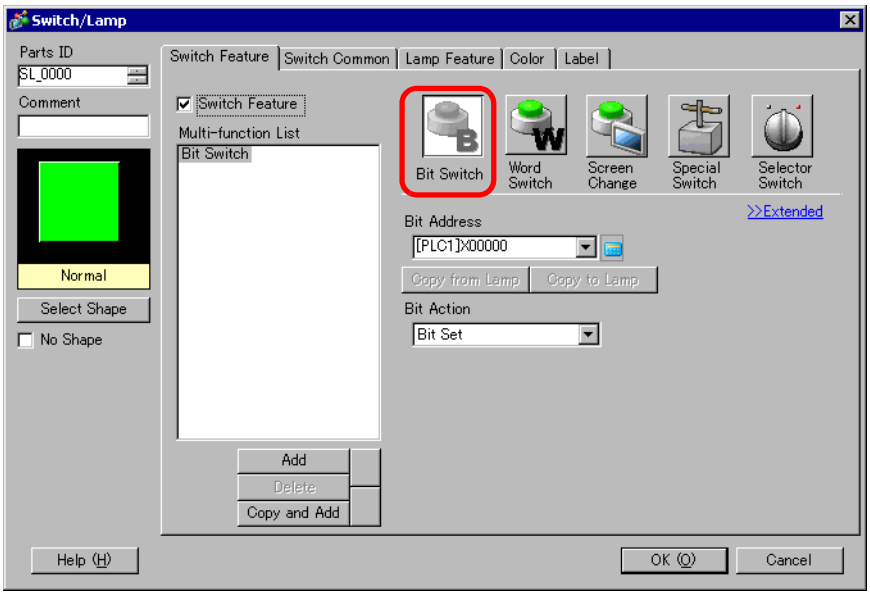
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a Switch which changes color (OFF: Green, ON: Red) each time it is pressed and the Bit Address (M100) operation occurs.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)], or click  . Place the Switch Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.



3 Select the shape from [Select Shape].

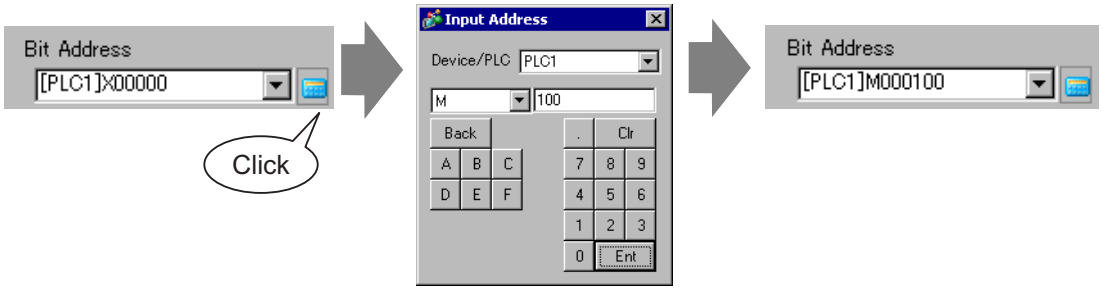
NOTE

- Depending on the shape, you may not be able to change the color.

4 Specify the [Bit Address] (M100) that you want to operate when the switch is touched.

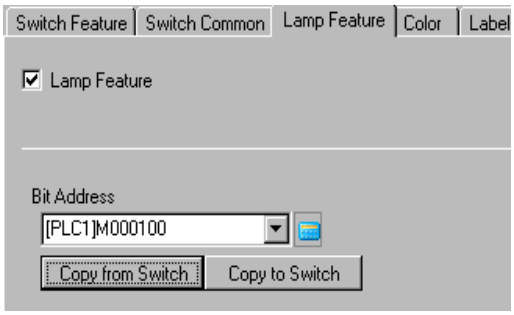
Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.



5 From [Bit Action], choose [Bit Invert].

6 On the [Lamp Feature] tab, select the [Lamp Feature] check box and click [Copy from Switch]. The same address as the one designated on the [Switch Feature] tab will appear in [Bit Address].



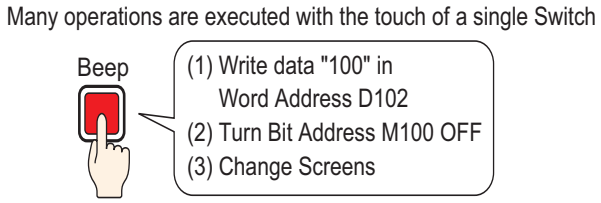
7 On the [Color] tab, set the OFF state switch color (green).

8 In [Select State], select [ON] and set the ON state switch color (red).

9 As needed, set the text to display in each state on the [Label] tab, and click [OK].

11.12 Performing Multiple Functions with One Switch

11.12.1 Introduction



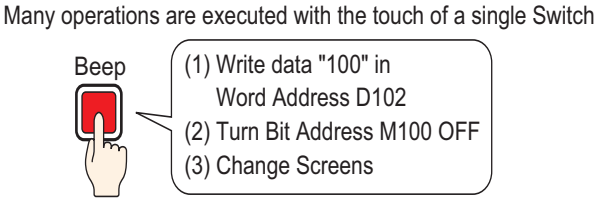
A single Switch can be set with a maximum of 16 Switch Operations.
When the first registered Switch address is activated, the Switch Operations are executed in the order they were registered. You can set the order of the Switch Operations. The Screen Change Action will run if it is registered as the last operation in the sequence. This feature is useful for screens with limited space.

11.12.2 Setup Procedure

NOTE

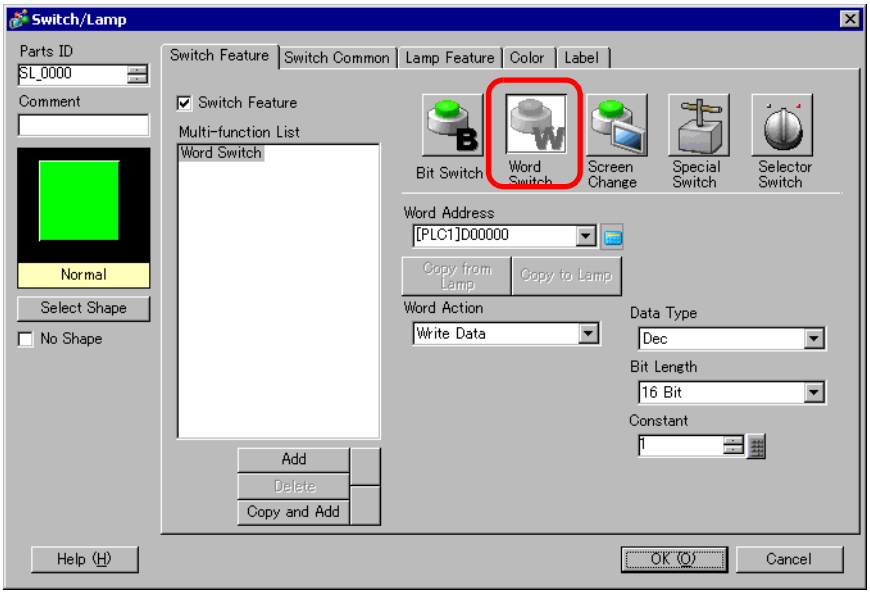
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a Switch to write data "100" to a Word Address (D102), turn OFF a Bit Address (M100) and then return to the previous screen.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Word Switch (W)] or click  . Place the Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

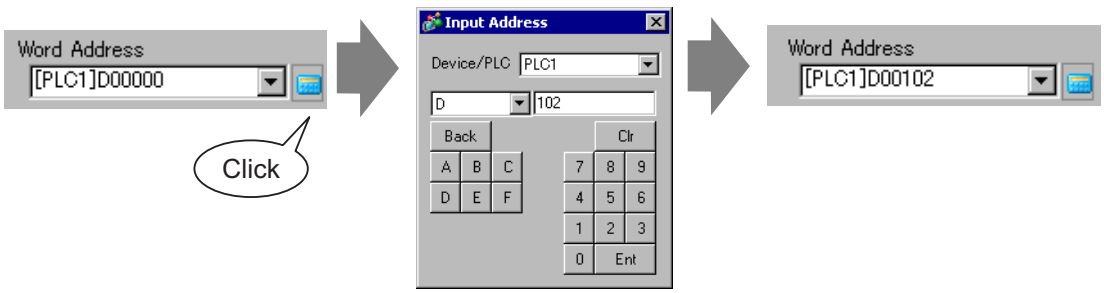


3 Select the shape from [Select Shape].

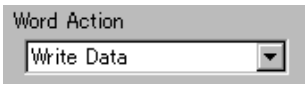
4 Set the address (D102) where you want to write data when you touch the switch in [Word Address].

Click the icon to display an address input keypad.

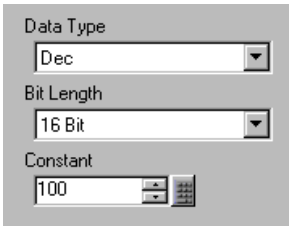
Select device "D", input "102" as the address, and press the "Ent" key.



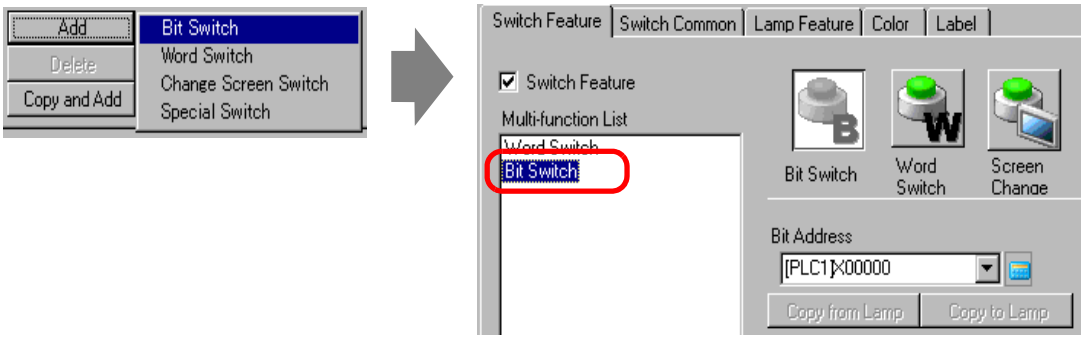
5 From [Word Action] choose [Write Data].



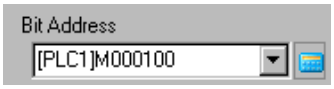
6 Set [Constant] to "100" and word switch's function is complete.



7 Click [Add] and select [Bit Switch].
When the screen changes to the bit switch settings, the bit switch is added to the display in [Multi-function List].

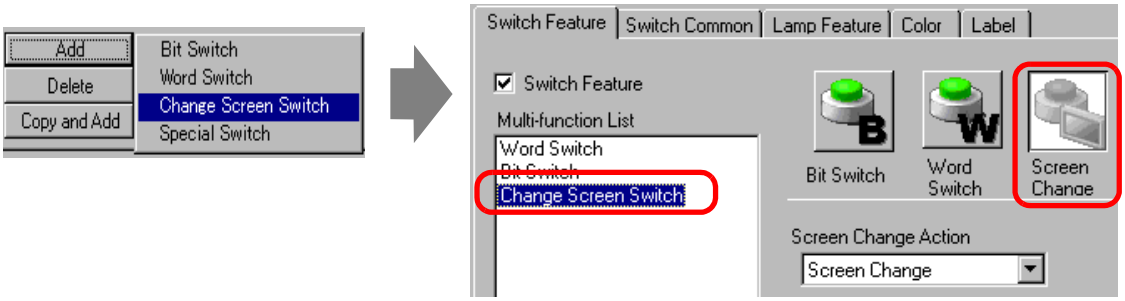


8 Specify the [Bit Address] (M100) that you want to turn OFF when the switch is touched.

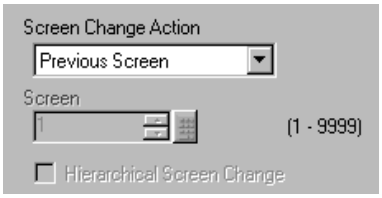


9 In [Bit Action], select [Bit Reset] and the bit switch feature settings are complete.

10 Click [Add] and select [Change Screen Switch].
When the screen changes to the Change Screen Switch settings, the Change Screen Switch is added to the display in [Multi-function List].



11 In [Screen Change Action], select [Previous Screen]. The Change Screen Switch settings are complete.



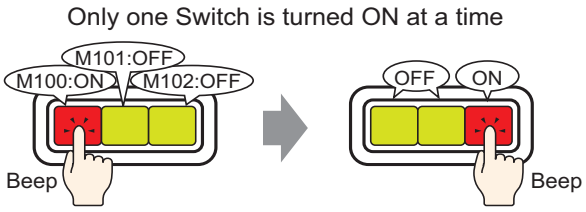
12 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK].

NOTE

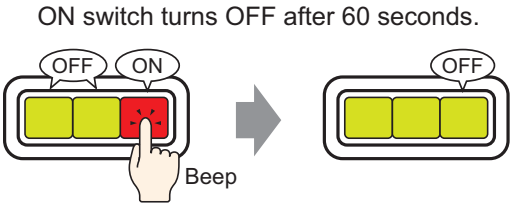
- Depending on the shape, you may not be able to change the color.

11.13 Creating a Radio Switch

11.13.1 Introduction



If you register multiple Switches into a single Group, when one Switch from the group is touched and the specified bit is turned ON, the remaining Switches turn OFF.
When another Switch in the same Group is touched, the same action will apply.



NOTE

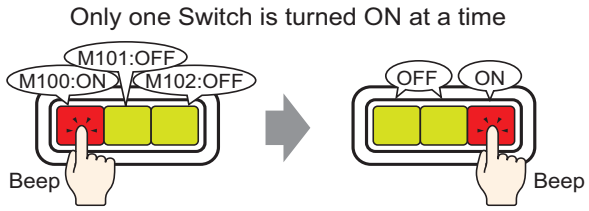
- Set [Group with Auto OFF], and the bit will automatically turn OFF when the screen changes or the Window closes.

11.13.2 Setup Procedure

NOTE

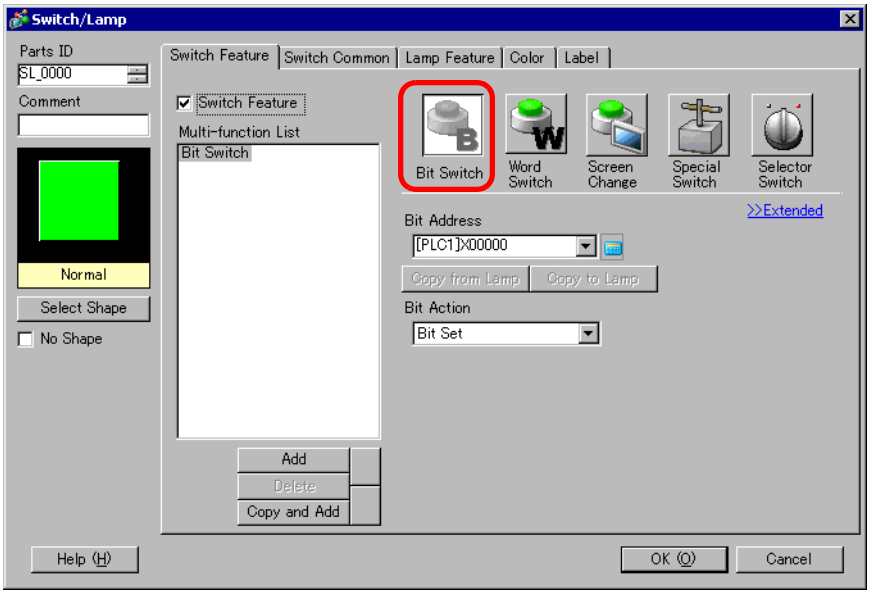
- Please refer to the settings guide for details.
  ☞ "11.14 Switch Lamp Parts Settings Guide" (page 11-38)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

Create a Radio Switch that contains a group of 3 Bit Address switches: M100, M101, and M102.



1 From the [Parts (P)] menu, point to [Switch Lamp (C)] and select [Bit Switch (B)] or click  . Place the Part on the screen.

2 Double-click the placed Switch part. The following dialog box appears.

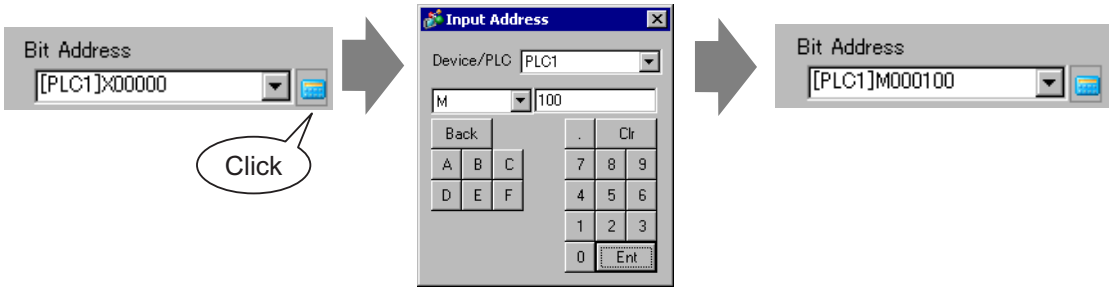


3 Select the shape from [Select Shape].

4 Specify the one [Bit Address] (M100) that you want to operate when the switch is touched.

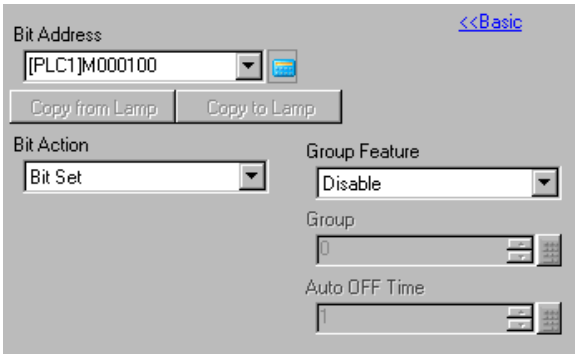
Click the icon to display an address input keypad.

Select the device "M", input "100" in the address, and press the "Ent" key.

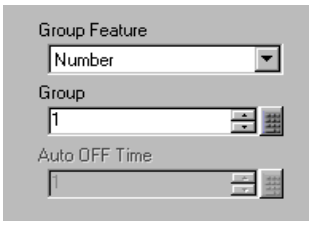


5 From [Bit Action] choose [Bit Set].

6 Click [Details].



7 In [Group Feature], select [Group] and set the [Group No.]

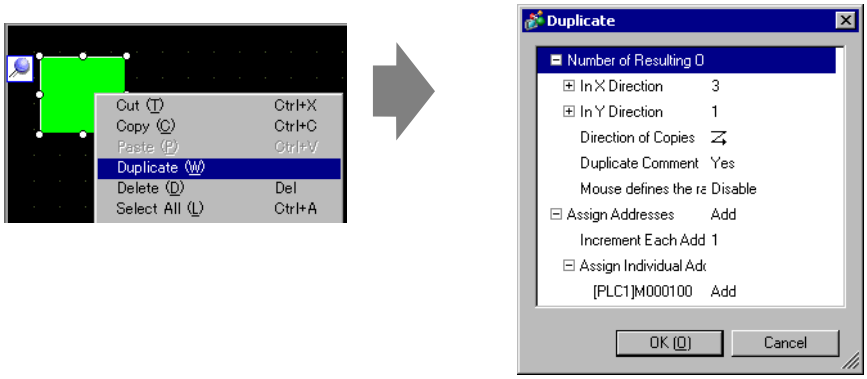


8 As needed, set the color and display text on the [Color] tab and [Label] tab, and click [OK]. The switch that turns ON M100 is complete.

NOTE

- Depending on the shape, you may not be able to change the color.

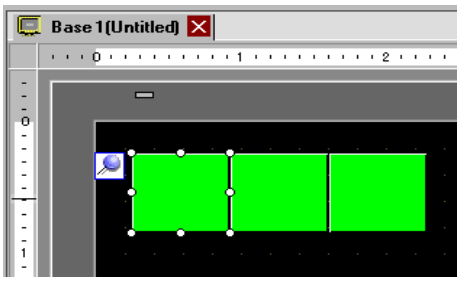
9 Select the created switch, right-click, and select [Duplicate (W)].
When the [Duplicate] dialog box appears, change [In X Direction] to "3", [In Y Direction] to "1", and confirm that the [Assign Individual Addresses] is "M100". Click [OK].



NOTE

- For more details about Duplicate, please refer to "9.4.5 Duplicate" (page 9-28) .

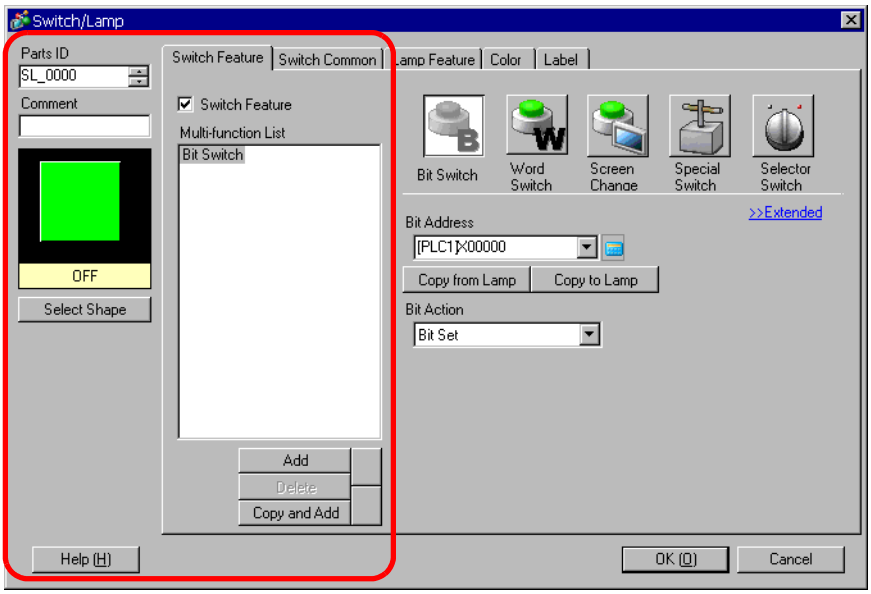
Complete the Radio Switch with the consecutive 3 bit addresses in the same Group Number



NOTE

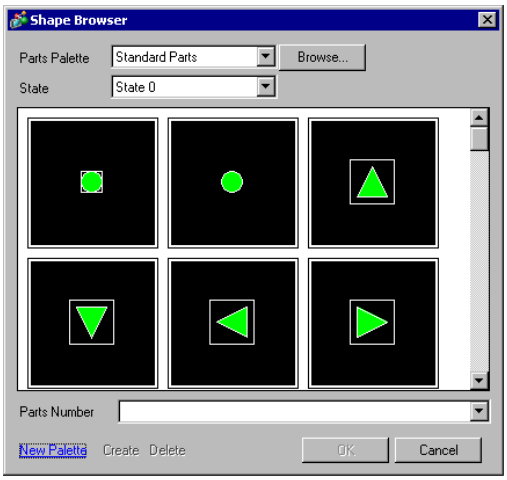
- Without copying, make the 3 bit switches created individually on the same screen into a Group by setting all the switches to the same [Group Number].
- You can place the same switch using [Copy] and [Paste] without using [Duplicate].
- For [Duplicate], you can create automatically added copies of addresses depending on the [Assign Addresses] and [Increment Each Address by] settings, but if you make switches without consecutive addresses into a Group, you will need to change the [Bit Address] of the 2nd and 3rd switch.

11.14 Switch Lamp Parts Settings Guide



Setting	Description
Part ID	Placed parts are automatically assigned an ID number. Switch Lamp Part ID: SL_**** (4 digits) The letter portion is fixed. The number portion can be modified from 0000 to 9999.
Comment	The comment for each Part can be up to 20 characters long.
Status Display	Displays the shape and status of the Part selected in [Select Shape]. When combining the Switch Feature and Lamp Feature, you can display different settings for each state (ON state/OFF state) by changing [Select State] on the [Color] tab and [Label] tab.

Continued

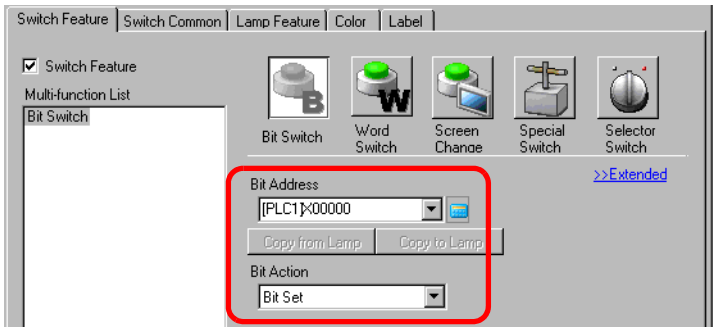
Setting	Description
Select Shape	Open the Select Shape dialog box to choose the shape.  Clicking ▼ to the right of the [Parts Palette] or [Browse] displays the Parts Palette. There are 65535, 256, or 64 color parts. Select the parts palette according to the number of colors on your model. Depending on the shape, you may not be able to change the color.
No Shape	Select whether or not the part will be transparent with no shape. This can only be set if the Lamp Feature is not used.
Switch Feature	Designate whether or not to use the Switch Feature. **NOTE** • When using the Lamp Feature, you do not need to designate this.
Types of Switches	• Bit Switch Turns a specified bit ON/OFF. ☞ "11.14.1 Bit Switch" (page 11-41) • Word Switch Sets data into a specified Word Address. ☞ "11.14.2 Word Switch" (page 11-54) • Screen Change Changes the screen. ☞ "11.14.3 Change Screen Switch" (page 11-58) • Special Switch Handles special features, such as changing the GP into offline mode and displaying a Window. ☞ "11.14.4 Special Switch" (page 11-59) • Selector Switch When touched, it turns ON the specified bits (up to a maximum of 4 bits) in order. ☞ "11.14.5 Selector Switch" (page 11-69)
Multi-function List	Displays the type of set Switches. When setting multiple features to a single Switch, the set features will display in order in a list starting from the top. Processing occurs in order starting at the top of this list.

Continued

Setting	Description
Add	When setting multiple features to a single Switch, adds a feature. Click this button, select the Switch you want to add, and the feature will be added to the [Multi-function List].
Delete	When a switch is set up with multiple switch operations, deletes the operation selected in the [Multi-function List] pane.
Copy and Add	When a switch is set up with multiple switch operations, copies the operation selected in the [Multi-function List] pane and pastes it at the end.
↑↓ (Move Up/Down)	Moves the feature selected in the [Multi-function List] one position up (or down) the list. This will not change the order of the [Change Screen Switch] feature.

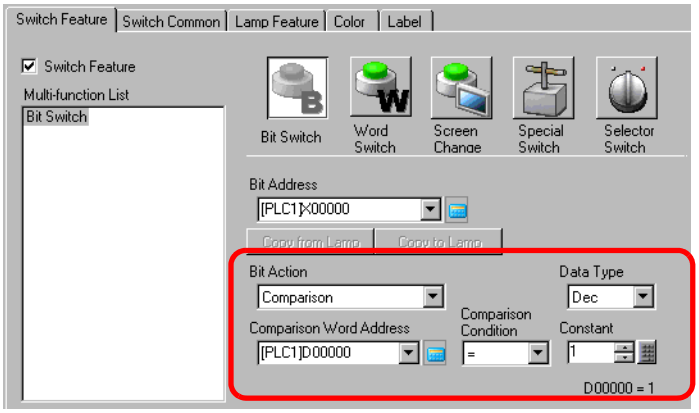
11.14.1 Bit Switch

■ Switch Feature/Basic



Setting	Description
Bit Address	Specify the Bit Address that you want to operate.
Bit Action	Select the Bit action. • Bit Set Touch the Switch and the bit specified in [Bit Address] will turn ON. • Bit Reset Touch the Switch and the bit specified in [Bit Address] will turn OFF. • Bit Momentary While the Switch is touched, the bit specified in [Bit Address] will turn ON. The address turns OFF when the Switch is released. • Bit Invert Touch the Switch and the bit specified in [Bit Address] will be alternated (ON-OFF or OFF-ON). • Comparison Touch the Switch and the Word Address data and a constant are compared. If the required condition is met as a result of the comparison, the bit specified in [Bit Address] is turned ON. ☞ " ◆ Comparison" (page 11-42) **NOTE** • Bit Momentary Operation is enabled by touching ON regardless of the [Touch Panel Detection] settings specified in the System Settings [Main Unit] - [Mode] tab.
Copy from Lamp	The [Lamp Feature] tab's [Bit Address] setting is copied to the [Switch Feature] tab's [Bit Address]. This is used when setting a Lamp Feature and Switch Feature to the same address.
Copy to Lamp	The [Switch Feature] tab's [Bit Address] setting is copied to the [Lamp Feature] tab's [Bit Address]. This is used when setting a Lamp Feature and Switch Feature to the same address.

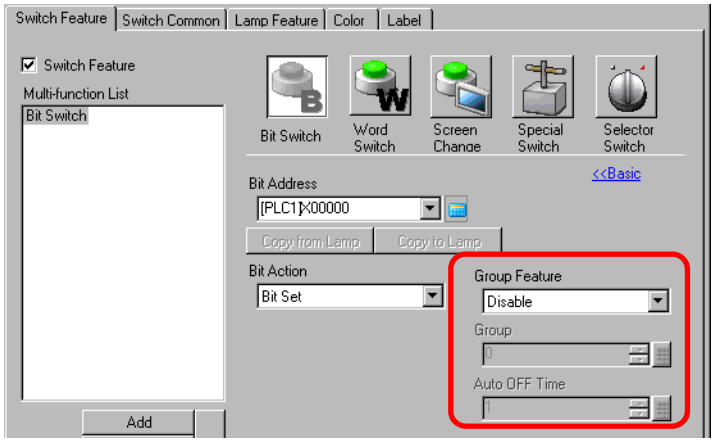
◆ Comparison



Setting	Description
Comparison Word Address	Specify the Word Address (16 bit) to be compared. The data stored in this Word Address will be compared to the [Constant], and if the conditions are met the [Bit Address] will be turned ON.
Comparison	Select the comparison condition from: =, <, >, <>, <=, >=
Constant	Specify the value to be compared. Each [Data Type] has a different size range. Dec : - 32,768 to 32,767 BCD : 0 to 9999 Hex : 0 to FFFF
Data Type	Choose the constant's data type from [Dec], [BCD], or [Hex].

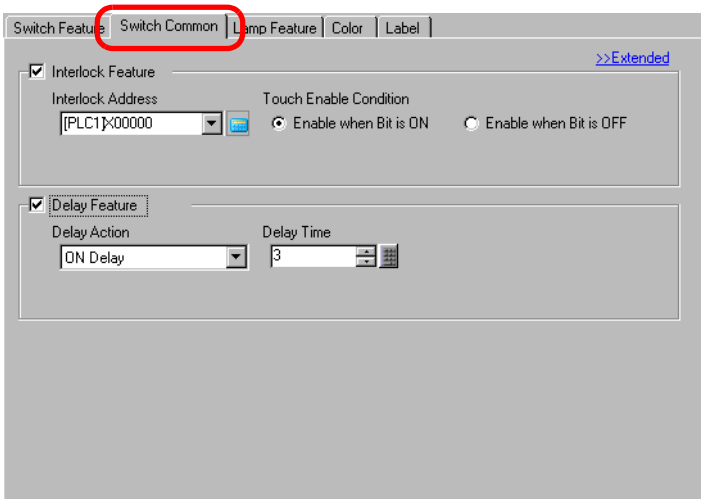
■ Switch Feature/Details

Use the Group Feature when a bit action is [Bit Set], [Bit Momentary], or [Bit Invert].



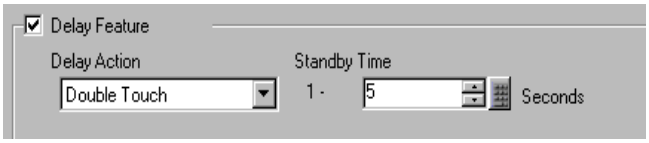
Setting	Description
Group Feature	Select whether or not to use the Group Feature. When a bit's action is [Bit Set], [Bit Momentary], or [Bit Invert], the Group Feature can be used. • Do Not Use Do not use the Group Feature. • Group Handles multiple switches as a single Group. When one of the switches in the Group turns ON, the other switches turn OFF. This can only be set when [Bit Action] is [Bit Set]. • Group with Auto OFF Handles multiple switches as a single Group. When one of the switches in the Group turns ON, the other switches turn OFF. When one of the switches in the Group turns ON, after the time set in [Auto OFF Time] passes, that switch automatically turns OFF. **NOTE** • If you set [Group] or [Group with Auto OFF], you cannot use the Delay Feature.
Group Number	When the [Group Feature] is [Group] or [Group with Auto OFF] is selected, this will appear. Switches on the same screen and with the same Group Number will be handled as a single group. The following shows the settings range for Group Nos. on one screen. Group : 0 to 255 Group with Auto OFF : 0 to 63 IMPORTANT • Even if the Group numbers in [Group] and [Group with Auto OFF] are the same, the groups are handled as separate groups.
Auto OFF Time	When [Group with Auto OFF] is selected for the [Group Feature], set the auto off time from 0 to 60 seconds. When Auto OFF Time is set to "0", you can set a Group which will not turn OFF automatically.

■ Switch Common/Basic



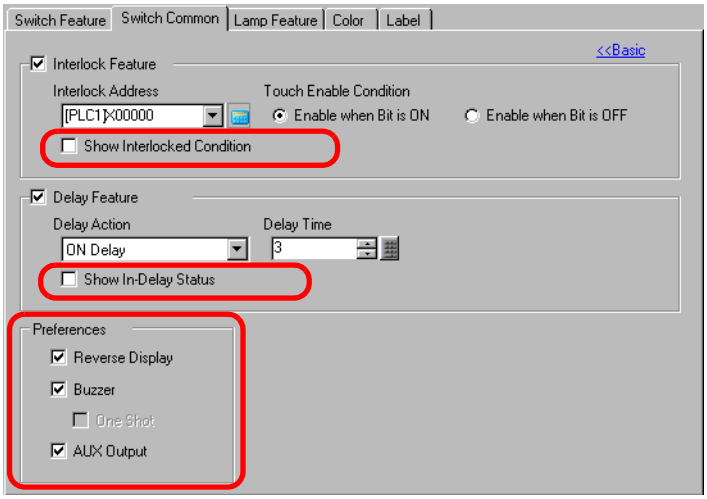
Setting	Description
Interlock Feature	Designate whether or not to use the Interlock Feature (a feature that enables touch only when a condition is satisfied).
Interlock Address	If the Interlock feature is enabled, select the bit address which will control whether touch is enabled or disabled. Only when the address designated here is in the same state as the [Touch Enable Condition] will touch be enabled.
Touch Enable Condition	When using the Interlock feature, choose the condition which will enable touch. • Enable when Bit is ON Touch is only enabled when the designated [Interlock Address] is ON. • Enable when Bit is OFF Touch is only enabled when the designated [Interlock Address] is OFF.
Delay Feature	Designate whether or not to use the Delay Feature. This function delays the effect of touching a Switch by a specific amount of time. **NOTE** • If you set the Group feature ([Group] or [Group with Auto OFF]), you cannot use the Delay feature. • Regardless of the [Touch Panel Detection] setting on the System Settings - [Main Unit] - [Operation] tab, touch is enabled when ON. • This function cannot be used with a Selector Switch.

Continued

Setting	Description
Delay Action	Choose the condition that will enable the Switch feature: [ON Delay], [OFF Delay], or [Double Touch]. • ON Delay If you continuously press the Switch for the period designated in [Delay Time], the Switch feature is enabled. The Switch will not operate if you release it before the [Delay Time] has elapsed. • OFF Delay Turns OFF when the amount of time specified by [Delay Time] has elapsed after releasing the Switch. Only enabled when [Bit Action] is set to [Bit Momentary]. • Double Touch After pressing the Switch a first time, if you press it again within the period designated in [Standby Time], the Switch feature is enabled. The Switch is not enabled when you press it again after the [Standby Time] has elapsed.
Delay Time	When the [Delay Action] is [ON Delay] or [OFF Delay], set the time period for the delay. The value can be from 1 to 30 seconds.
Standby Time	When the [Delay Action] is [Double Touch], set how many seconds the switch will wait for the second touch after the first touch. You can enter a value of between 2 and 30 seconds. **NOTE** • The monitor time starts from the point when the switch is released. 

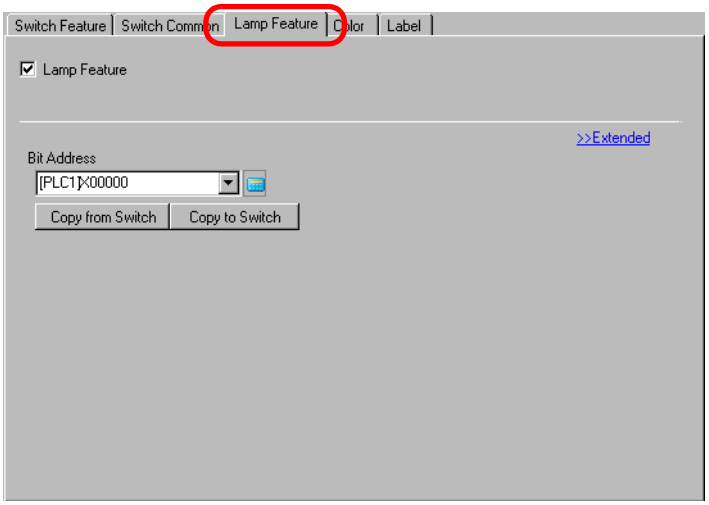
■ Switch Common/Details

You can set further options for the Switch Feature during touch, including sound options and Reverse Display.



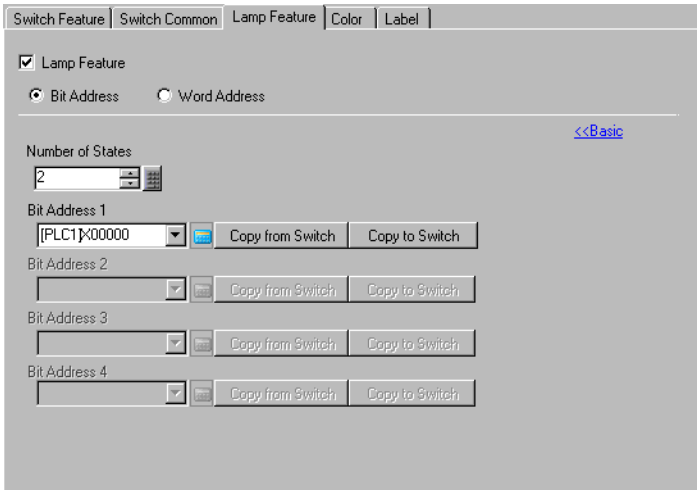
Setting	Description
Show Interlocked Condition	When using the Interlock feature, designate whether or not to configure display settings to show a switch is Interlocked. When this is designated, the [Interlocked] option will be added to [Select State] on the [Color] tab and [Label] tab, and you can set the switch color and label for the Interlock state.
Show In-Delay Status	When using the Delay feature, designate whether or not to configure display settings to show a switch is In Delay. When this is designated, the [In Delay] option will be added to [Select State] on the [Color] tab and [Label] tab, and you can set the switch color and label for the In Delay state.
Reverse Display	Select whether or not to reverse the color while the Switch is pressed. When the [Lamp Feature] is set, this setting cannot be used. **NOTE** • The Reverse Display color cannot be changed.
Buzzer	Select whether or not the buzzer will sound when the switch is pressed.
One Shot	You can set the buzzer to sound continuously while the Momentary Switch is or to sound for just a moment. This can only be set when [Bit Momentary] is selected for [Bit Action].
AUX Output	Designate whether or not to sound the buzzer from a connected external device (speaker) when a switch is pressed. Models that do not have an AUX interface cannot output the buzzer sound.

■ Lamp Feature/Basic



Setting	Description
Lamp Feature	Set whether or not to use the lamp feature. When combined with the Switch feature, you can create a Switch that changes color and label depending on the designated bit state.
Bit Address	Designate the Bit Address to operate the state (light ON/light OFF).
Copy from Switch	The [Switch Feature] tab's [Bit Address] setting is copied to the [Lamp Feature] tab's [Bit Address]. This is used when setting a Lamp Feature and Switch Feature to the same address.
Copy to Switch	The [Lamp Feature] tab's [Bit Address] setting is copied to the [Switch Feature] tab's [Bit Address]. This is used when setting a Lamp Feature and Switch Feature to the same address.

■ Lamp Feature/Extended

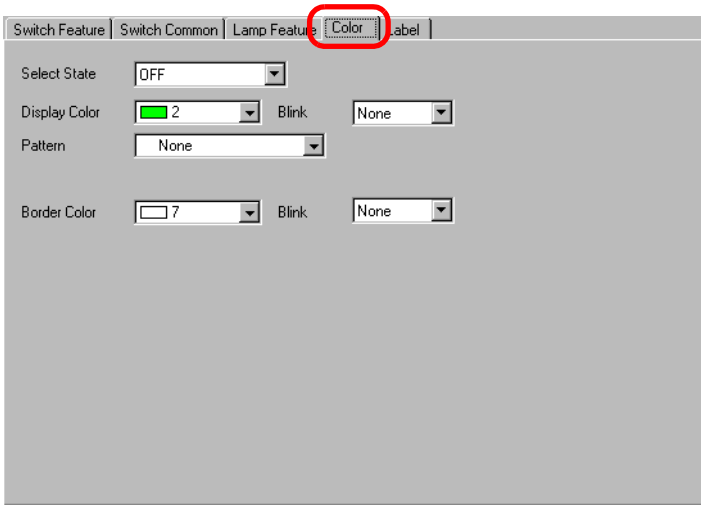


Setting	Description
Address Type	Designate the address to operate the state from [Bit Address] or [Word Address].
Bit Address (1 to 4)/ Word Address	Set the addresses. The lamp display will change depending on the bit status of the address designated here and the [State Switch Condition].
Number of States	Set the number of display states. The range will differ depending on the [State Switch Condition] and whether a Bit Address or Word Address is set. • Bit Address For [Change Condition by Bit]: 3 to 5 For [Change Condition by Bit Combination]: 2 to 16 • Word Address For [Change Condition by Bit]: 3 to 17 For [Change Condition by Data]: 2 to 16
State Switch Condition	When the [Number of States] is 3 or more, select the condition that will change the status. • Change Condition by Bit This can be set for either [Bit Address] or [Word Address]. The status is judged by which bits are ON. • Change Condition by Bit Combination This can only be set for [Bit Address]. The status is judged by the combination of bits that are ON from Bit Address 1 to 4. • Change Condition by Data This can only be set for [Word Address]. The status is judged by the value stored in the lower 4 bits of the Word Address. **NOTE** • When [Change Condition by Bit] is selected and multiple bits are ON, the status is judged by the earliest bit set for Bit Address and by the most recent bit for Word Address.

◆ **State List**

	[Select State] option	Bit Address		Word Address	
		By bit Change Condition	Change Condition by Bit Combination	Change Condition by Bit	Change Condition by Data
When [Number of States] is 1	Normal	-	-	-	-
When [Number of States] is 2	OFF	-	-	-	-
	ON	-	-	-	-
When [Number of States] is 3 or more	State 0	All OFF	All OFF	All OFF	Data 0
	State 1	Bit 1 is ON	Bit 1 is ON	00 Bit is ON	Data 1
	State 2	Bit 2 is ON	Bit 2 is ON	01 Bit is ON	Data 2
	State 3	Bit 3 is ON	Bit 1 and 2 are ON	02 Bit is ON	Data 3
	State 4	Bit 4 is ON	Bit 3 is ON	03 Bit is ON	Data 4
	State 5	-	Bit 1 and 3 are ON	04 Bit is ON	Data 5
	State 6	-	Bit 2 and 3 are ON	05 Bit is ON	Data 6
	State 7	-	Bit 1, 2 and 3 are ON	06 Bit is ON	Data 7
	State 8	-	Bit 4 is ON	07 Bit is ON	Data 8
	State 9	-	Bit 1 and 4 are ON	08 Bit is ON	Data 9
	State 10	-	Bit 2 and 4 are ON	09 Bit is ON	Data 10
	State 11	-	Bit 1, 2 and 4 are ON	10 Bit is ON	Data 11
	State 12	-	Bit 3 and 4 are ON	11 Bit is ON	Data 12
	State 13	-	Bit 1, 3 and 4 are ON	12 Bit is ON	Data 13
	State 14	-	Bit 2, 3 and 4 are ON	13 Bit is ON	Data 14
	State 15	-	All ON	14 Bit is ON	Data 15
	State 16	-	-	15 Bit is ON	-
Interlock	Interlocked	-			
Delay	In Delay	-			

■ Color



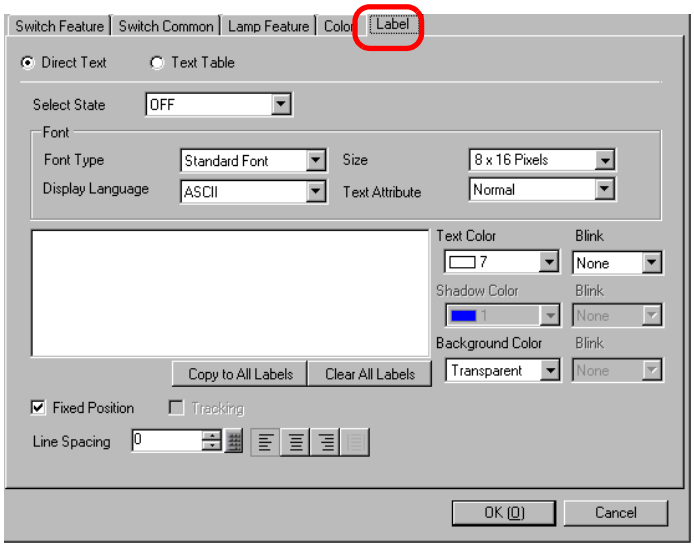
Setting	Description
Select State	Select the state. If the Lamp Feature is not used, only [Normal] can be selected. If the Lamp Feature is used, set the Switch color corresponding to the state. **NOTE** • To set a color that is interlocked or in delay, click the [Switch Common] tab's [Details], then designate [Show Interlocked Condition] or [Show In-Delay Status]. This will add the [Select State] choice.
Display Color	Select the color.
Pattern	Select the pattern from among 9 types.
Pattern Color	Select the pattern color. The color will appear as a combination of the [Display Color] and [Pattern Color].
Border Color	Select a border color for the Switch.
Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for the [Display Color], [Pattern Color], and [Border Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

NOTE

• Depending on the shape, you may not be able to set a [Display Color], [Pattern Color], or [Border Color].

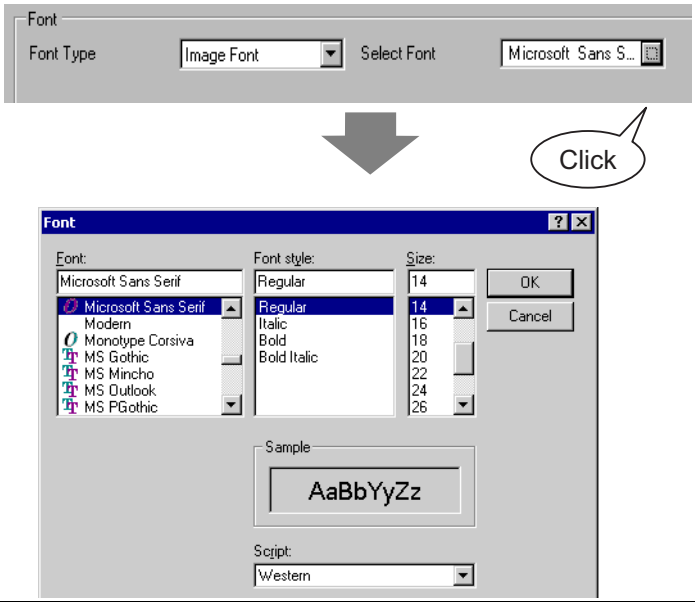
■ Label

Set the text to be put on the Switch Lamp. You can change the display text according to the Part's state.



Setting		Description
Text Type		Select the text type. • Direct Text Input the text into the text window, and it is placed directly as fixed text. • Text Table Use text from a previously saved Text Table. ☞ "15.7.4 Switch/Lamp - Label (Enable Text Table) Settings Guide" (page 15-56)
Select State		Select the state. If the Lamp Feature is not used, only [Normal] can be selected. If the Lamp Feature is used, set the label corresponding to the state. **NOTE** • To set a label that is interlocked or in delay, set the [Switch Common] tab's Detail Settings to [Show Interlocked Condition] or [Show In-Delay Status]. This will add the [Select State] choice.
Font	Font Type	Select the font type. • Standard Font For a bitmap font, you can choose the magnification level of the letters' height and width. When you magnify/shrink the letters, the outline may become rough or the letter may appear squashed. • Stroke Font This is an outline font where the ratio of the characters' height/width is fixed. The letters will have a smooth outline even if you magnify/shrink them, however, this font has a large size so it can slow down the GP. • Image Font Displays a Windows font as image data. Therefore, it cannot be edited as text data. This can only be selected when the Text Type is [Direct Text].

Continued

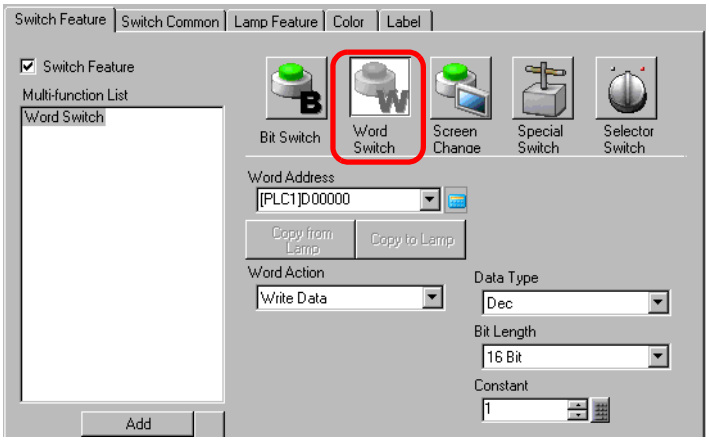
Setting		Description
Font	Font Type	**NOTE** • Image Fonts are a main cause of large project files. Text used an Image Font has a size of 50 bytes per character string. • When Image Font is selected, text cannot be set to Vertical.
	Character Size	Select the text size. Each font type has a different size range. Standard Font: Depending on the font you are using, you can either select the font size from [8 x 8 pixel] to [64 x 128 pixel], in increments of 8 pixel units, or select a fixed font size, [6 x 10 pixel], [8 x 13 pixel], or [13 x 23 pixel]. Stroke Font: Select from 6 to 127.
	Display Language	Select the display language for the label from [ASCII], [Japanese], [Chinese (Simplified)], [Chinese (Traditional)], [Korean], [Cyrillic], or [Thai]. This can only be set when [Font Type] is [Standard Font] or [Stroke Font]. **NOTE** • This cannot be set when [Text Table] is selected.
	Text Attribute	When [Font Type] is [Standard Font] or [Stroke Font], select from the following text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] (When using a fixed font size [6 x 10], select from [Standard] or [Shadow].) Stroke Font: Choose from [Standard], [Bold], [Outline]
	Select Font	This appears when [Font Type] is set to [Image Font]. The [Font] dialog box appears. Select the font, style, and size. 
Input Text Field		If [Direct Text] is selected, input the character string. Up to 400 characters (100 characters per row, 4 rows) can be inputted.

Continued

Setting	Description
Copy to All Labels	Copy text inputted in [Input Text Field] to all states that can be selected in [Select State]. All the other setting in the [Label] tab will also be copied. **NOTE** • This can not be used if the Lamp Feature is not set.
Clear All Labels	Clear the contents of [Input Text Field] for all states. All of the [Label] tabís other setting, such as Font Type and Color, will remain the same. **NOTE** • This can not be used if the Lamp Feature is not set.
Text Color	Set the display color for the text.
Background Color	Set the background color for the text.
Shadow Color	If the [Font Type] is [Standard Font], and [Shadow] has been selected from the [Text Attribute] menu, choose a color for the shadow.
Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for [Text Color] and [Background Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)
Fixed Position	Set whether or not to fix the Label in the center of the Part.
Tracking	After the Part is placed, any changes made to the size or position will be copied to all the other states. To change the size or position of an individual state's Label without affecting the other states, do not use this option. **NOTE** • When [Fixed Position] is set, this setting cannot be used. • This cannot be set when [Text Table] is selected.
Row Spacing	Set a value from 0 to 255. This cannot be set when [Font Type] is [Image Font].
Align	Select the alignment of the text from [Align Left], [Align Center], or [Align Right]. When the [Font Type] is set to [Image Font], you can also select [Align on Both Sides].

11.14.2 Word Switch

■ Switch Feature

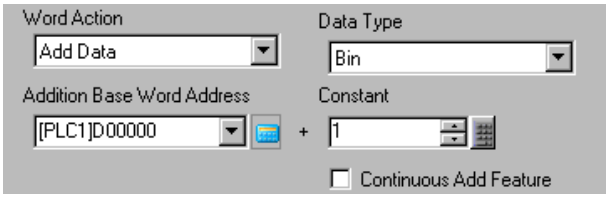


Setting	Description
Word Address	Specify the Word Address where the data will be stored.
Word Action	Select the Word action. • Write Data Touch the Switch and data will be written to the device/PLC's address specified in [Word Address]. • Add Data/Subtract Data Touch the Switch and the data value is added to (subtracted from) the data currently in the device's specified Word Address. The result is then written to the [Word Address]. ☞ " ◆ Add Data/Subtract Data" (page 11-55) • Digit Addition/Digit Subtraction Every time the Switch is pressed, the designated digit's data will be added (subtracted) by one and written to the [Word Address]. Only the specified digit will be increased or decreased, not affecting the rest of the value. ☞ " ◆ Digit Addition/Digit Subtraction" (page 11-56) • Operation Calculates the result of the Word Address data and a data constant with an operation (Boolean AND/OR/XOR), with the result being stored in the [Word Address]. ☞ " ◆ Operation" (page 11-57)
Data Type	Choose the constant's data type from [Dec], [BCD], or [Hex].
Bit Length	Choose the constant's bit length from [16 Bit] or [32 Bit].

Continued

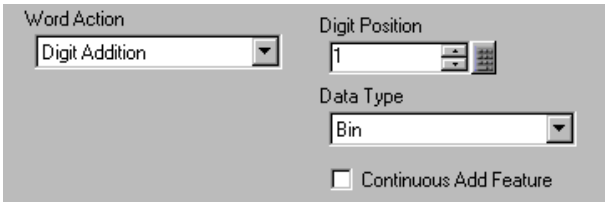
Setting	Description
Constant	Set the value to write to the designated [Word Address]. Each [Data Type] has a different size range. Bit Length / Data Type / Constant: 16 Bit / Dec / –32768 to 32767 16 Bit / BCD / 0 to 9999 16 Bit / Hex / 0 to FFFF 32 bit / Dec / –2147483648 to 2147483647 32 bit / BCD / 0 to 99999999 32 bit / Hex / 0 to FFFFFFFF

◆ Add Data/Subtract Data



Setting	Description
Addition Base Word Address (Subtraction Base Word Address)	The designated [Constant] is added to (subtracted from) this data, and the result is then written to [Word Address].
Data Type	Choose the constant's data format from [Dec] or [BCD].
Constant	Specify the value to be added/subtracted. Each [Data Type] has a different size range. Word Action / Data Type / Constant: Add / Dec / 0 to 32767 Add / BCD / 0 to 9999 Subtract / Dec / 0 to 32768 Subtract / BCD / 0 to 9999
Continuous Add Feature (Continuous Subtract Feature)	Select whether or not the add or subtract feature will act continuously (repeat function) while the Switch is pushed down. **NOTE** • If the Continuous Add Feature is set, the Delay Feature cannot be used. • This will not function when the [OFF Detect] option is set on the System Settings - [Display Unit] - [Operation] tab.

◆ Digit Addition/Digit Subtraction



Setting	Description
Digit Position	Select the position of the digit to be increased (decreased). Value can be from 1 to 4.
Data Type	Choose the data type from [Bin] or [BCD].
Continuous Add Feature (Continuous subtract Feature)	Select whether or not the Digit Addition or Digit Subtraction feature will act continuously (repeat function) while the Switch is pushed down. **NOTE** • If the Continuous Add Feature is set, the Delay Feature cannot be used. • This will not function when the [OFF Detect] option is set on the System Settings - [Main Unit] - [Operation] tab.

◆ Operation

Setting	Description
Operation Base Word Address	Specify the Word Address to reference for the operation. The operation occurs with the data stored in the address designated here and the constant, and the result is then written to [Word Address].
Operator	Select from [AND], [OR], or [XOR]. • AND (Logical AND) Result is "0" when either of the two bits is "0", and "1" when both bits are "1". • OR (Logical OR) Result is "1" when either of the two bits is "1", and "0" when both bits are "0". • XOR (Exclusive OR) Result is "0" when both bits are the same value, and "1" when they are a different value. For example, When [Operation Base Word Address] value is 5, [Constant] is 3 AND: Operation Base Word Address 0101; Constant 0011; Operation Result (Word Address) 0001 (1) OR: Operation Base Word Address 0101; Constant 0011; Operation Result (Word Address) 0111 (7) XOR: Operation Base Word Address 0101; Constant 0011; Operation Result (Word Address) 0110 (6)
Constant	Designate the operation value. The value range is 0 to FFFF.

■ Switch Common/Lamp Feature/Color/Label

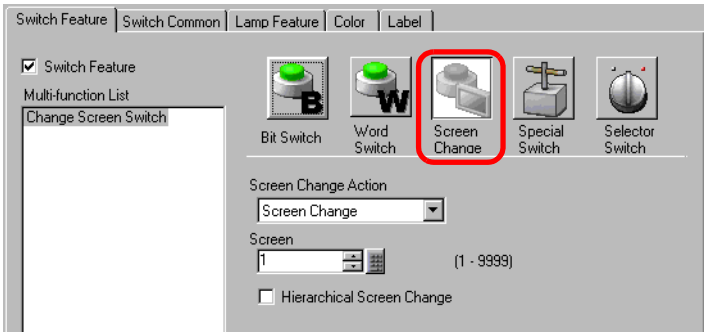
Configure settings that are common regardless of the type.

☞ "11.14.1 Bit Switch ■ Switch Common/Basic" (page 11-44)
☞ "11.14.1 Bit Switch ■ Lamp Feature/Basic" (page 11-47)
☞ "11.14.1 Bit Switch ■ Color" (page 11-50)
☞ "11.14.1 Bit Switch ■ Label" (page 11-51)

11.14.3 Change Screen Switch

Create a switch that changes the base screen.

■ Switch Feature



Setting	Description
Screen Change Action	Select the Screen Change action. • Screen Change Touch the Switch, and the screen changes (jumps) to the specified screen. • Previous Screen Touch the Switch, and the previously displayed screen will reappear. For screens that are organized hierarchically, the screen one level up (the parent screen) will reappear.
Screen	Specify the number of the Screen you want to display from 1 to 9,999. This can only be set when [Screen Change Action] is set to [Screen Change].
Hierarchical Screen Change	You can set a level hierarchy to the Screen Change. This can only be set when [Screen Change Action] is set to [Screen Change]. A maximum of 32 levels can be set.

■ Switch Common/Lamp Feature/Color/Label

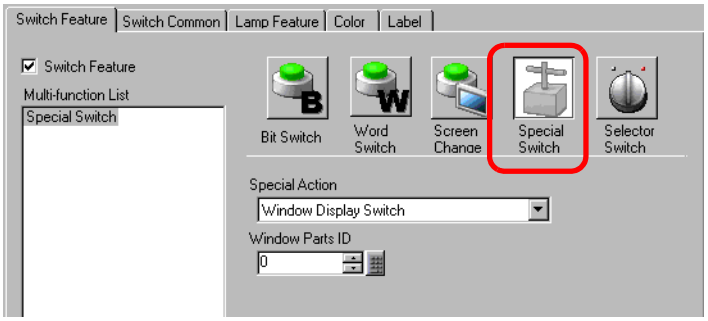
Configure settings that are common regardless of the type.

☞ "11.14.1 Bit Switch ■ Switch Common/Basic" (page 11-44)
☞ "11.14.1 Bit Switch ■ Lamp Feature/Basic" (page 11-47)
☞ "11.14.1 Bit Switch ■ Color" (page 11-50)
☞ "11.14.1 Bit Switch ■ Label" (page 11-51)

11.14.4 Special Switch

Create a Switch with special features.

■ Switch Feature

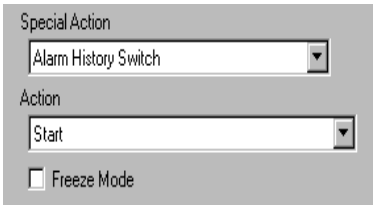


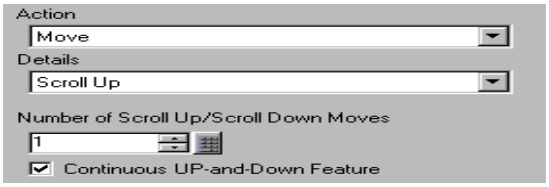
Setting	Description
Special Action	Select the Special action. • Window Display Switch Like a Switch attached to a Window part which triggers the Window. Press the Switch and the designated Window displays. Press it again and the Window closes. • Alarm History Switch Like a Switch which is attached to the Alarm part. Creates a Switch to manage (Acknowledge/Move/Clear) the displayed Alarm History. ☞ " ◆ Alarm History Switch" (page 11-61) • Text Alarm Switch Like a Switch which is attached to the Text Alarm part. Creates a Switch to show the displayed Text Alarm's scroll or Sub Screen. ☞ " ◆ Text Alarm Switch" (page 11-62) • Historical Trend Graph Switch Like a Switch which is attached to the Historical Trend Graph. Creates a Switch to display and scroll through historical data. ☞ " ◆ Historical Trend Graph Switch" (page 11-62) • Sampling Data Display Switch Like a Switch which is attached to the Sampling Data Display part. Creates a Switch to scroll through a Sampling Data Display. ☞ " ◆ Sampling Data Display Switch" (page 11-63) • File Item Switch Like a Switch which is attached to the Special Data Display [Filing]. Creates a Switch to transfer filing data, scroll through a Filing Display, etc. ☞ " ◆ File Item Switch" (page 11-63) • File Manager Display Switch Like a Switch which is attached to the Special Data Display [File Manager]. Creates a Switch to display the File Manager on the screen.

Continued

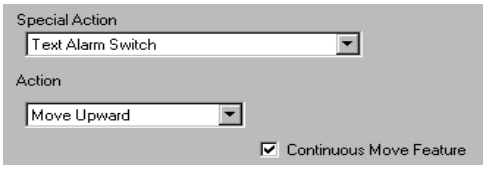
Setting	Description
Special Action	• Data Transfer Switch This is the same as the Switch which is attached to the Special Data Display [Data Transmission]. Creates a Switch to transfer CSV data, scroll through a Data Transfer Display, etc. ☞ " ◆ Data Transfer Switch" (page 11-64) • Switch for CSV Display This is the same as the Switch which is attached to the Special Data Display [Show CSV]. Creates a Switch to scroll through a CSV Display or print CSV data. ☞ " ◆ Switch for CSV Display" (page 11-64) • Movie Player Switch This is the same as the switch attached to the movie player. Create the switch to operate the screen for movie playback. ☞ " ◆ Movie Player Switch" (page 11-65) • Start monitor switch Create a switch to display the Device monitor and the Ladder monitor on the screen. ☞ " ◆ Start Monitor Switch" (page 11-67) • Start Application Create a switch to directly specify and start the application executable file when using WinGP. You can specify the start up parameters and multiple start watch. ☞ " ◆ Start Application Switch" (page 11-68) • Exit WinGP Create a switch to exit WinGP. ☞ " ◆ Exit WinGP+" (page 11-68) • Remote PC Access window display Switch This is the same as the switch attached to the Remote PC Access Window Display. Display the RPA Window Screens on the screen. ☞ "36.3 Display/Operate the computer screen on the GP." (page 36-4) • Reset Create a switch to reset the Display. • Offline Create a switch to transfer to offline mode (no communication with the device/PLC) for the Display. **NOTE** • [Reset] and [Offline] cannot to be a multifunctional switch (multiple operations with one switch).
Window Parts ID	Set the ID of the Window to display when the switch is touched. This can be set from 0 to 383.

◆ Alarm History Switch



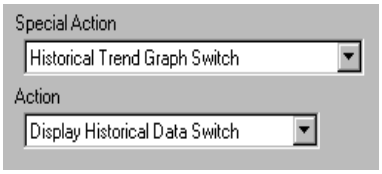
Setting	Description
Action	Choose the action: [Start], [End], [Acknowledge], [Move], [Clear], [Sort], [Sub Display], or [Alarm Number Acquisition Key].
Freeze Mode	When the [Action] is [Start], designate whether or not to use Freeze Mode (stops the Alarm display in the current state and does not perform updates).
Detail Action	When [Action] is selected as [Acknowledge], [Move], [Clear], or [Sort], select the details. • Acknowledge Choose from [Acknowledge] or [Check All]. • Move Choose from [Move Upward], [Move Downward], [Scroll Up], or [Scroll Down].  • Clear Select from [Clear], [Clear All], [Clear Recovered Alarm], [Clear Acknowledged Alarm], [Clear All Recovered Alarms], [Clear All Acknowledged Alarms], [Clear All Number of Occurrences], [Clear Individual Number of Occurrences], [Clear All Accumulated Time], or [Clear Individual Accumulated Time]. • Sort Choose from [Sort by Triggered Date and Time], [Sort by Number of Occurrences], [Sort by Accumulated Time], [Alarm Sort by Registration Order], [Sort by Level & Date and Time], [Sort by Level & Number of Occurrences], or [Sort in Reverse].
Continuous Move Feature	When [Detail Action] is selected as [Move Upward] or [Move Downward], select whether or not to move continuously while the Switch is pressed. This function does not exist on the Alarm part.
Number of Scroll Up/Scroll Down Moves	When [Detail Action] is [Scroll Up] or [Scroll Down], set the number of moves the Switch will scroll when pressed once. The value can be from 1 to 768.
Continuous Up-and-Down Feature	When [Detail Action] is selected as [Scroll Up] or [Scroll Down], select whether or not to scroll up (or down) continuously while the Switch is pressed. This function does not exist on the Alarm part.

◆ Text Alarm Switch



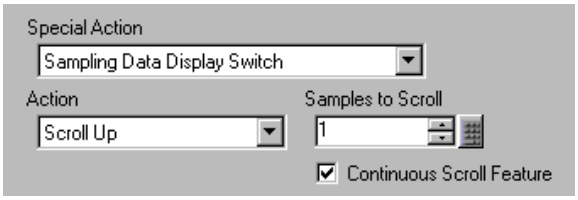
Setting	Description
Action	Choose the action from [Move Upward], [Move Downward], [Scroll Up], [Scroll Down], [Sub Display], or [End].
Continuous Move Feature	When [Action] is selected as [Move Upward] or [Move Downward], select whether or not to move continuously while the Switch is pressed. This function does not exist on the Text Alarm part.
Number of Scroll Up/ Scroll Down Moves	When [Action] is [Scroll Up] or [Scroll Down], set the number of moves the Switch will scroll when pressed once. The value can be from 1 to 512.
Continuous Up-and-Down Feature	When [Action] is selected as [Scroll Up] or [Scroll Down], select whether or not to scroll up (or down) continuously while the Switch is pressed. This function does not exist on the Text Alarm part.

◆ Historical Trend Graph Switch



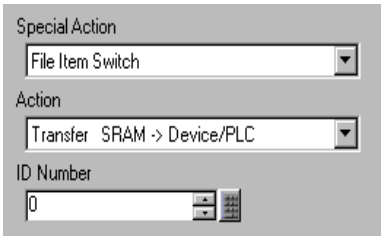
Setting	Description
Action	Choose the action from [Display Historical Data Switch], [Scroll for the Old Data], and [Scroll for New Data].
Samples to Scroll	When [Action] is [Scroll for the Old Data] or [Scroll for New Data], set the number of samples to scroll with one touch. The value can be from 1 to 65,535.
Continuous Scroll Feature	When [Action] is [Scroll for the Old Data] or [Scroll for New Data], designate whether or not to scroll continuously when the Switch is pressed. This feature does not exist on the Historical Trend Graph part.

◆ Sampling Data Display Switch



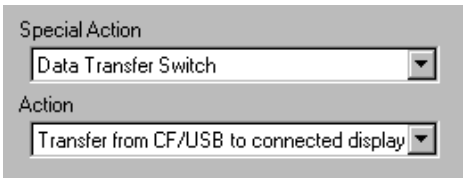
Setting	Description
Action	Choose the action from [Scroll Up], [Scroll Down], [Scroll Left], or [Scroll Right].
Samples to Scroll	Set the number of samples to scroll when pressed once. The setting range is 1 to 65,535 for [Scroll Up] and [Scroll Down], and 1 to 514 for [Scroll Left] and [Scroll Right].
Continuous Scroll Feature	Designate whether or not to scroll continuously when the Switch is pressed. This function does not exist on the Sampling Display part.

◆ File Item Switch



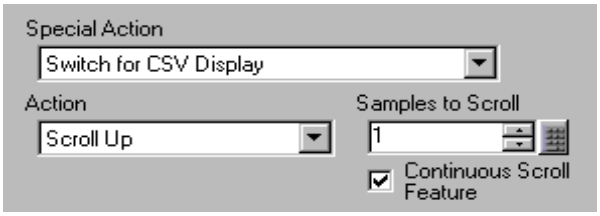
Setting	Description
Action	Select the action from [Transfer SRAM→Device/PLC], [Transfer SRAM→Internal Device], [Transfer Device/PLC→SRAM], [Transfer Device/PLC→Internal Device], [Transfer Internal Device→SRAM], [Transfer Internal Device→Device/PLC], [Move Upward], or [Move Downward].
ID Number	Set the ID number of the Special Data Display [Filing] you want to operate with the Special Switch. The value can be from 0 to 255.
Number of Moves	When [Action] is [Move Upward] or [Move Downward], set the number of moves for one touch from 1 to 2,048.
Continuous Move Feature	When [Action] is selected as [Move Upward] or [Move Downward], select whether or not to move continuously while the Switch is pressed. This feature does not exist on a Special Data Display [Filing].

◆ Data Transfer Switch



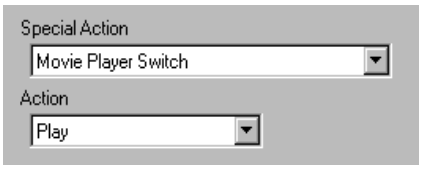
Setting	Description
Action	Select the switch to operate the Special Data Display [Data Transmission] from [Transfer to CF/USB→Device/PLC], [Transfer to Device/PLC→CF/USB], [Scroll Up], [Scroll Down] or [CSV Data Display].
Samples to Scroll	When [Action] is [Scroll Up] or [Scroll Down], set the number of moves for one touch from 1 to 100.
Continuous Scroll Feature	When [Action] is selected as [Scroll Up] or [Scroll Down], select whether or not to move continuously while the Switch is pressed. This feature does not exist on a Special Data Display [Data Transmission].

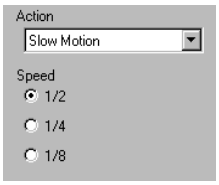
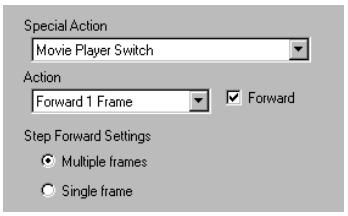
◆ Switch for CSV Display



Setting	Description
Action	Choose the action from [Scroll Up], [Scroll Down], [Scroll Left], [Scroll Right], [Print-All], or [Print-Display].
Samples to Scroll	When [Action] is [Scroll Up], [Scroll Down], [Scroll Left], or [Scroll Right], set the number of moves for one touch from 1 to 1,000.
Continuous Scroll Feature	When [Action] is selected as [Scroll Up], [Scroll Down], [Scroll Left], or [Scroll Right], select whether or not to move continuously while the Switch is pressed. This feature does not exist on a Special Data Display [Show CSV].

◆ Movie Player Switch



Setting	Description
Action	Select the switch function for playing a movie with [Movie Player] from [Play], [Stop], [Pause], [Fast Forward], [Rewind], [Slow Motion], [Forward 1 Frame], [Back 1 Frame], [Change Movie], [Zoom], [Move], or [Video Display].
Speed	When selecting [Slow Motion] under [Action], specify the play speed from [x 1/2], [x 1/4] or [x 1/8] 
Step Forward Settings	When the [Action] is set to [Forward 1 Frame], select [Frame Width (Large)] or [Frame Width (Small)]. This setting can be used only during [Pause]. 
Forward(Backward)	When selecting [Forward 1 Frame] (or [Back 1 Frame]) under [Action], while holding down the switch, specify whether to continuously forward (or reverse) the movie frame by frame.

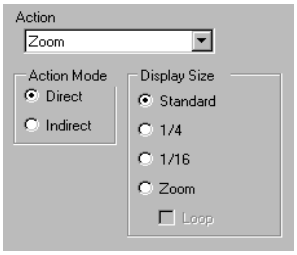
Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Detail Action</td><td>When selecting [Change Movie] under [Action], select [Next], [Previous], or [Specification Number].
• Loop
When selecting [Next] or [Previous], specify whether to perform a loop operation.
• Specify Range
Specify the Index Number from 0 to 99 for the movie file to be played.

When selecting [Move] under [Action], select [Top], [Bottom], [Left], or [Right]. The following describes the range in which a movie can be moved at one time.

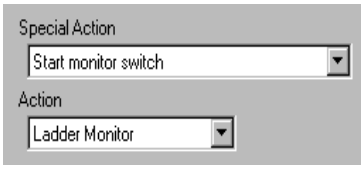
<table>
<tr><th>Direction</th><th>When playing an SDX file</th><th>When playing a video</th></tr>
<tr><td>Horizontal direction</td><td>2 dots</td><td>2 dots</td></tr>
<tr><td>Vertical direction</td><td>Normal size
2 dots
1/4 or 1/16 size
1 dot</td><td>1 dot</td></tr>
</table>

• Continuous
While holding down the switch, specify whether to move the movie.</td></tr>
<tr><td>Detail Action</td><td>When selecting [Video Display] under [Action], select [Video ON], [Video OFF], or [Video ON/OFF].</td></tr>
<tr><td>Mode</td><td>When selecting [Zoom] under [Action], select [Direct] or [Indirect].
• Display Size
When selecting [Direct], select the display size from [Normal], [1/4], [1/16], or [Zoom].
[Zoom] zooms a movie in or out in the order of "Normal -> 1/4 -> 1/16 -> 1/4 -> Normal..." each time the switch is pressed. When [Loop] is selected, the movie is zoomed in and out in the order of "Normal -> 1/4 -> 1/16 -> Normal -> 1/4...".

• Word Address
Designate an address to store the display size when [Indirect] is selected. The display sizes are as follows.
0: Standard
1: 1/4
2: 1/16
3 to 0xFFFE: Reserved (no change)
0xFFFF: Normal (return to the main screen)</td></tr>
</table>

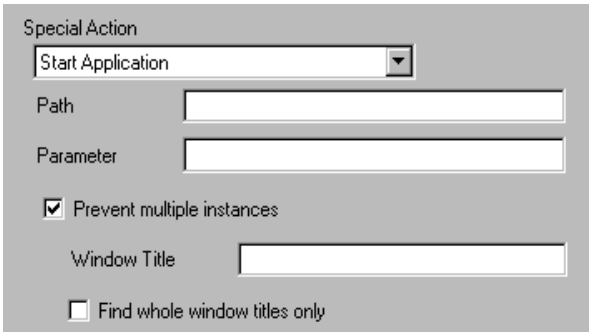
◆ Start Monitor Switch



Setting	Description
Action	Select from [Ladder monitor], [Ladder monitor (Cache)] or [Device monitor]. • Ladder monitor Start the ladder monitor screen. The ladder is displayed after start and [Read]. The ladder is not displayed at start up. • Ladder monitor (Cache) Displays the previous ladder saved on the CF card upon exiting. • Device monitor Start the Device monitor screen. ☞"Appendix Monitoring the state of Device/PLC address.(Device monitor)" **NOTE** • To use the Ladder monitor, you need the ladder monitor tool (sold separately) on your PLC. Refer to the ladder monitor operation manual in the ladder monitor CD-ROM.

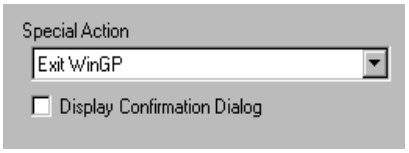
◆ Start Application Switch

Use the Start Application switch for starting the application by touch when using WinGP.



Setting	Description
EXEPath	Input the absolute path of the executable file (.exe) that you want to start. You can input up to 255 characters.
Parameter	Input the argument of the executable file on start up. You can input up to 255 characters.
Prevent multiple instances	Set [Window Title] to watch multiple instances. You can input up to 63 characters. If a window matching [Window Title] is found, the application does not start. If no settings are specified in [Window Title], multiple instances are allowed.
Find whole window titles only	If a window matching the title specified in [Window Title] is found, the specified application does not start.

◆ Exit WinGP+



Setting	Description
Confirm	Display the acknowledge message when exiting WinGP.

■ Switch Common/Lamp Feature/Color/Label

Configure settings that are common regardless of the type.

☞ "11.14.1 Bit Switch ■ Switch Common/Basic" (page 11-44)
☞ "11.14.1 Bit Switch ■ Lamp Feature/Basic" (page 11-47)
☞ "11.14.1 Bit Switch ■ Color" (page 11-50)
☞ "11.14.1 Bit Switch ■ Label" (page 11-51)

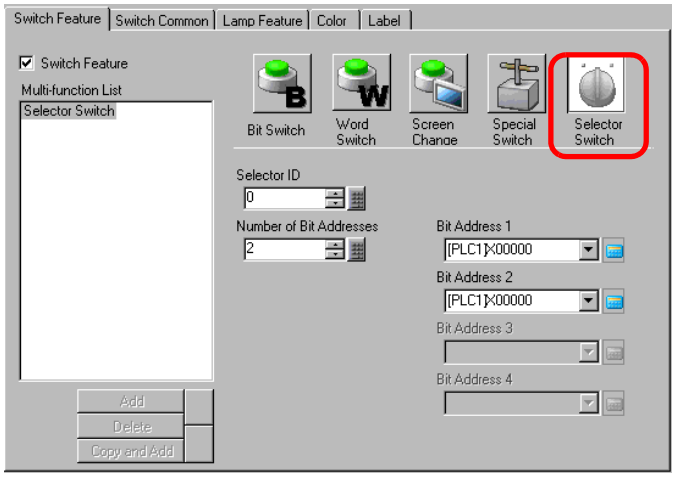
11.14.5 Selector Switch

Create a Rotary Selector Switch (a switch which turns ON bits in order with each touch).

NOTE

- After the power is turned ON and you touch the Selector Switch, the data for each set bit address is read from the device/PLC, that information is stored inside the GP, and at the same time the Selector action occurs (the bit following the currently selected bit address turns ON). After that, the Selector action occurs without reading the device/address data, based on information stored in the GP (which bit address was ON last time). After the first touch, even if the bit address data changes, it will not be reflected right away in the Selector Switch. Data will be overwritten the next time you touch the Switch.
- When setting the addresses of multiple devices/PLCs, if a communication error occurs in one of the devices, writing will continue normally to that device until the write occurs, and a write error will be displayed at the time of writing to the device. The displayed write error will be erased once you change screens after communication recovers.

■ Switch Feature



Setting	Description
Selector ID	Set the Selector ID number. The value can be from 0 to 2,047.
Number of Bit Addresses	Set the number of bit addresses to operate in a single Selector Switch from 2 to 4.
Bit Address 1 to 4	**Set the bit addresses for the amount designated in [Number of Bit Addresses].**

■ Switch Common/Lamp Feature/Color/Label

Configure settings that are common regardless of the type.

☞ "11.14.1 Bit Switch ■ Switch Common/Basic" (page 11-44)
☞ "11.14.1 Bit Switch ■ Lamp Feature/Basic" (page 11-47)
☞ "11.14.1 Bit Switch ■ Color" (page 11-50)
☞ "11.14.1 Bit Switch ■ Label" (page 11-51)

11.15 Restrictions for Switches

- Immediately after changing screens, in order to draw the new screen, Switches may be disabled.
- When operating on the bit of device/Word Address with a [Bit Set], [Bit Reset], or [Bit Momentary] switch, all other bits in the Word Address will be turned OFF. For Internal Device Word Addresses, you can only operate on the specified bit.
- If you change screens from the device/PLC while a [Bit Momentary] switch is pushed, the specified bit will turn OFF.
- For the Bit Switch [Bit Invert] and [Comparison] functions and the Word Switch [Add Data/Subtract Data] and [Operation] functions, data is read into the PLC or other connected device after the screen has changed. The data used by the process is the data that was current when the Switch was pressed. If a switch is pushed immediately after the screen changes, it is possible that invalid data will be written because the valid data has not yet been read. If you press a switch immediately after the screen changes, please set that switch's address to the read area.
- For the Bit [Bit Invert] and [Comparison], and the Word [Add Data/Subtract Data] and [Operation], the write action occurs for data read from the device/PLC. A Switch pressed rapidly in succession may write to the device/PLC before the value can be read. Therefore, sometimes the value will not reflect the actual amount of times the Switch was pressed.
  (For example, 1) If you push an [Add Data] Switch which adds +1 to a Word data two times in rapid succession, it may not add +2 to the data.
  (For example, 2) If the same Word Address contains 2 bit switches (bit [0] and bit [1]) and both switches are pushed in rapid succession, in some cases the bits will not toggle as normal.
- For a Word [Add Data/Subtract Data], if the [Data Type] is BCD and the result of an operation is a negative value, it will be treated the following way.
  For example, 1 - 10 = 9991 (10001 - 10)
  9 - 10 = 9999 (10009 - 10)
- When a Word [Add Data/Subtract Data] or [Digit Addition/Digit Subtraction] is set with the Continuous feature, the Delay feature can not be used.
- When a Word [Add Data/Subtract Data] or [Digit Addition/Digit Subtraction] is set with the Continuous feature, data writing that depends on communication with the device/PLC is sometimes temporarily interrupted.
- While a Switch is pressed, its color is displayed in reverse. The Reverse Display color cannot be changed.
- When the Lamp Feature is set, Reverse Display will not function. Also, when a Switch is pressed (during Reverse Display), it cannot change to Interlocked Condition Display or In-Delay Status Display. The Partís color display has the following priority order.
  (1) Interlocked Condition Display High Priority
  (2) In-Delay Status Display ↕
  (3) Reverse Display or Lamp Display Low Priority
- When you select an Image Part (BPD file) from [Select Shape], the color is set on the Image Part itself, therefore the color can not be changed.

- A Part's reduction is sometimes limited according to the label's size (number of characters and rows).
- When using [Text Table] on the Label Settings, the placed part will be displayed corresponding to the size of the Characters x Number of Rows. Even if the table changes, the size will not.
- Label text that is displayed in the screen creation software and the way text is actually displayed on the GP may be different.

11.15.1 Restrictions on the Delay Feature

- If you set the Group feature ([Group] or [Group with Auto OFF]), you cannot use the Delay feature.
- The [Selector Switch] cannot use the Delay feature.

■ ON Delay

- If you take your finger off the switch before the Switch feature is enabled, it will have no effect.In that case, the remís appearance (color, label) will remain in the normal state and the buzzer will not sound.
- If the Interlock feature is set, when Interlock is enabled, the ON Delay action will not occur. Also, if Interlock is enabled during the ON Delay action (wait state), the wait state is canceled and the action does not occur.
- If the screen changes or the Window closes during the ON Delay action (wait state), the wait state is canceled at the change time and the action does not occur.
- If a bit operation occurs from the device/PLC during the ON Delay action (wait state), the ON Delay feature is disabled.

■ OFF Delay

- For [Bit Momentary], the designated bit turns OFF. For [Bit Set], [Bit Invert], [Word Switch], etc., Switches that do not have the Momentary action can not turn OFF.
- If the screen changes during the OFF Delay action (OFF wait state), the screen changes after the OFF wait state is over. Also, if a switch is on the window during the OFF Delay action, the window will close after the OFF wait state is over.
- If a screen change request from the device/PLC occurs during the OFF Delay action, touch is disabled for the period of the delay time starting from after the screen change request.

■ Double Touch

- If the specified time passes, the second touch has no effect.
- If the Interlock feature is set, when Interlock is enabled, the double touch wait state will not occur. Also, when Interlock is enabled during the double touch wait state, the 2nd touch cannot occur so the Switch will not become enabled.
- If you touch a different Switch during the designated time, the double touch wait state is canceled.
- If the screen changes or the Window closes during the designated time, the double touch wait state is canceled at the change time.

11.15.2 Restrictions on the Multifunction Feature

- A single Switch can be set with a maximum of 16 switch features.
- The Screen Change action is handled last. You cannot change the order.
- The following Switch features cannot be used for multifunction.
  - Bit Switches set with the Group feature ([Group] or [Group with Auto OFF])
  - Special [Reset Main Unit] or [Offline] Switch
  - Selector Switch
- The following Switch features cannot be set multiple times on the same Switch
  - Special Switch
  - Change Screen Switch
  - A Switch not set with Multifunction
- Even if you have a bit switch set with [Bit Momentary] in the middle of its multiple features, the buzzer will only ring while the Switch is pressed.

11.15.3 Group Function Limitations

- If the Group Feature is set, the Delay Feature cannot be used.
- You cannot turn a Switch that uses the Group feature into a multifunction Switch (where a single Switch executes multiple features).
- Even if you set a Switch on the Base Screen and a Switch on the Window Screen which it calls to the same Group Number, the two switches will not be handled as the same Group.
- The Group Number for [Group] and [Group with Auto OFF] are handled as different entities.
- When you set [Group with Auto OFF], the bit will automatically turn OFF when the screen changes. Even if it is placed on the window, the bit will be turned OFF when the window closes.