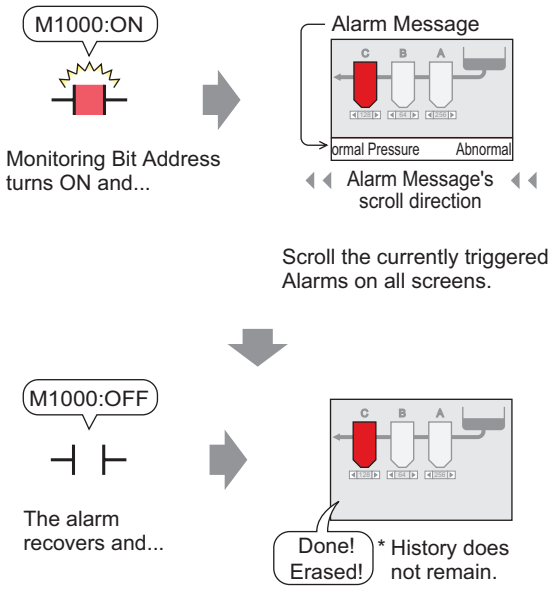
19 Alarms

This chapter explains how to display and manage “Alarms” in GP-Pro EX, and talks about useful features that use Alarms.
Please start by reading “19.1 Settings Menu” (page 19-2) and then turn to the corresponding page.

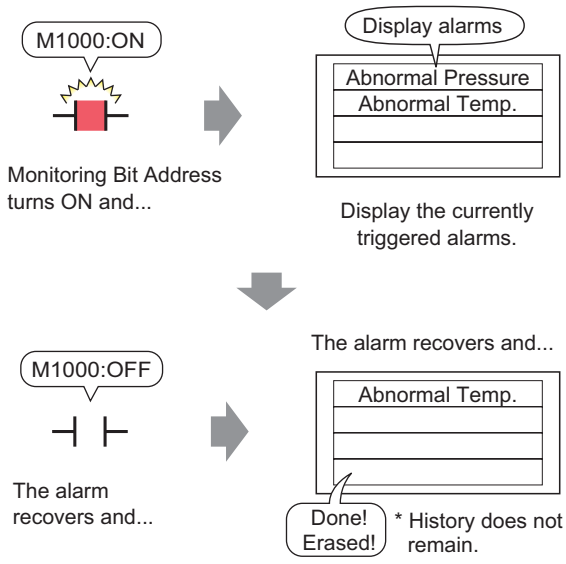
19.1 Settings Menu

Scrolling Alarm Messages



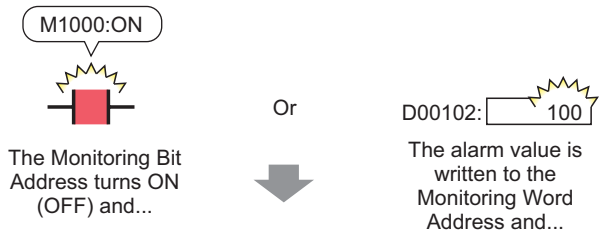
☞ Setup Procedure (page 19-10)
☞ Details (page 19-6)

Viewing Active Alarms in a List



☞ Setup Procedure (page 19-14)
☞ Details (page 19-13)

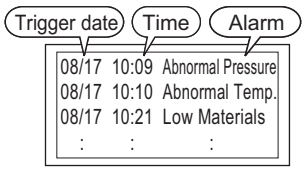
Acknowledging the Alarm History



Displays the currently active alarms in the order of their trigger date/time, and the Alarm History of past alarms.

All active Alarms can be viewed in a list.

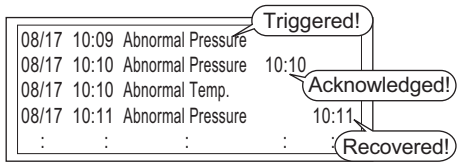
[Active]



* The recovered alarm is cleared and no history remains.

Display Alarms separately by Trigger, Acknowledge, and Recovery.

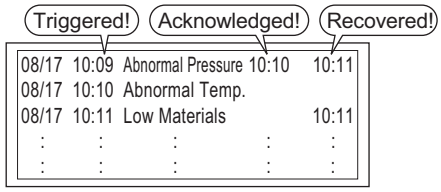
[Log]



* Even when the alarm recovers, the history remains.

Display the Trigger time, Acknowledge time, and Recovery time for all Alarms on the same line.

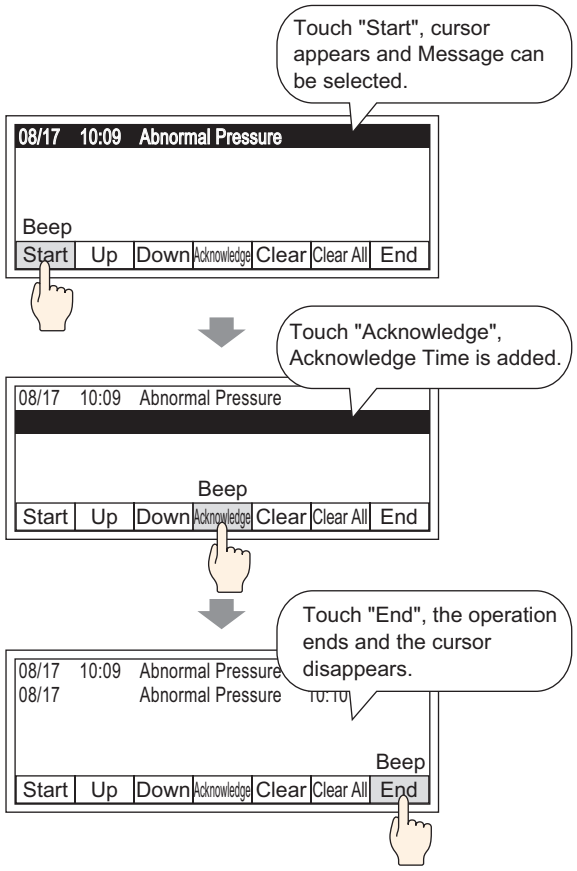
[History]



* Even when the alarm recovers, the history remains.

☞ Setup Procedure (page 19-20)
☞ Details (page 19-19)

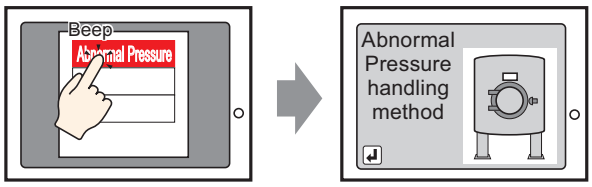
Operating an Alarm History



☞ Setup Procedure (page 19-31)
☞ Details (page 19-30)

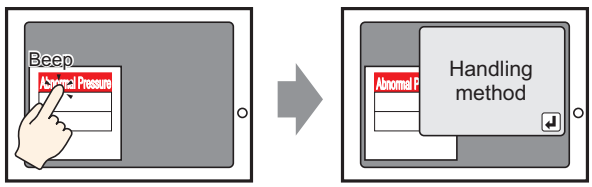
Displaying a Help Screen (Sub Display)

■ Display a Base Screen (Change Base Screen)



Touch the alarm, and the screen changes to another screen.

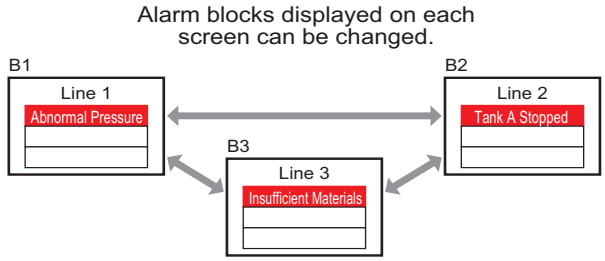
■ Display a window (Show Text Window)



Touch the alarm, and a related window is displayed.

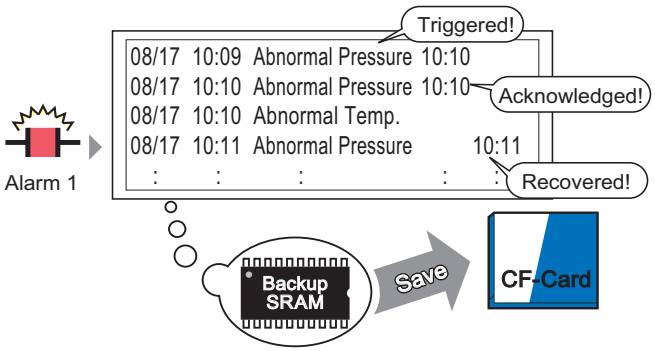
☞ Setup Procedure (page 19-35)
☞ Details (page 19-34)

Viewing Alarms by Group



☞ Setup Procedure (page 19-50)
☞ Details (page 19-49)

Saving the Alarm History to a CF-Card



The Alarm History data stored in the backup SRAM is saved to the CF-card.

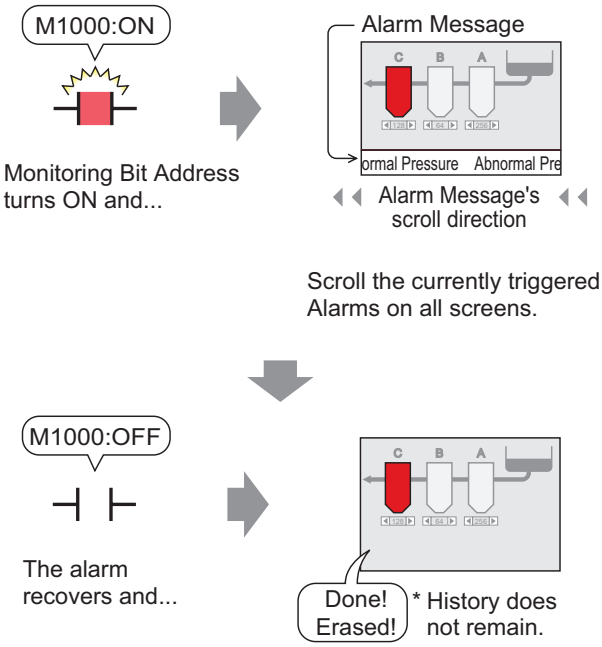
☞ Setup Procedure (page 19-57)
☞ Details (page 19-56)

19.2 Scrolling Alarm Messages

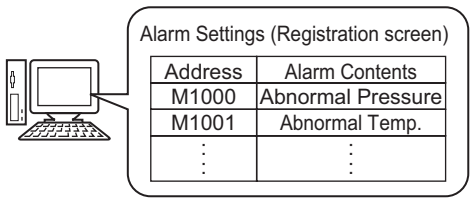
19.2.1 Details

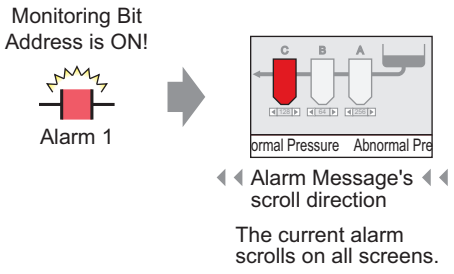
When the Monitoring Bit Address turns ON, the Alarm scrolls across the screen.

Scrolling Alarms (Example)



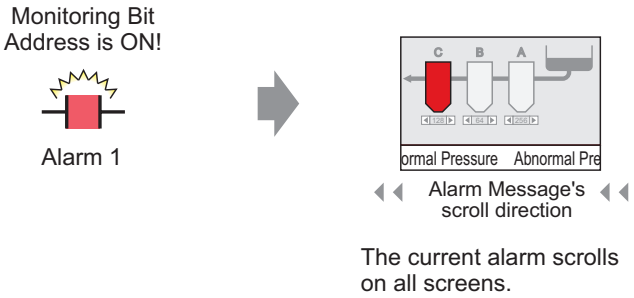
Register	Display





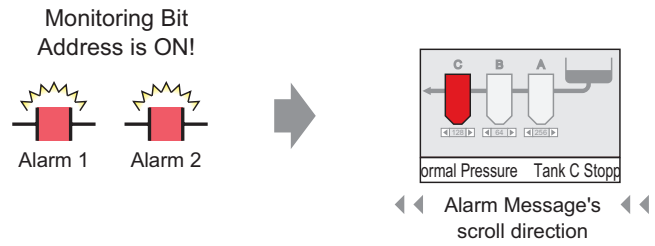
■ Display Example

◆ When a single alarm is triggered:



The current alarm scrolls on all screens.

◆ When multiple alarms are triggered:

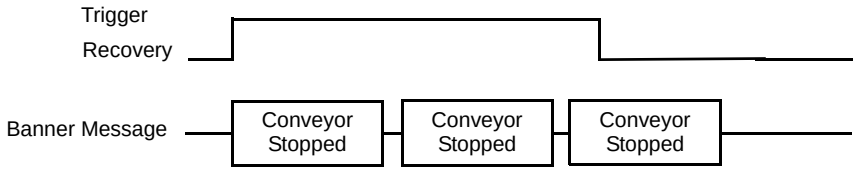


Currently triggered Alarm scroll on all screens.

■ Display When Alarm Ends

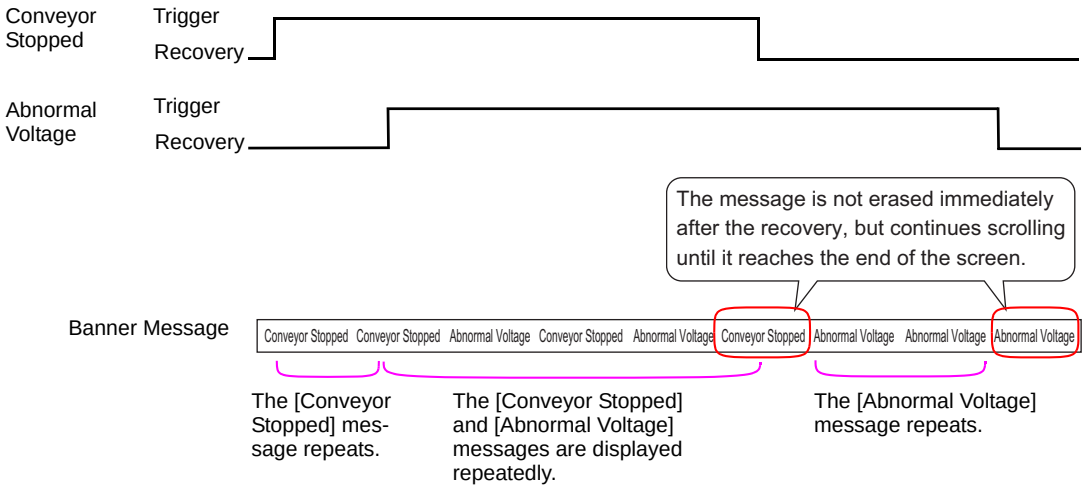
◆ When a single alarm is triggered:

While the alarm is active, a repeating Alarm Message scrolls on the screen. Even when the Alarm recovers, the final message still displays until it finishes scrolling.



◆ When multiple alarms are triggered:

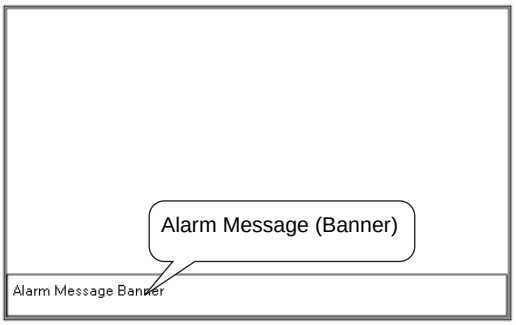
The messages of all active Alarms repeatedly scroll on the screen. When the [Conveyor Stopped] alarm recovers halfway through a message, the final [Conveyor Stopped] message scrolls until it is finished, and after that the [Abnormal Voltage] message displays repeatedly. Even when the [Abnormal Voltage] alarm recovers, the final message still appears until it finishes scrolling.



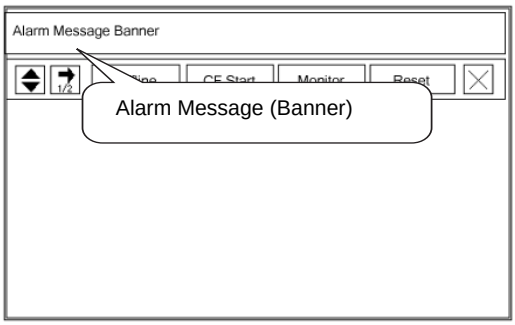
■ Alarm Message (Banner) Display Position

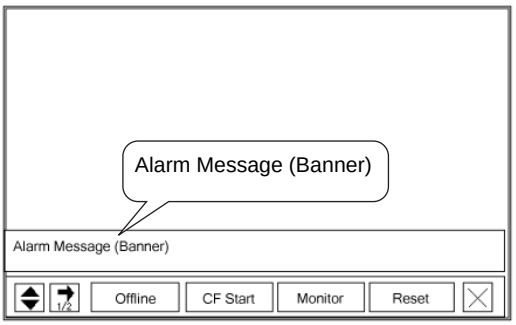
Alarm Messages (Banner) are displayed on the lower part of the GP screen but can also be displayed on the upper part, depending on the System Menu Window's display state.

◆ Normal Display



◆ Display layouts when the System Menu is combined with Alarm Message



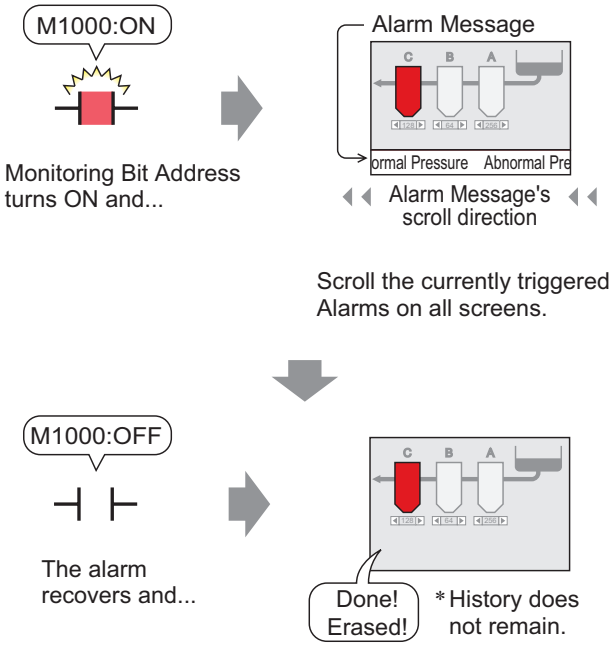


When Alarm Message (Banner) is displayed on the upper part of the screen and the Japanese FEP and the System Menu are closed, the Alarm Message is displayed on the lower part.

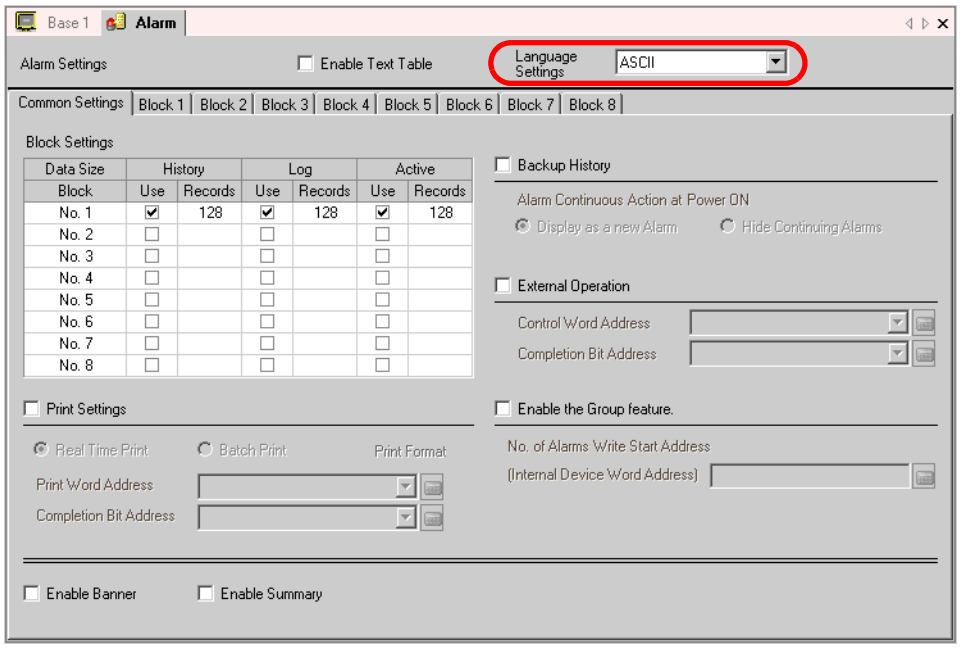
19.2.2 Setup Procedure

NOTE

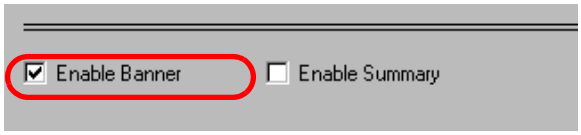
- Please refer to the settings guide for details.
  ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Banner)" (page 19-80)



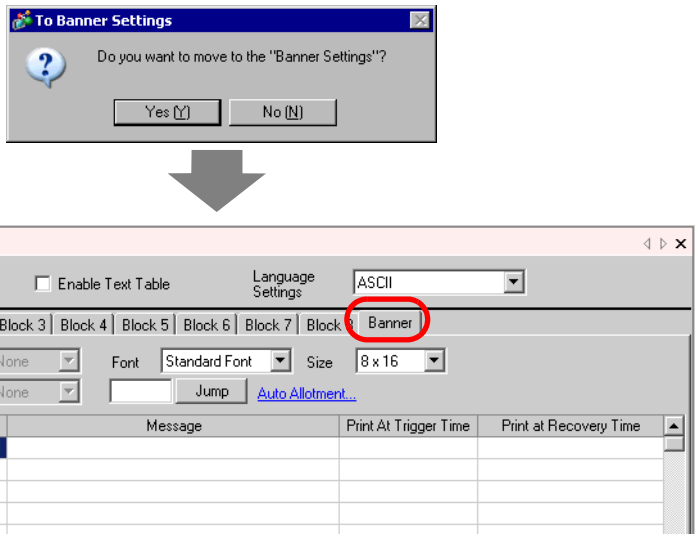
1 Select the [Common Settings (R)] menu - [Alarm Settings (A)] command, or click  to display the following screen. Specify a display language for the Alarm Message in [Language Settings].



2 Check the [Enable Banner] box.



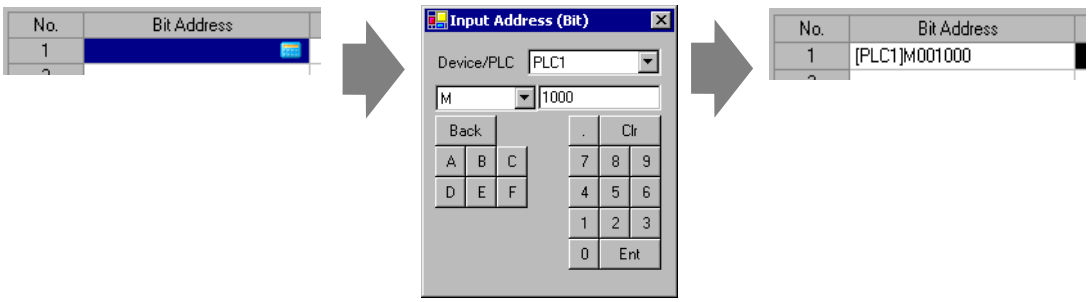
3 When the following notice message appears, click [Yes]. The [Banner] tab is displayed.



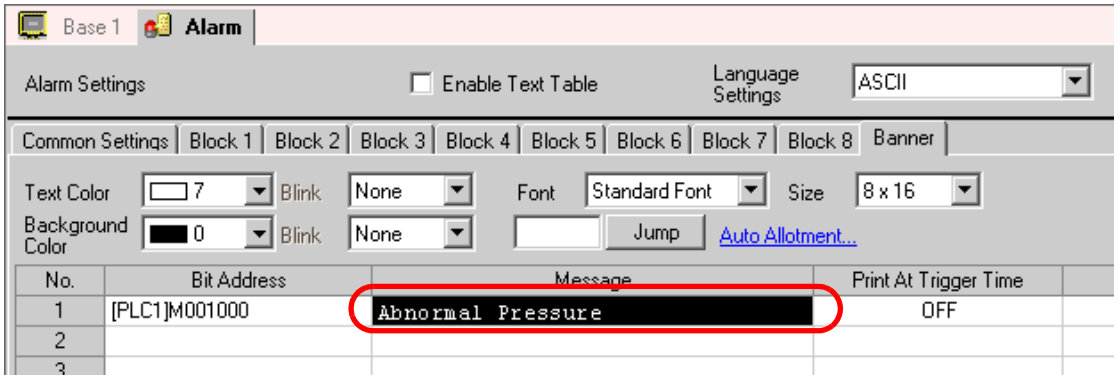
4 Set the [Bit Address] to monitor the alarm's trigger. (e.g.: M1000)

Click on the icon and the address input keypad is displayed.

Select device "M", input "1000" as the address, and press the "Ent" key.



5 In the [Message] column, enter a message to scroll when an alarm is triggered, and specify [Text Color], [Background Color], and [Blink].



NOTE

- Up to 512 alarm messages can be registered.
- Set the monitoring bits within 128 words for the whole Alarm Message (Banner).
- Up to 160 single-byte characters can be registered in a single Alarm Message.
- When [Enable Text Table] is checked, the message language can be switched and displayed even while the system is running.

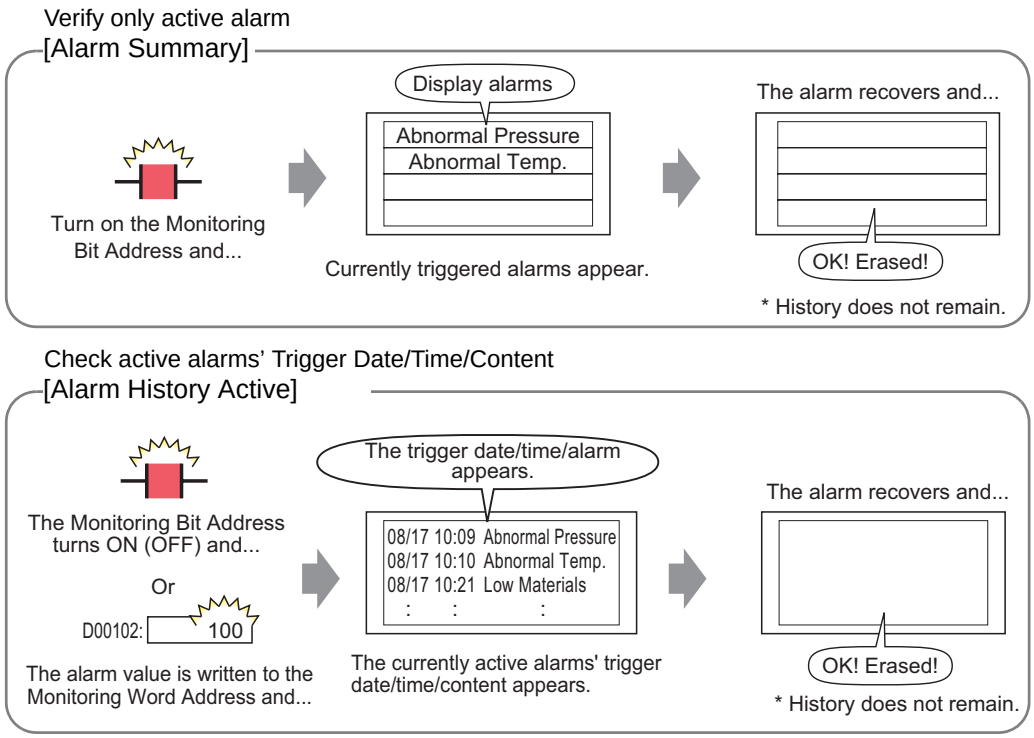
☞ "15.4 Changing Languages (Multilanguage)" (page 15-15)

19.3 Viewing Active Alarms in a List

19.3.1 Details

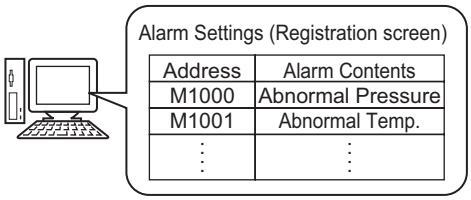
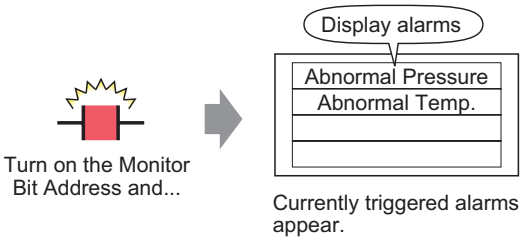
When the Monitoring Bit Address turns ON, the Alarm scrolls across the screen.

Viewing active alarms in a list (Example)



NOTE

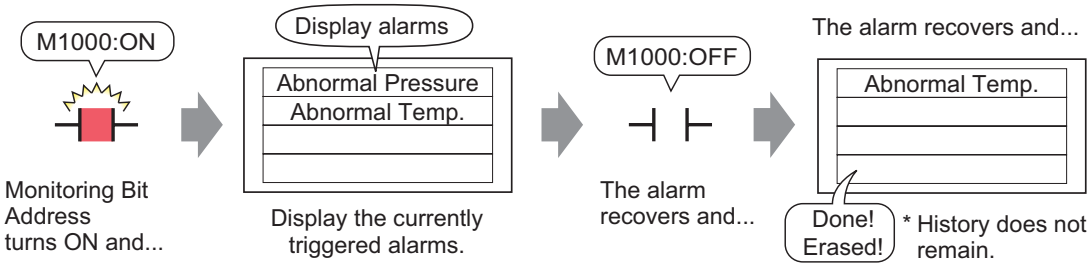
- This section explains the first case, Alarm Summary (Display alarm messages only).

Register	Display
	The currently active alarms are displayed in the increasing order of registered Monitoring Bit Addresses. 

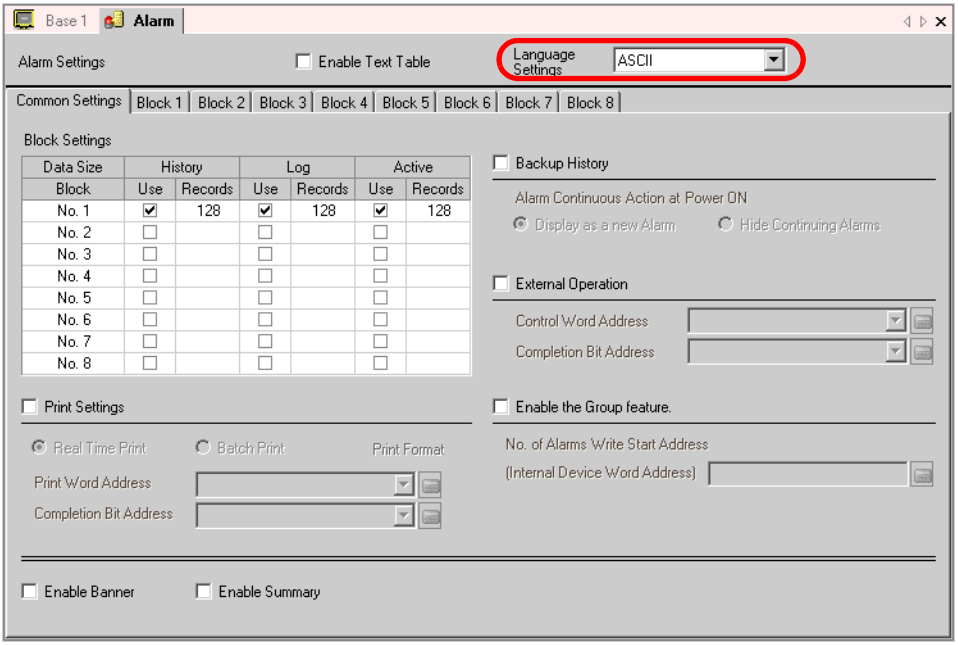
19.3.2 Setup Procedure

NOTE

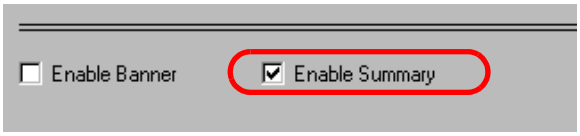
- Please refer to the settings guide for details.
  ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Summary)" (page 19-83)
  ☞ "19.9.2 Alarm Part Settings Guide ■ Summary" (page 19-114)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Procedure for Editing a Part".
  ☞ "9.6.1 Procedure for Editing a Part" (page 9-36)



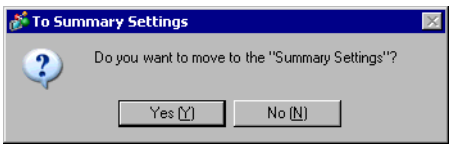
1 Select the [Common Settings] menu - [Alarm Settings] command, or click  to display the following screen. Specify a display language for the Alarm Message in [Language Settings].

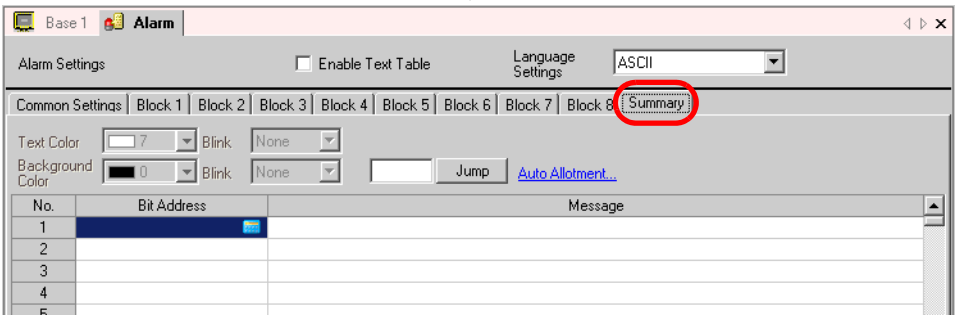


2 Check the [Enable Summary] box.



3 When the following notice message appears, click [Yes]. The [Summary] tab is displayed.

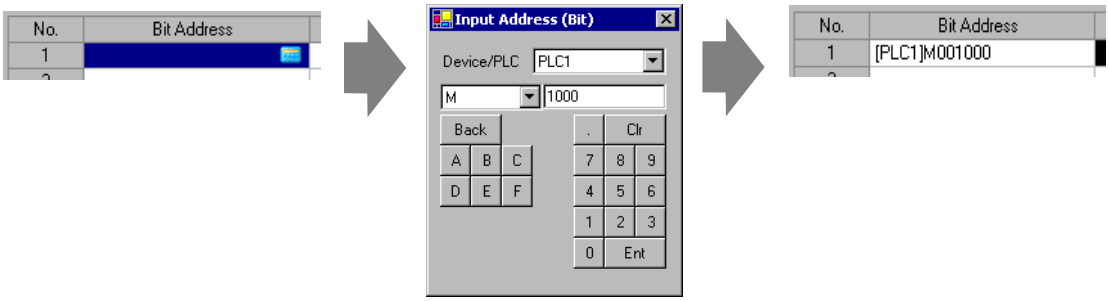




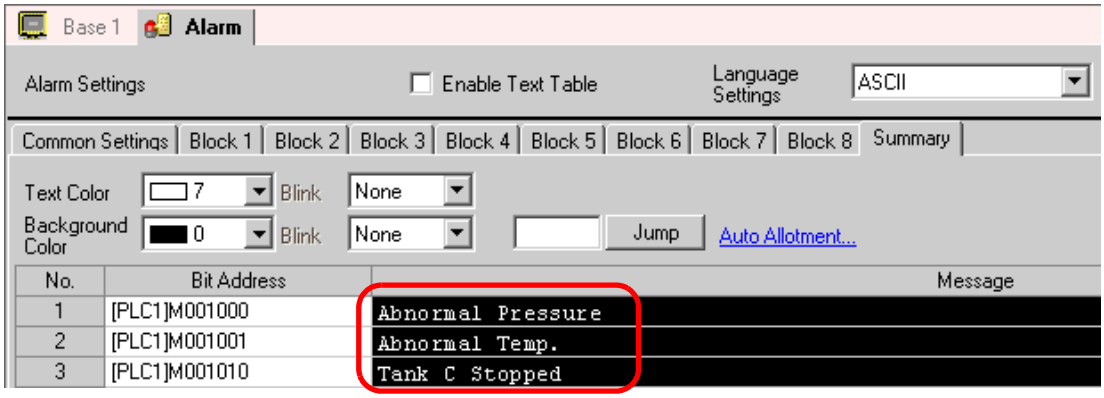
4 Set the [Bit Address] to monitor the alarm's trigger. (e.g.: M1000)

Click on the icon and the address input keypad is displayed.

Select device "M", input "1000" as the address, and press the "Ent" key.



5 In the [Message] column, enter a message to display when an alarm is triggered, and specify [Text Color], [Background Color], and [Blink].



IMPORTANT

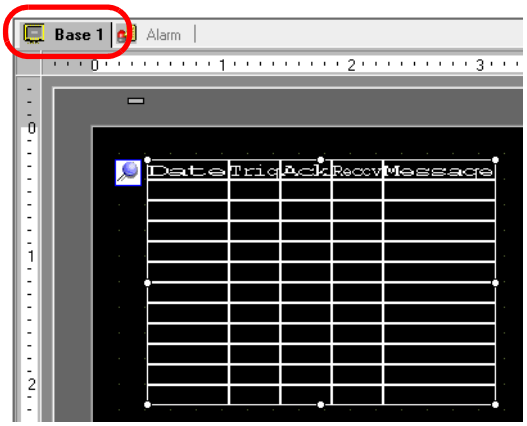
- Do not use the same address for multiple monitoring bits. When the same address is used for multiple monitoring bits, only the alarm message having the smallest registration number (Row No.) is displayed.
- To display several messages on the same screen, specify their monitoring bits within consecutive word addresses. Messages cannot be displayed on the same screen when their monitoring bits are specified on the different types of devices, or on the same devices but in discontiguous word addresses.

NOTE

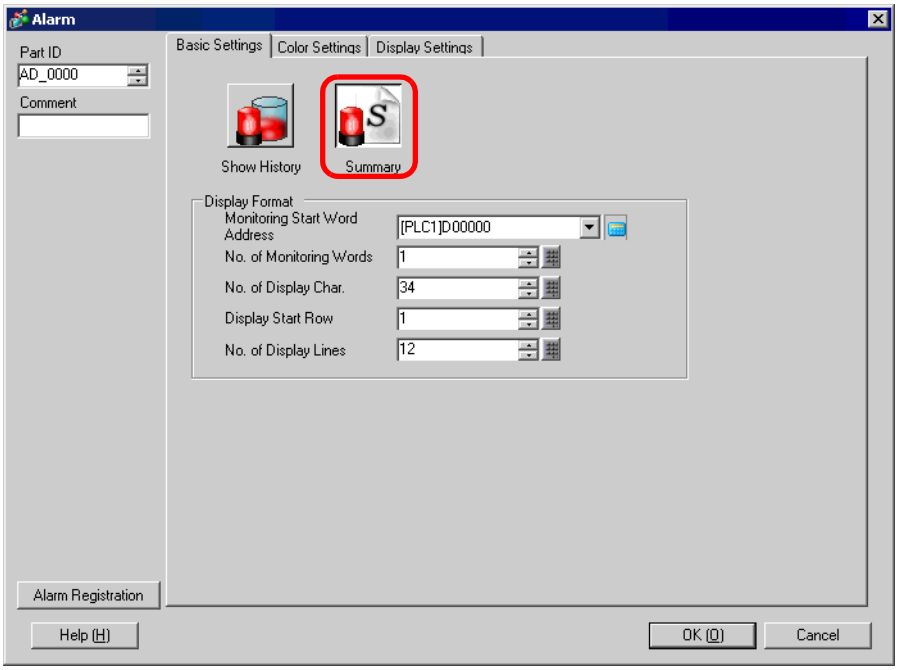
- Up to 8,999 alarm messages can be registered.
- Up to 160 single-byte characters can be registered in a single Alarm Message.
- When [Enable Text Table] is checked, the message language can be switched and displayed even while the system is running.

☞ "15.4 Changing Languages (Multilanguage)" (page 15-15)

6 Open the screen editor, and set the Alarm part to display as a Summary. Select the [Part (P)] menu - [Alarm (A)] command or click  and place the Part on the screen.



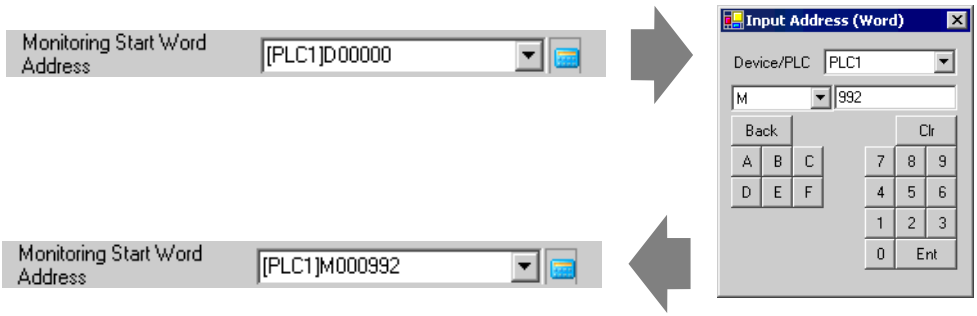
7 Double-click the placed Alarm and the settings dialog box opens. Select [Summary].

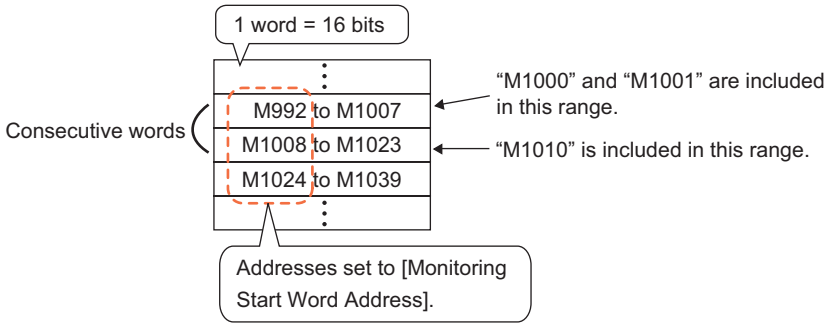


8 In [Monitoring Start Word Address], set the start address of the bit address registered in [Alarm Settings] by using the value converted into a 16-bit word.
For example, to display the message of the registered monitoring bit “M1000” in a Summary, specify “M992” in [Monitoring Start Word Address], because addresses from M992 to M1008 are included in one word.

Click on the icon and the address input keypad is displayed.

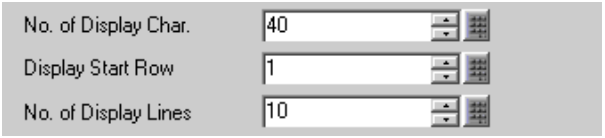
Select device “M”, input “992” as the address, and press the “Ent” key.





9 In [No. of Monitoring Words], designate the number of words the Monitoring Bit Address will span from the [Monitoring Start Word Address]. (e.g.: 2)

10 Set the [No. of Display Char.], [Display Start Row], and [No. of Display Lines] of the message which is to be displayed on the screen.



11 Set the color to be used when Alarm Message is cleared (recovered) in the [Color Settings] tab, set the font and size of the message in the [Display Settings] tab, and click [OK].

NOTE

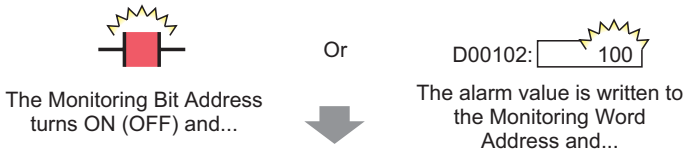
- Only one Alarm Part [Summary] can be set to each base screen. To display multiple Alarm Parts [Summary] on a single screen, set other Alarm Parts [Summary] in a Window Screen and call them with Window Parts.
- A maximum of 160 single-byte characters can be registered in a single Alarm Message, and a maximum of 50 lines can display on one screen. However, these numbers will change depending on the type of GP unit and the font size used.
- If the Alarm Message is wider than the display area, the portion that exceeds the area is truncated and is not displayed.
- By setting Alarm Parts [Summary] on multiple screens, a maximum of 1,600 Alarm Messages can be displayed in an entire project.
- Place the Alarm Parts [Summary]'s display areas so that they do not overlap with other parts or objects.

19.4 Acknowledging the Alarm History

19.4.1 Details

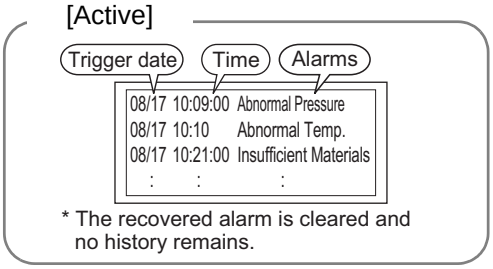
When the Monitoring Bit Address turns ON/OFF, or when alarm data is written to the Monitoring Word Address, the Alarms are listed together with its trigger date/time. There are 3 ways to view the Alarms: “Active”, “Log”, and “History”.

Acknowledging the Alarm History (Example)

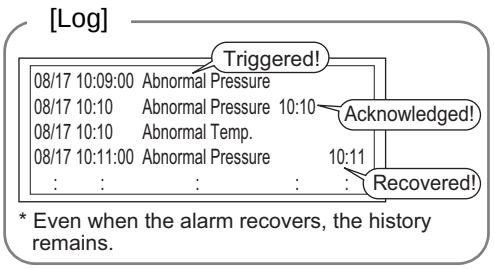


Displays the currently active alarms in the order of their trigger date/time, and the Alarm History of past alarms.

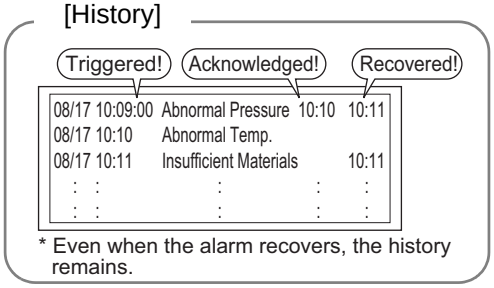
All active Alarms can be viewed in a list



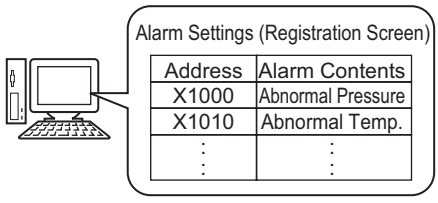
Display Alarms separately by Trigger, Acknowledge, and Recovery.



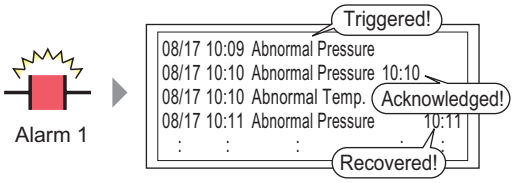
Display the Trigger time, Acknowledge time, and Recovery time for all Alarms on the same line.



1. Register



2. Display



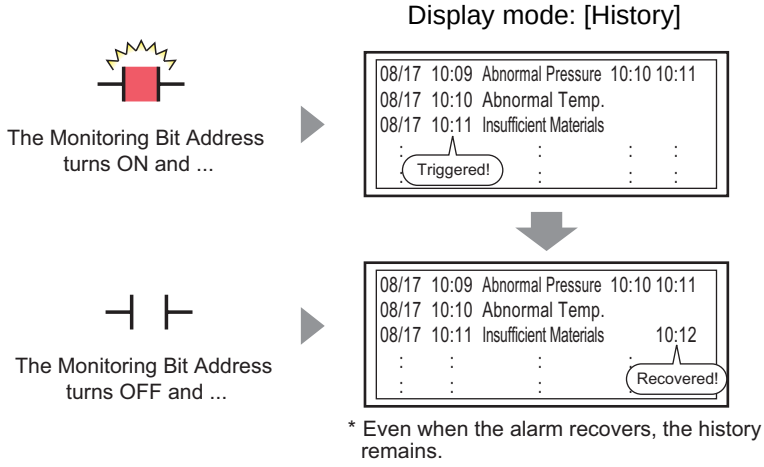
19.4.2 Setup Procedure

■ Bit Monitoring

NOTE

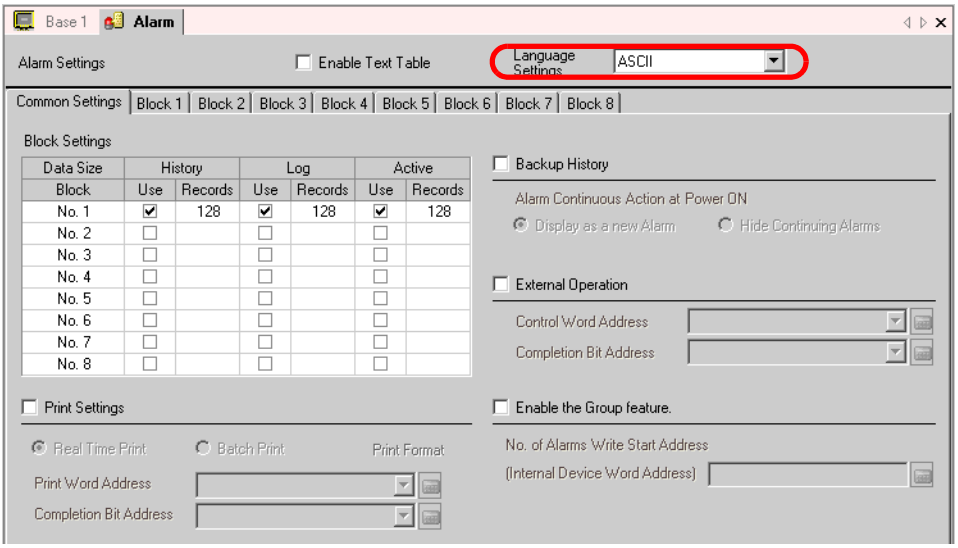
- Please refer to the settings guide for details.
  ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Block 1) ◆ Bit Monitoring" (page 19-74)
  ☞ "19.9.2 Alarm Part Settings Guide ■ Show History" (page 19-86)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Procedure for Editing a Part".
  ☞ "9.6.1 Procedure for Editing a Part" (page 9-36)

When the Monitoring Bit Address turns ON, the Alarms are displayed together with their trigger date/time. When the Monitoring Bit Address turns OFF, the recovery time is added on the same row.

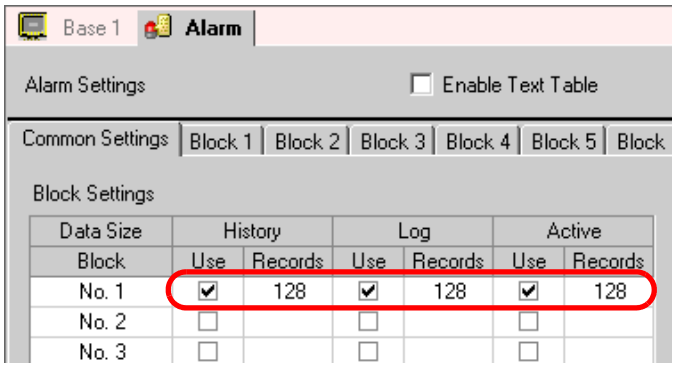


* Even when the alarm recovers, the history remains.

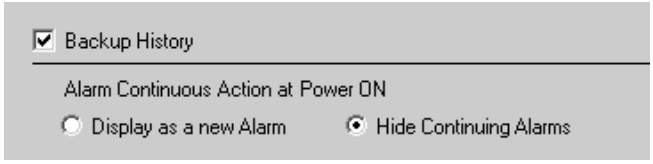
1 Select the [Common Settings (R)] menu - [Alarm Settings (A)] command, or click  to display the following screen. Specify a display language for the Alarm Message in [Language Settings].



2 On the [Block Settings] tab, check the box for the desired display mode (History/Log/Active) for the block to which the message is registered, and set the number of messages stored as history for each mode.



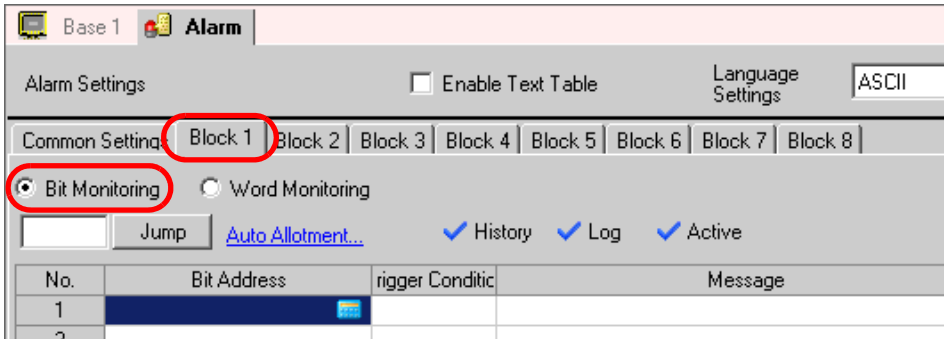
3 Check the [Backup History] box and select [Hide Continuing Alarms].



IMPORTANT

- When the [Backup History] box is not checked, the alarm history data will be erased when the GP unit is turned OFF or reset.

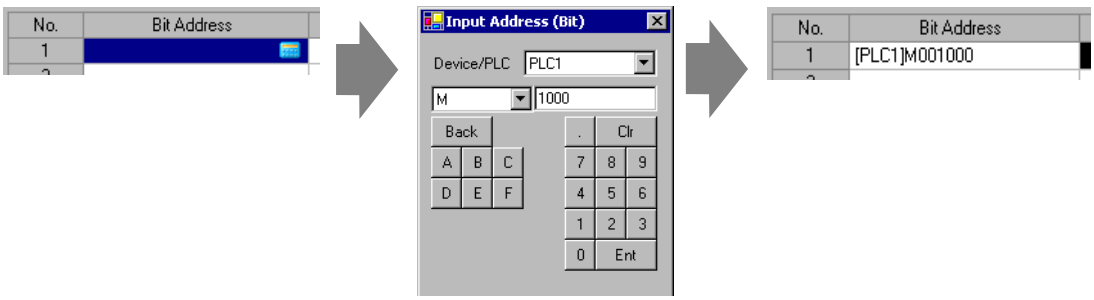
4 Open the [Block 1] tab, and select [Bit Monitoring].



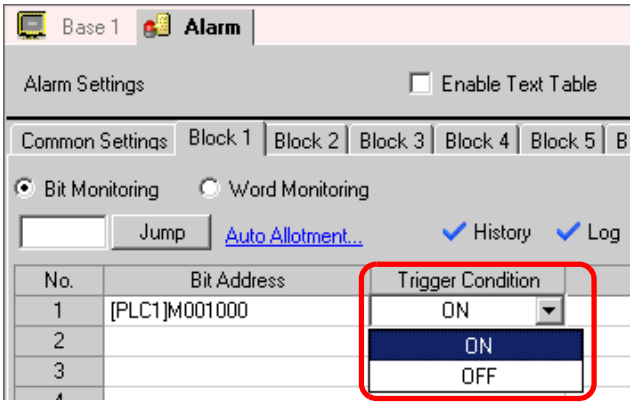
5 In [Bit Address], set the bit address to monitor the alarm's trigger. (e.g.: M1000)

Click on the icon and the address input keypad is displayed.

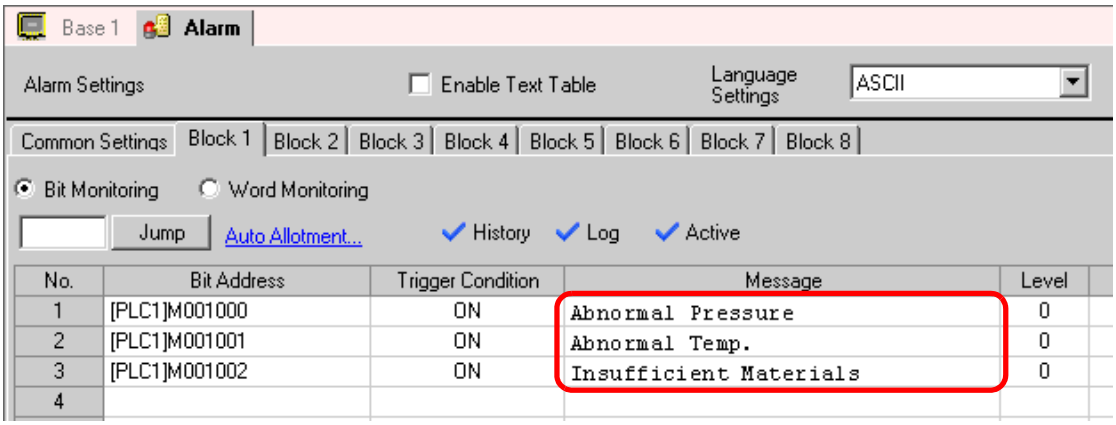
Select device "M", input "1000" as the address, and press the "Ent" key.



6 In the [Trigger Condition] cell, select whether the alarm is triggered when the Monitoring Bit Address turns ON or turns OFF.



7 In the [Message] cell, input the alarm message that will display when the alarm is triggered.

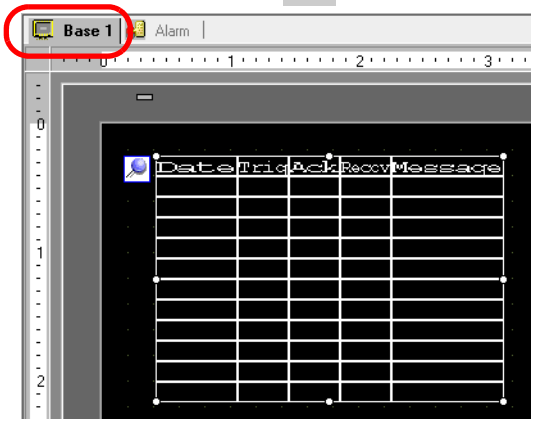


NOTE

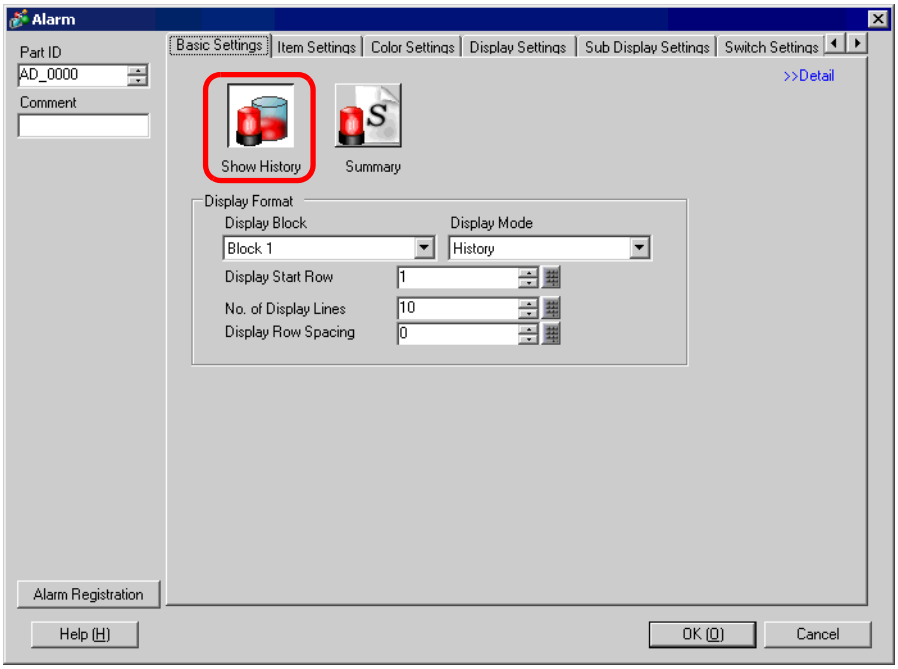
- Up to 160 single-byte characters can be registered in a single Alarm Message.
- When [Enable Text Table] is checked, the message language can be switched and displayed even while the system is running.

☞ "15.4 Changing Languages (Multilanguage)" (page 15-15)

8 Open the screen editor, and set the Alarm part which will display the Alarm. Select the [Part (P)] menu - [Alarm (A)] command or click  and place the Part on the screen.

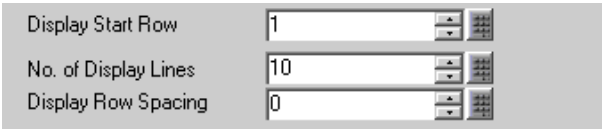


9 Double-click the placed Alarm and the settings dialog box opens.



10 Set the block and mode to be displayed for the Alarm.

11 Set the [Display Start Row], [No. of Display Lines] and [Display Row Spacing].



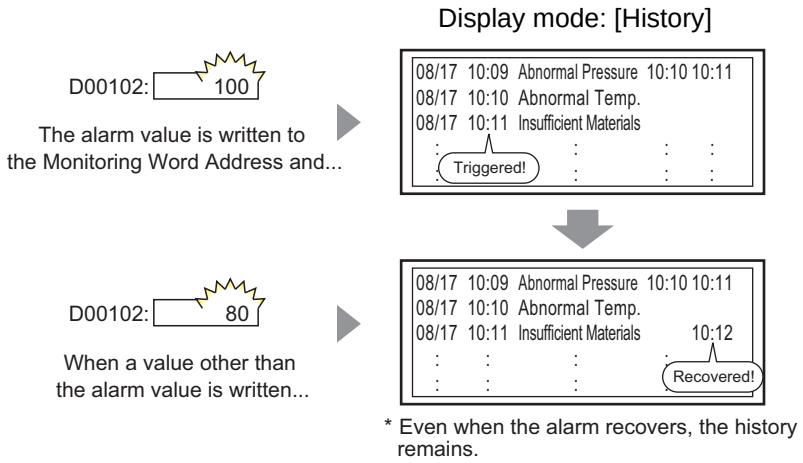
12 As needed, set the number of display characters, text color, background color, font, and size of the alarm message in the [Item Settings] tab, [Color Settings] tab, and [Display Settings] tab. Click [OK].

■ Word Monitoring

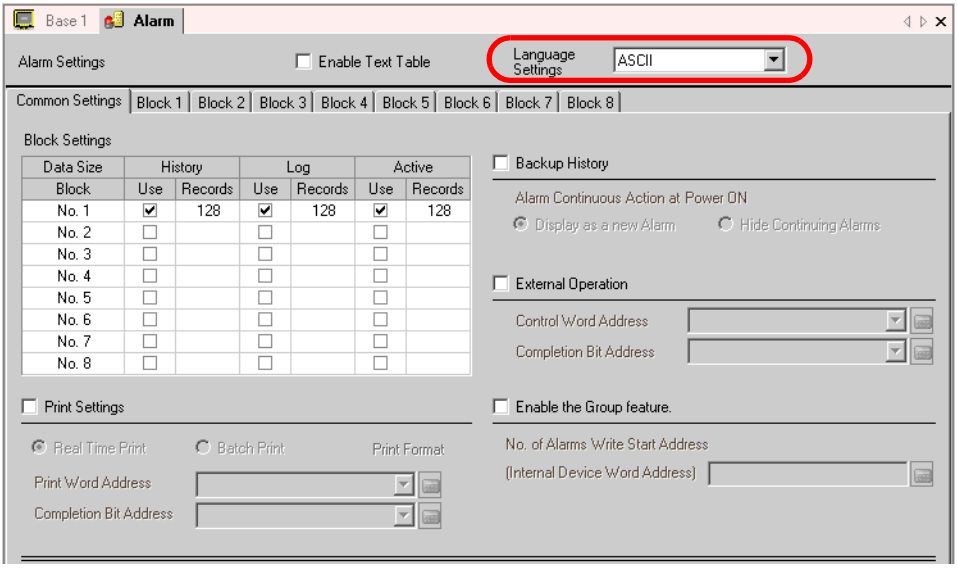
NOTE

- Please refer to the settings guide for details.
  ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Block 1) ◆ Word Monitoring" (page 19-76)
  ☞ "19.9.2 Alarm Part Settings Guide ■ Show History" (page 19-86)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Procedure for Editing a Part".
  ☞ "9.6.1 Procedure for Editing a Part" (page 9-36)

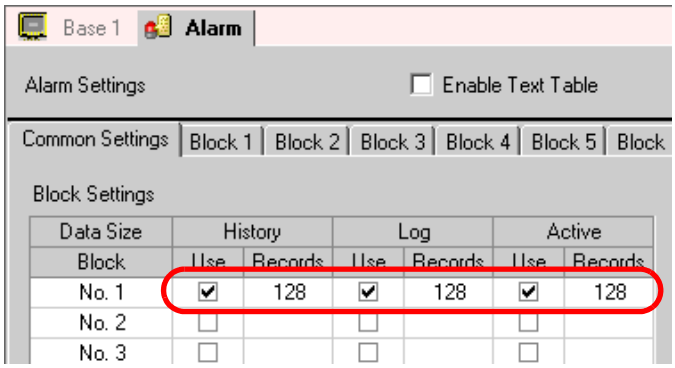
When the alarm value is written to the Monitoring Word Address, the alarm is displayed together with the trigger date/time. When a value other than the alarm value is written, the recovery time is added to the same row.



1 Select the [Common Settings (R)] menu - [Alarm Settings (A)] command, or click  to display the following screen. Specify a display language for the Alarm Message in [Language Settings].



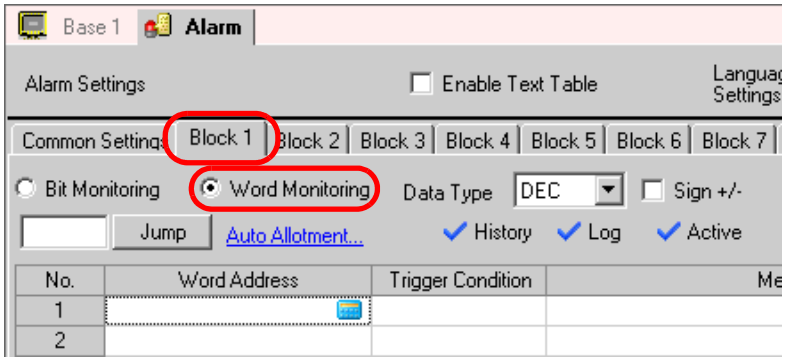
2 On the [Block Settings] tab, check the box for the desired display mode (History/Log/Active) for the block to which the message is registered, and set the number of messages stored as history for each mode.



3 Check the [Backup History] box and select [Hide Continuing Alarms].

IMPORTANT
- When the [Backup History] box is not checked, the alarm history data will be erased when the GP unit is turned OFF or reset.

4 Open the [Block 1] tab, and select [Word Monitoring].



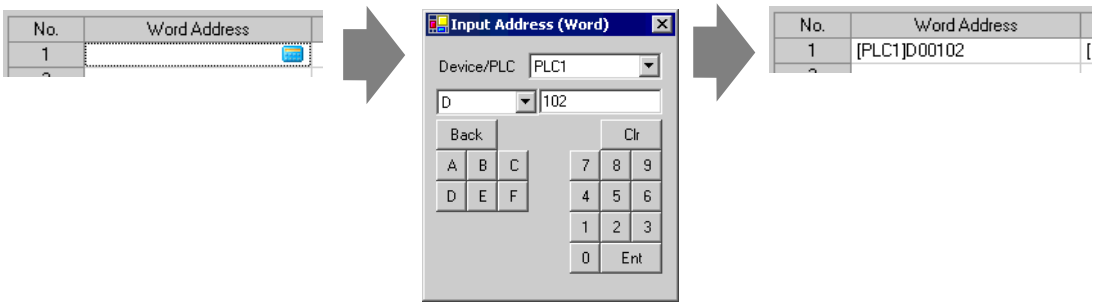
5 In [Data Type], select the data type of the [Alarm Value] to store in [Word Address].

NOTE
- [Sign +/–] can only be set when the [Data Type] is [DEC].

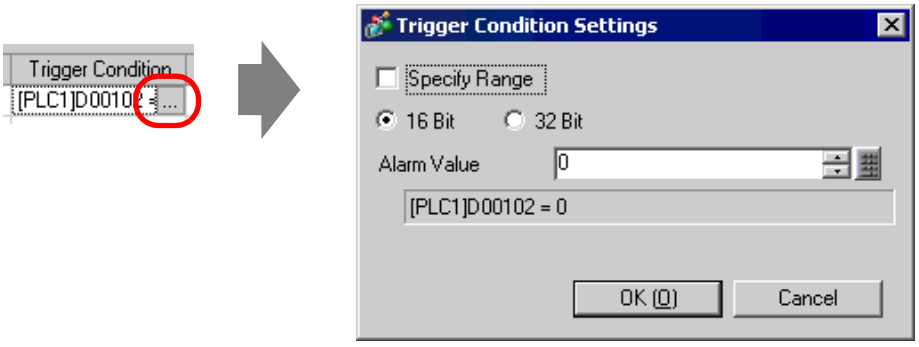
6 In [Word Address], set the word address to monitor the alarm's trigger. (e.g.: D102)

Click on the icon and the address input keypad is displayed.

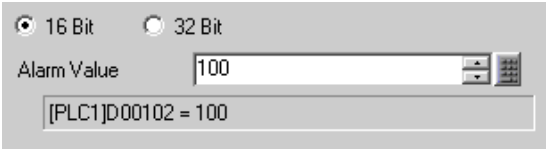
Select device "D", input "102" as the address, and press the "Ent" key.



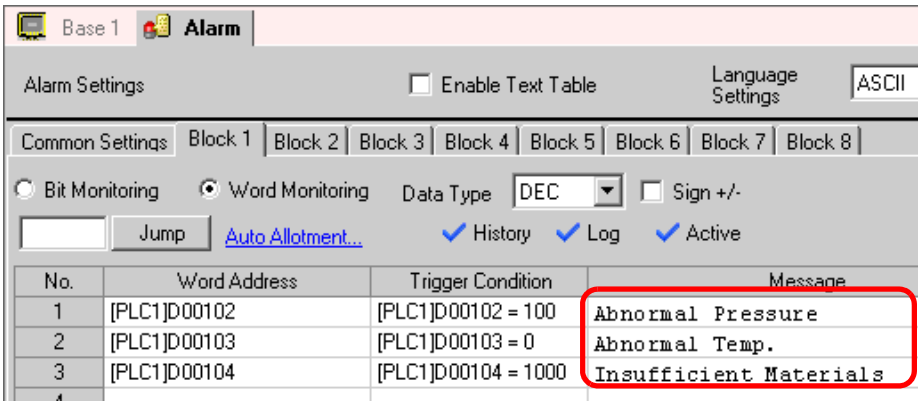
7 Click the [Trigger Condition] cell, then click ..., and the [Trigger Condition Settings] dialog box will be displayed.



8 Select the bit length, set [Alarm Value] (e.g.: 100), and click [OK].



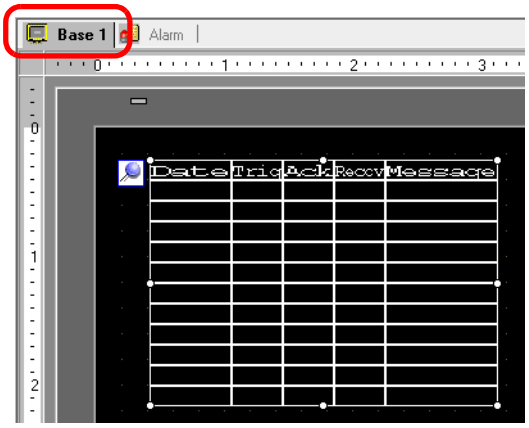
9 In the [Message] cell, input the alarm message that will display when the alarm is triggered.



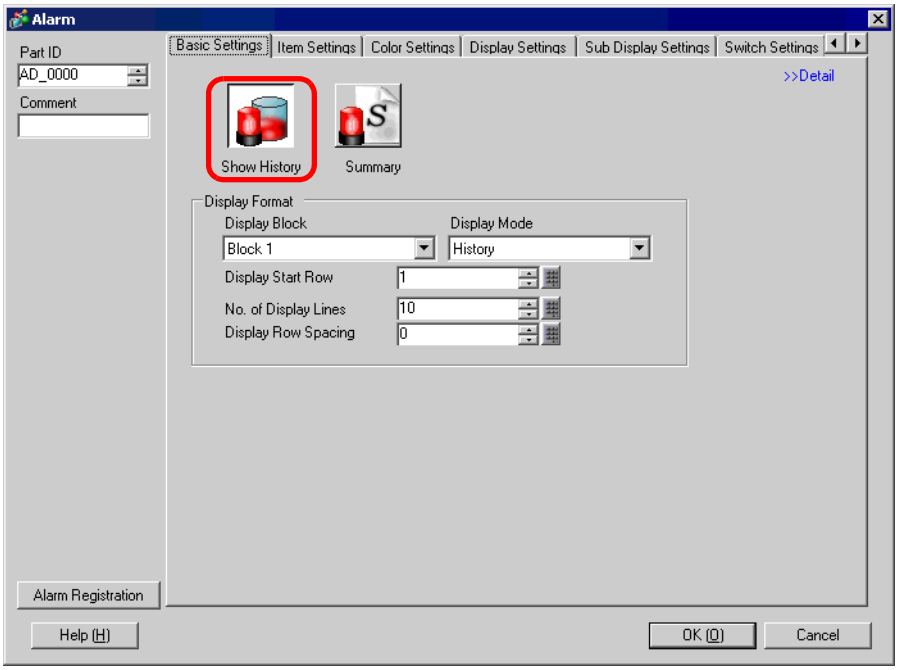
NOTE

- Up to 160 single-byte characters can be registered in a single Alarm Message.
- When [Enable Text Table] is checked, the message language can be switched and displayed even while the system is running.
  ☞ "15.4 Changing Languages (Multilanguage)" (page 15-15)

10 Open the screen, and set the Alarm that will display the History. Select the [Part (P)] menu - [Alarm (A)] command or click , and place the Part on the screen.

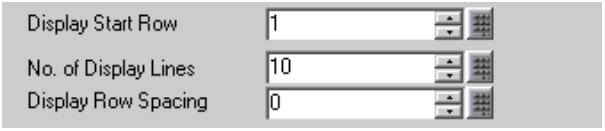


11 Double-click the placed Alarm and the settings dialog box opens.



12 Set the block and mode to be displayed for the Alarm.

13 Set the [Display Start Row], [No. of Display Lines] and [Display Row Spacing].

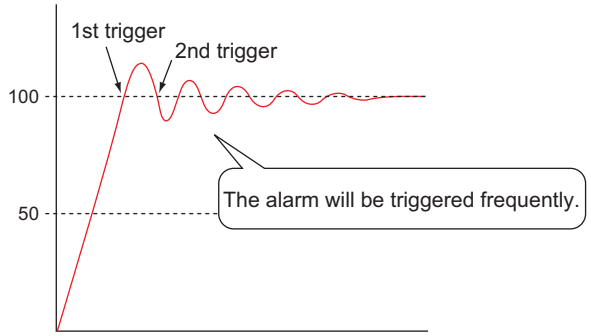


14 As needed, set the number of display characters, text color, background color, font, and size of the alarm message in the [Item Settings] tab, [Color Settings] tab, and [Display Settings] tab. Click [OK].

NOTE

- Up to 2,048 Alarm Messages (History) can be registered but the maximum number of alarms that can be stored in the GP (as [History], [Log], and [Active]) is 768.
- When using multiple blocks, the total Alarm Messages that can be set for all blocks is 768.
  ☞ "19.7 Viewing Alarms by Group" (page 19-49)
- The Monitoring Bit Address and Monitoring Word Address must be set within 256 words of the Alarm Message (History).
- The maximum number of characters on one line and lines on one screen are decided by the GP type and [Size].
- If your message is wider than the display area, the portion that exceeds the area is truncated and is not displayed.
- For [Word Monitoring], if the alarm value stored in the [Word Address] fluctuates frequently, the alarm will be triggered often.

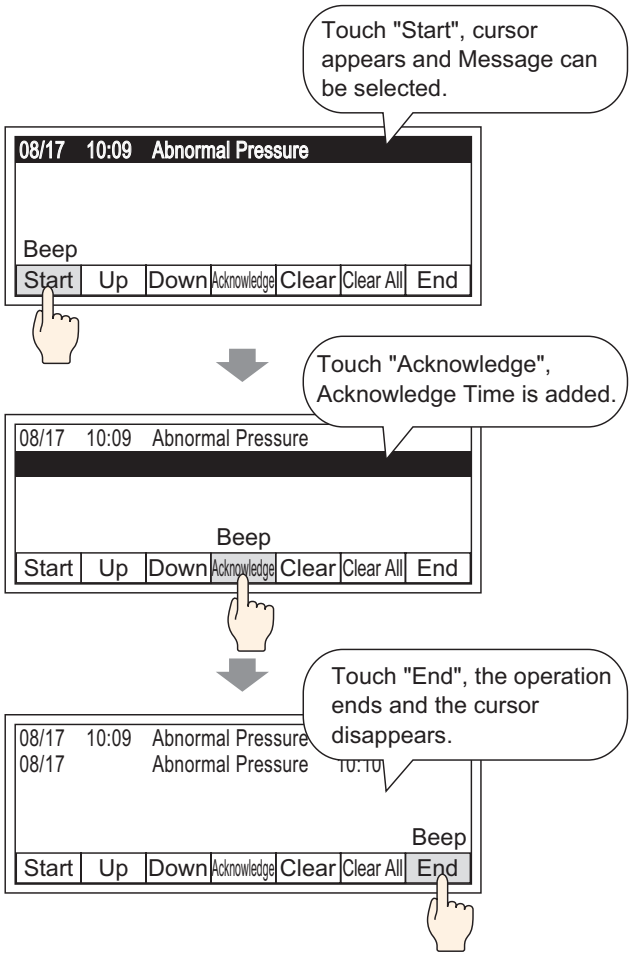
e.g.) When [Alarm Value] = 100



19.5 Operating an Alarm History

19.5.1 Details

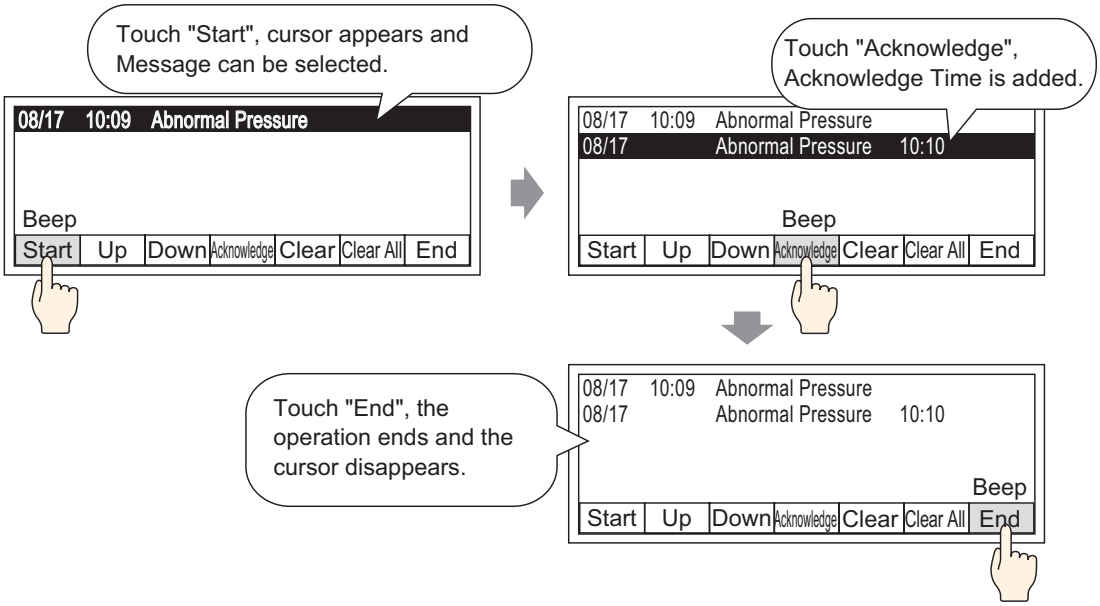
Select an operation switch to display an Alarm Message.
Several operations are available such as scrolling and sorting the displayed messages, and acknowledging and erasing the selected alarm message.



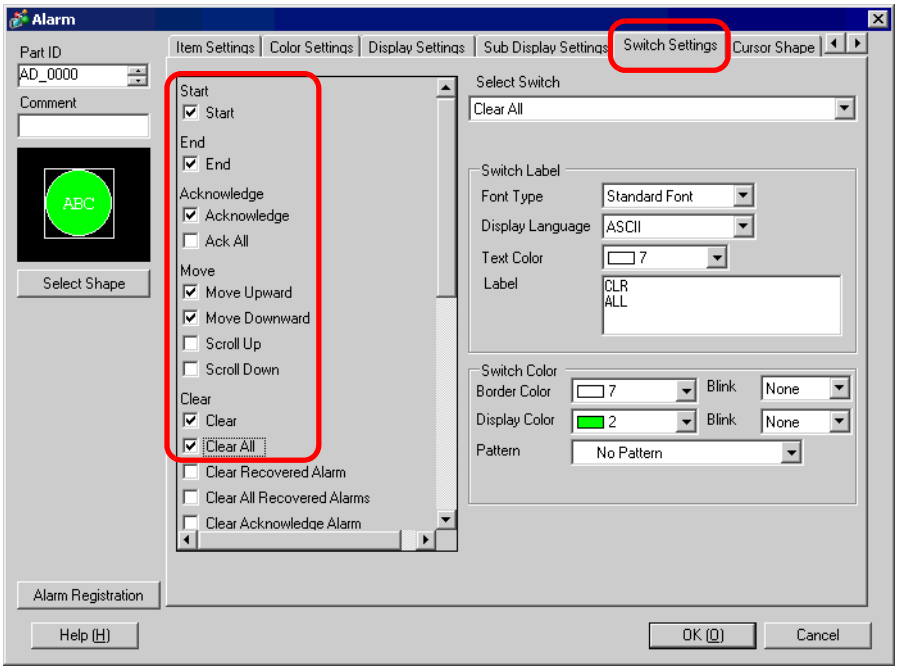
19.5.2 Setup Procedure

NOTE

- Please refer to the settings guide for details.
  ☞ "19.9.2 Alarm Part Settings Guide ■ Show History ◆ Switch Settings" (page 19-107)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Procedure for Editing a Part".
  ☞ "9.6.1 Procedure for Editing a Part" (page 9-36)

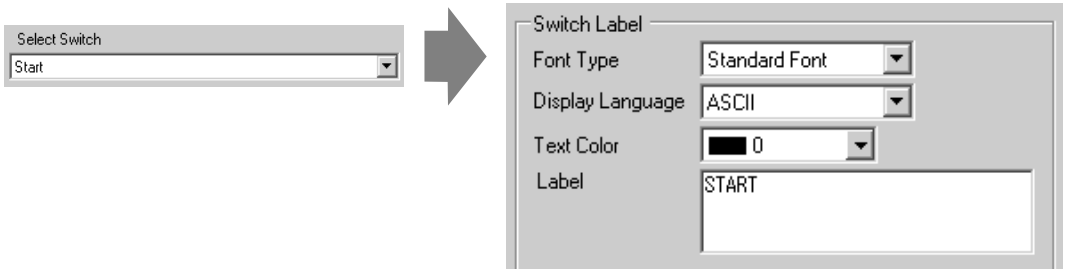


1 Double-click the placed Alarm and the settings dialog box appears. Open the [Switch Settings] tab, and put a check mark next to all the items to use for the Switch.



2 Select the Switch's shape from [Select Shape].

3 Choose the switch with [Select Switch], and designate the switch label's [Font Type], [Display Language], [Text Color] and [Label].



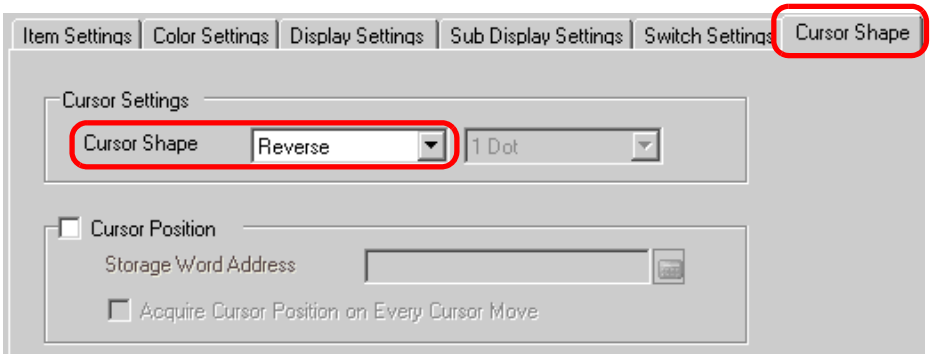
4 As necessary, set the Switches' colors in [Switch Color].

NOTE

- The Switch Color and Shape settings are common to all Alarm parts, regardless of the switch type selected. To change the shape and color for each switch, use a Switch Lamp Part [Special Switch (Alarm History Switch)].

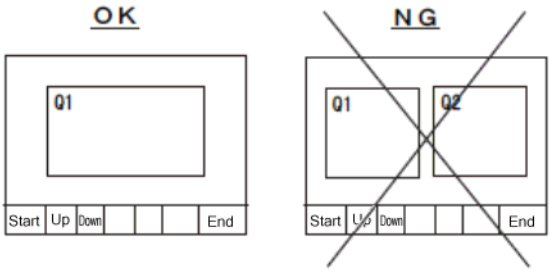
☞ "11.14.4 Special Switch ■ Switch Feature ◆ Alarm History Switch" (page 11-63)

5 Click the [Cursor Shape] tab, select [Cursor Shape] as [Reverse], and click [OK].

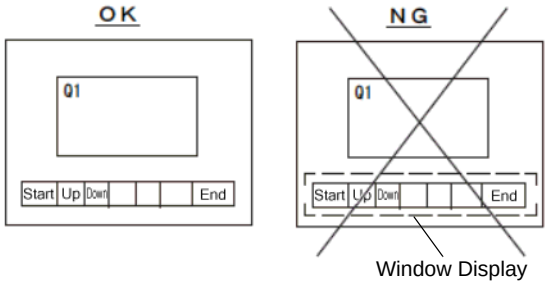


NOTE

- In order to use an Alarm Part (History) Switch, only 1 Alarm Part should be used per screen.



- Set the switches to the same screen that the Alarm Part is set to. They cannot be used if they are set to another screen.

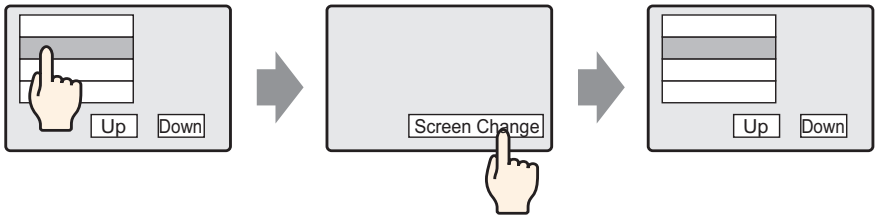


- When using the [Clear All No. of Occurrences], [Clear All Accumulated Time], and [Clear Individual Accumulated Time] switches, please be aware that data stored in the backup SRAM of the GP is also erased (cleared to “0”), not just the displayed values.
- When sort switches are placed on the screen and any of the switches (other than the [In Reverse Order of Trigger Date] switch) is pressed, it may take longer than usual to update the screen at a screen change.
- When sorting is performed on 2 blocks simultaneously such as [Level & In Reverse Order of Trigger Date], it may take longer than usual to display the result.

19.6 Displaying a Help Screen (Sub Display)

19.6.1 Details

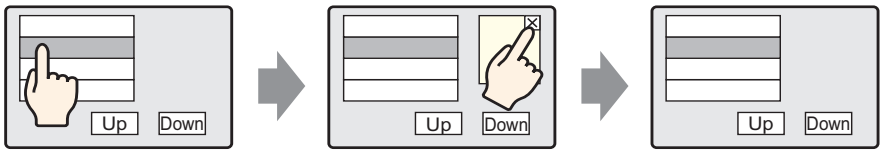
■ Change Base Screen



Touch the alarm message, and the screen changes to another screen according to the alarm.

Return to alarm screen using Change Screen Switch

■ Show Text Window



Touch the alarm message, and a Text Window is displayed according to the alarm.

Touch the Window Clearing Switch to close the Text Window.

19.6.2 Setup Procedure

■ Change Base Screen

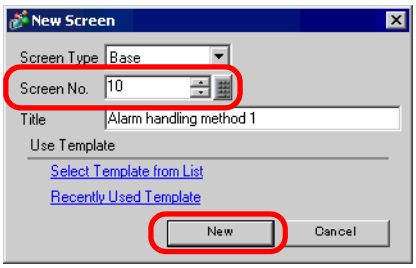
NOTE

- Please refer to the settings guide for details.
  - ☞ "11.14.3 Change Screen Switch ■ Switch Feature" (page 11-60)
  - ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Block 1)" (page 19-74)
  - ☞ "19.9.2 Alarm Part Settings Guide ■ Show History" (page 19-86)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Procedure for Editing a Part".
  - ☞ "9.6.1 Procedure for Editing a Part" (page 9-36)

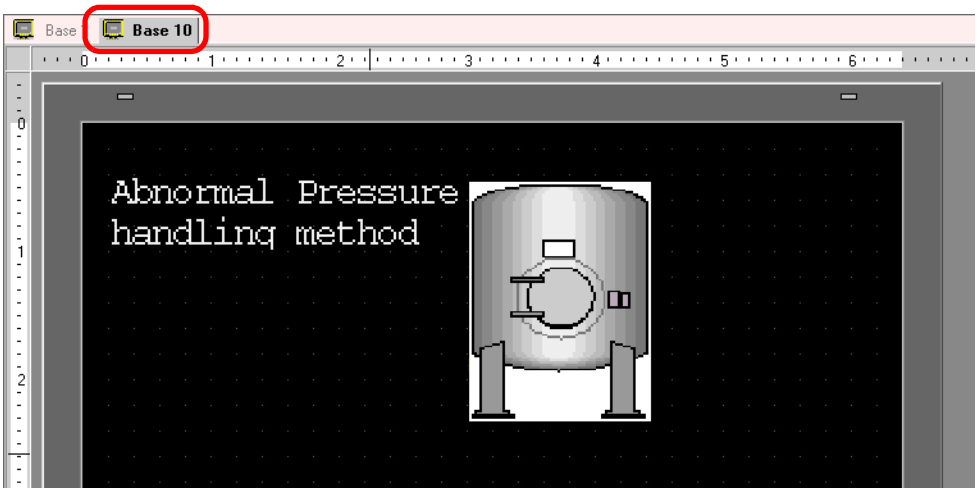
Touch the alarm, and the screen changes to another screen.

1 Create a Base Screen to use for a Sub Display. Select the [Screen (S)] menu - [New Screen (N)] command, or click  , and the [New Screen] dialog box appears.

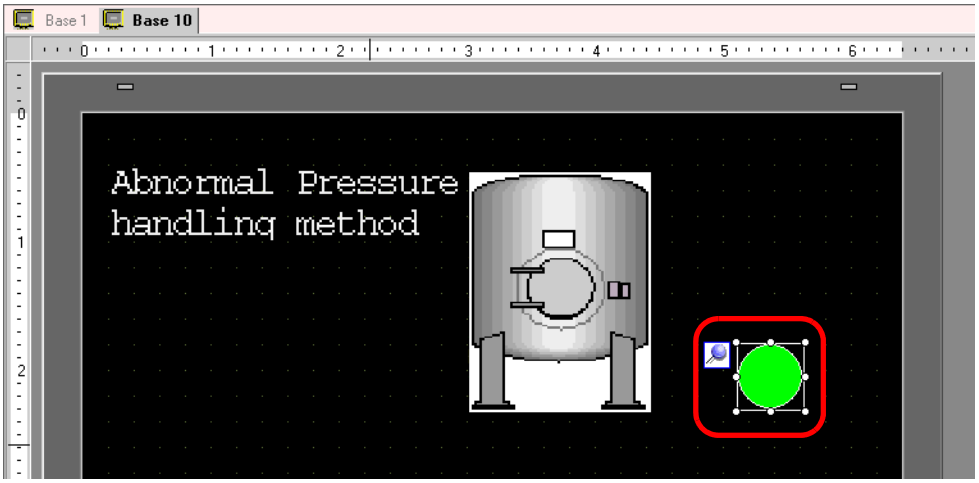
2 In [Screen No.], set the Base Screen No. (e.g.: 10) used for the Sub Display, and click [New].



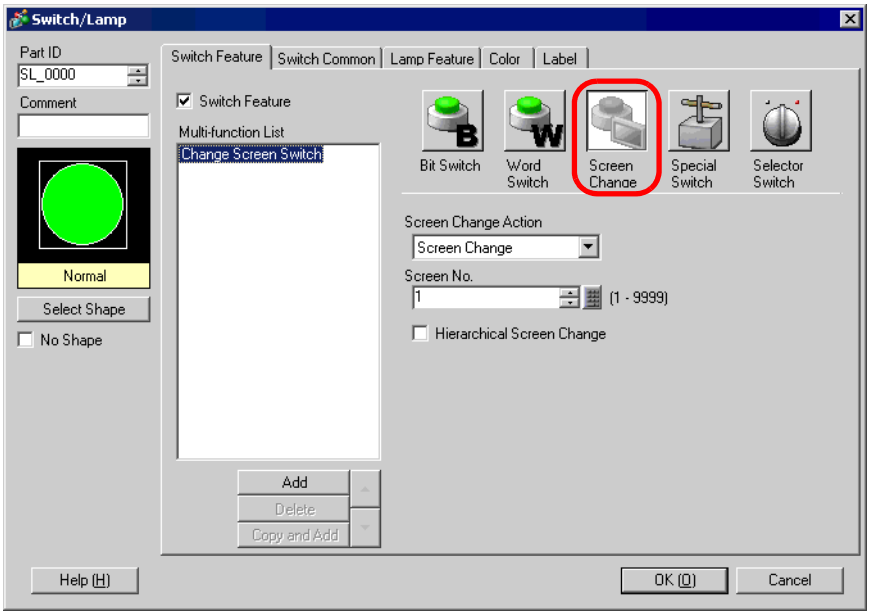
3 When Base Screen “10” appears, create the Base Screen for the Sub Display.



4 Set the Switch to change from the Sub Display screen to the Alarm Part placement screen. Select the [Part (P)] menu - [Switch/Lamp (C)] - [Change Screen Switch (C)], or click , and place the Switch on the screen.

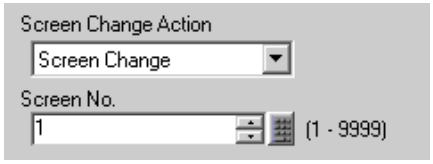


5 Double-click the placed Switch and the settings dialog box opens.

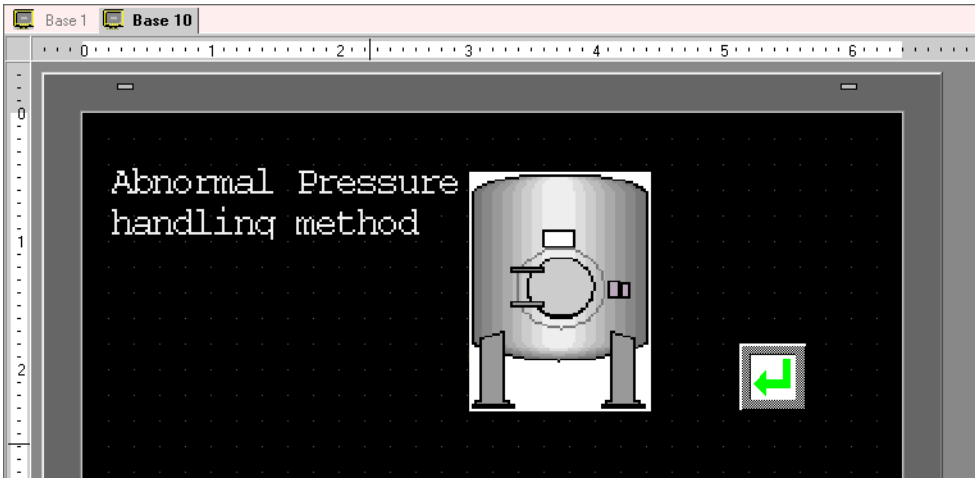


6 Select the Switch's shape from [Select Shape].

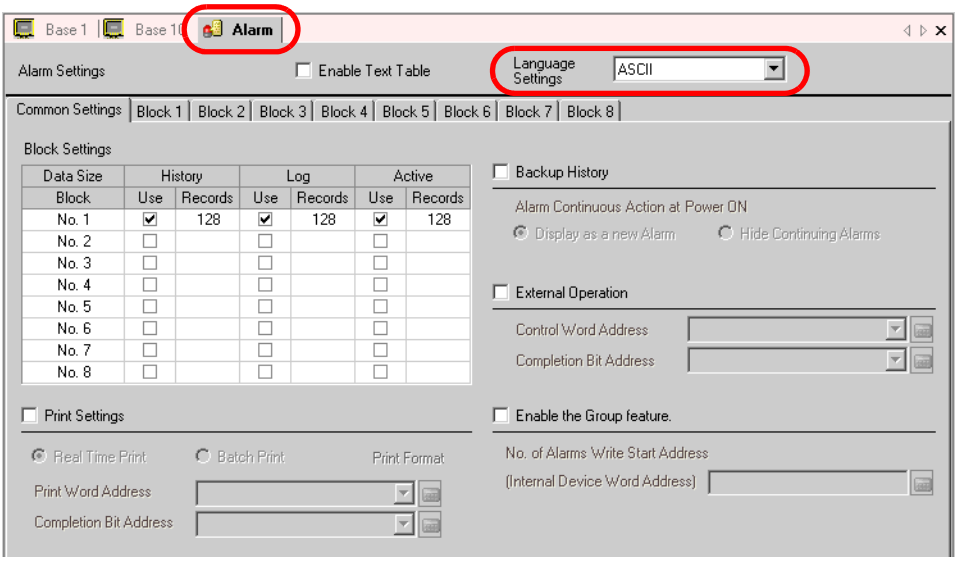
7 In [Screen Change Action], select the action to change screens, and set the screen number of the destination screen (e.g.: 1).



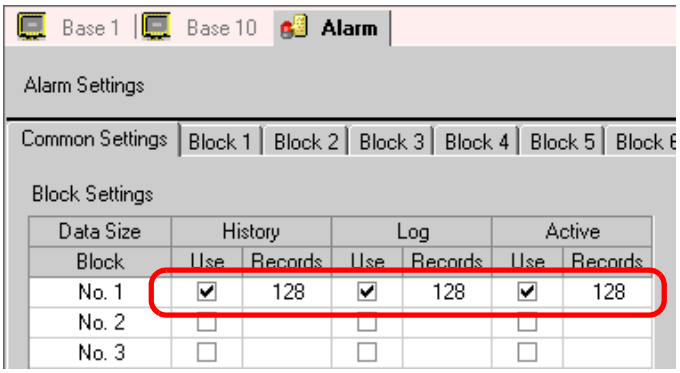
8 As needed, set the Switch's color and display text on the [Color] tab and [Label] tab, and click [OK]. The creation of the Sub Display screen is complete.



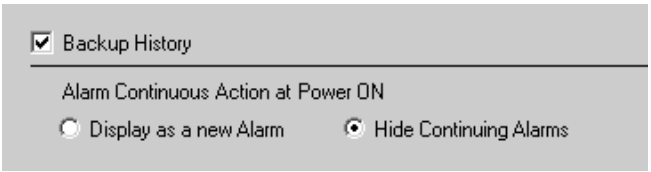
9 Next, register the Message to display when the Alarm is triggered.
Select the [Common Settings (R)] menu - [Alarm Settings (A)] command, or click  to display the following screen. Specify a display language for the Alarm Message in [Language Settings].



10 On the [Block Settings] tab, check the box for the desired display mode (History/Log/Active) for the block to which the message is registered, and set the number of messages stored as history for each mode.

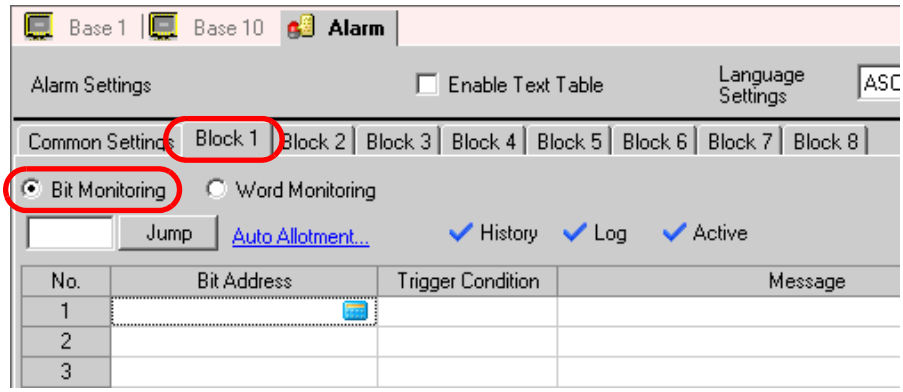


11 Check the [Backup History] box and select [Hide Continuing Alarms].



IMPORTANT
- When the [Backup History] box is not checked, the alarm history data will be erased when the GP unit is turned OFF or reset.

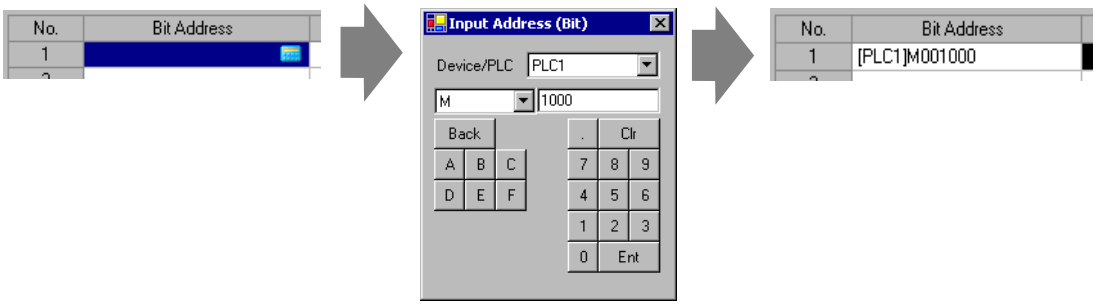
12 Open the [Block 1] tab, and select [Bit Monitoring].



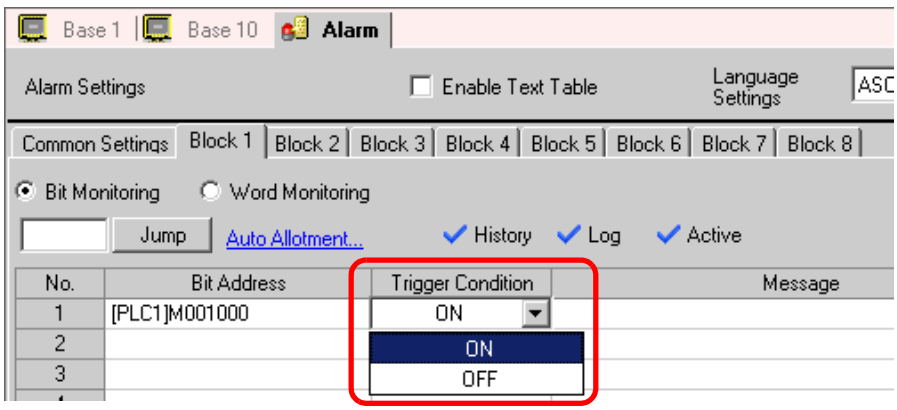
13 In [Bit Address], set the bit address to monitor the alarm's trigger. (e.g.: M1000)

Click on the icon and the address input keypad is displayed.

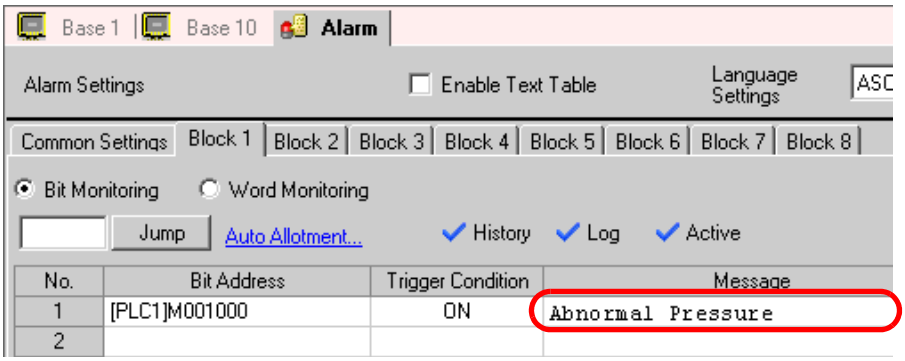
Select device "M", input "1000" as the address, and press the "Ent" key.



14 Click the [Trigger Condition] cell and select whether the alarm is triggered when the Monitoring Bit Address turns ON or turns OFF.



15 In the [Message] cell, input the alarm message that will display when the alarm is triggered.

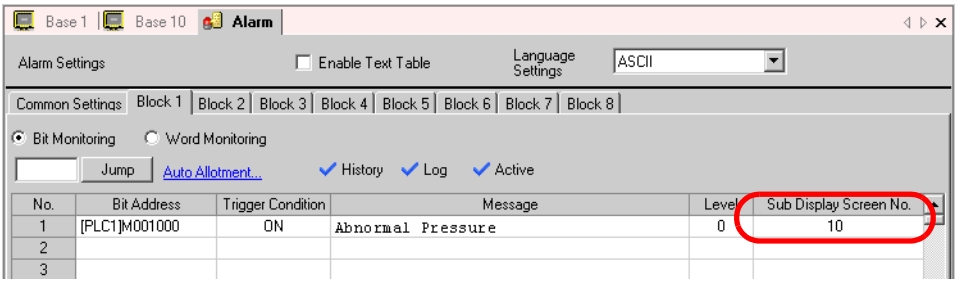


NOTE

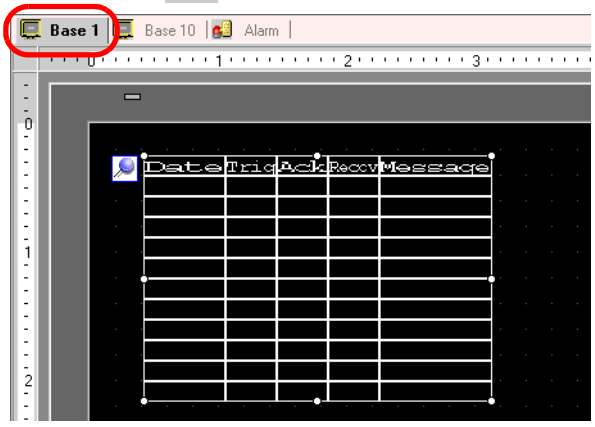
- Up to 160 single-byte characters can be registered in a single Alarm Message.
- When [Enable Text Table] is checked, the message language can be switched and displayed even while the system is running.

☞ "15.4 Changing Languages (Multilanguage)" (page 15-15)

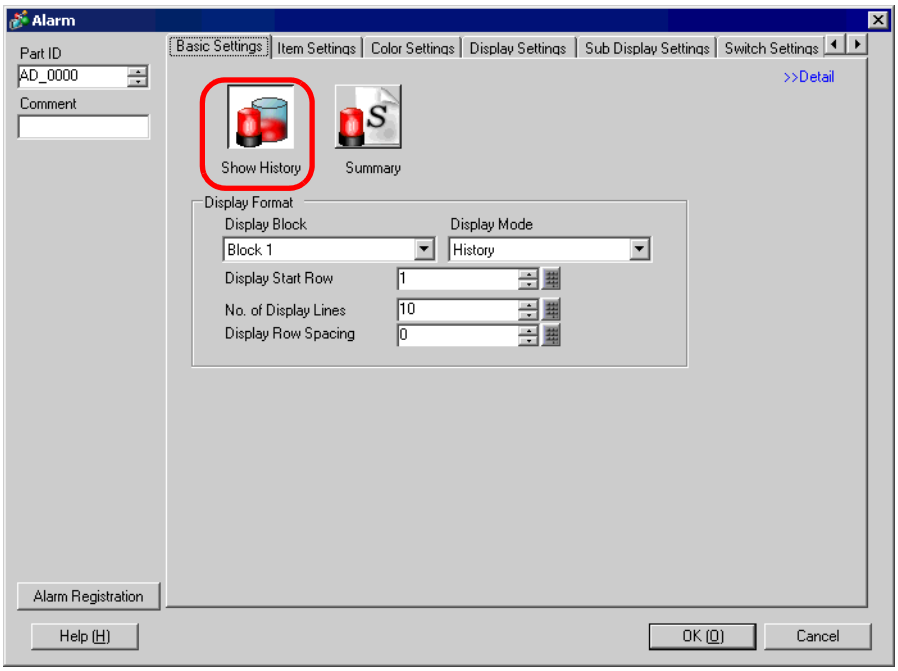
16 Set the screen No. of the Sub Display screen. (e.g.: 10)



17 Set the Alarm Part that will display the Alarm.
Open the screen to display the Alarm (e.g.: Base 1), and select the [Part (P)] menu - [Alarm (A)] command or click , and place the Part on the screen.

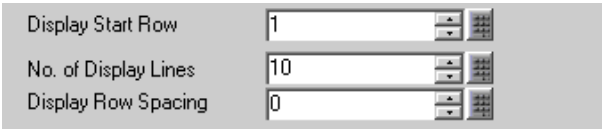


18 Double-click the placed Alarm and the settings dialog box opens.

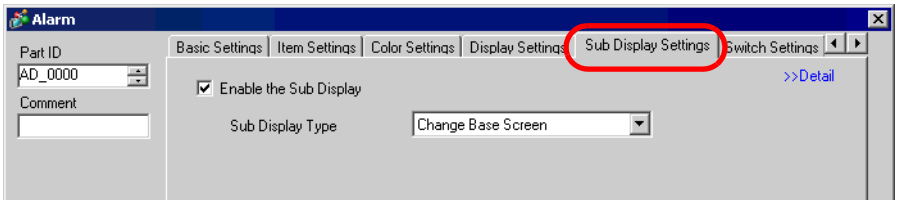


19 Set the block and mode to be displayed for the Alarm.

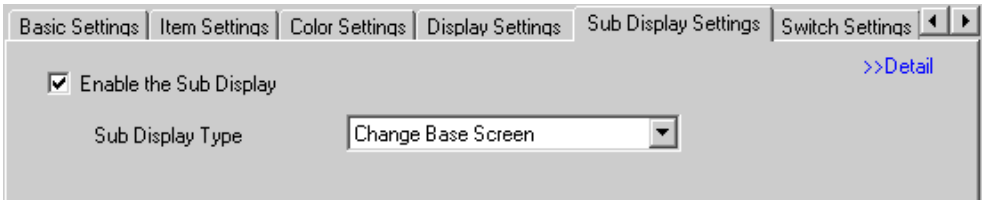
20 Set the [Display Start Row], [No. of Display Lines] and [Display Row Spacing].



21 Open the [Sub Display Settings] tab, and put a check mark next to the [Enable the Sub Display] box.



22 Select [Change Base Screen] in the [Sub Display Type] list.

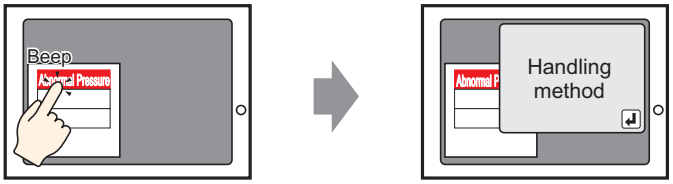


23 As needed, set the number of display characters, text color, background color, font, and size of the alarm message in the [Item Settings] tab, [Color Settings] tab, and [Display Settings] tab. Click [OK].
All settings are now complete.

■ Show Text Window

NOTE

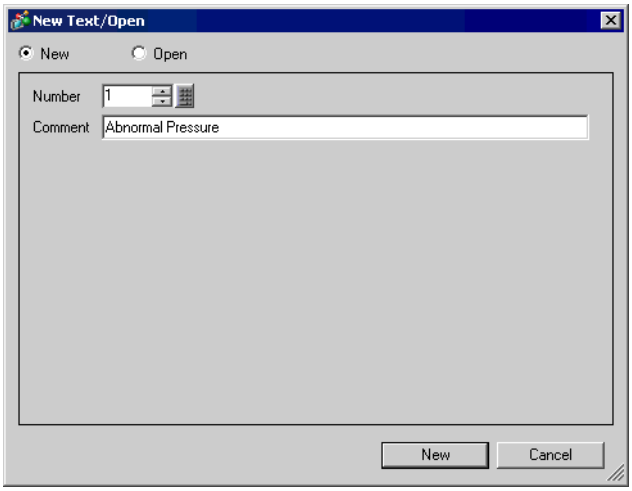
- Please refer to the settings guide for details.
  - ☞ "15.7.2 Common Settings Guide (Text)" (page 15-48)
  - ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Block 1)" (page 19-74)
  - ☞ "19.9.2 Alarm Part Settings Guide ■ Show History" (page 19-86)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Procedure for Editing a Part".
  - ☞ "9.6.1 Procedure for Editing a Part" (page 9-36)



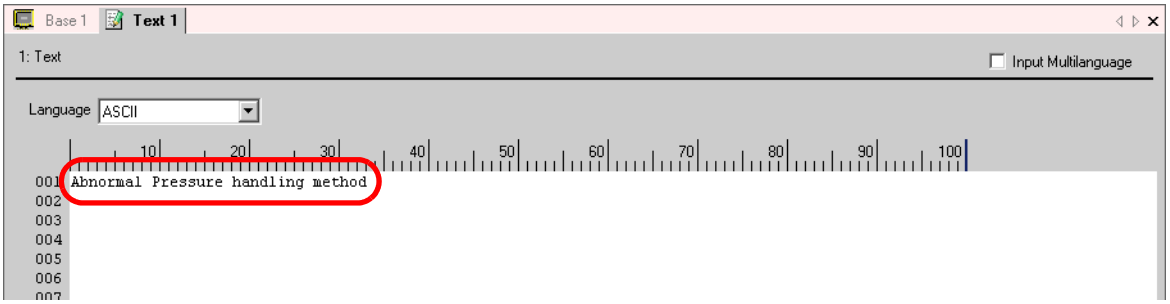
When the alarm message is touched, a Text Window is displayed.

1 Create a text window to call a Sub Display. Select the [Common Settings (R)] menu - [Text Registration (T)] command, or click  to display the [New Text/Open] dialog box.

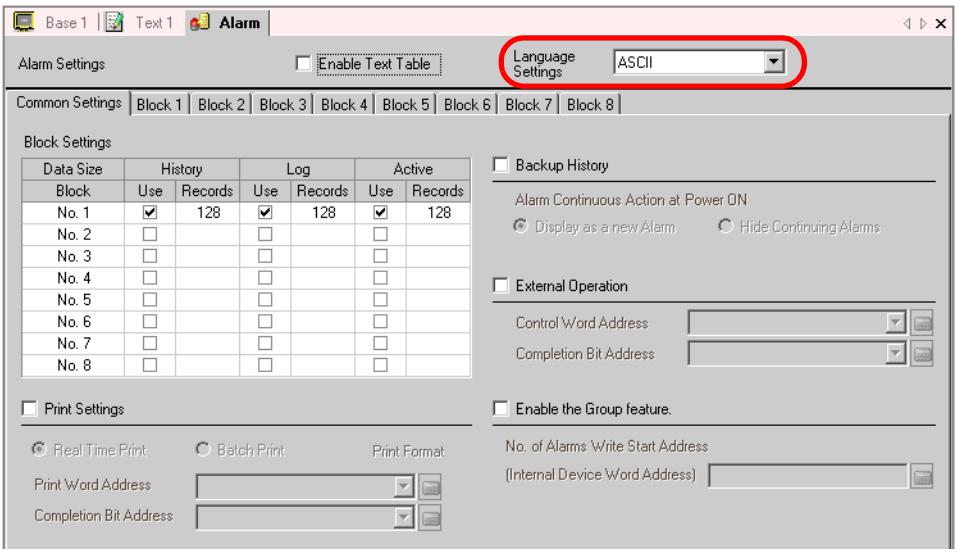
2 Select the Text No. and Comment (e.g.: Text No. = "1", Comment = "Abnormal Pressure"), and click [New].



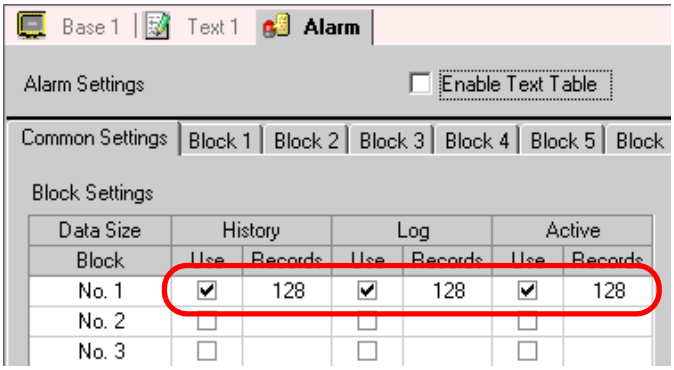
3 Specify [Language], and input the text to be displayed as a Sub Display.



4 Next, register the Message to display when the Alarm is triggered.
Select the [Common Settings (R)] menu - [Alarm Settings (A)] command, or click  to display the following screen. Specify a display language for the Alarm Message in [Language Settings].



5 On the [Block Settings] tab, check the box for the desired display mode (History/Log/Active) for the block to which the message is registered, and set the number of messages stored as history for each mode.

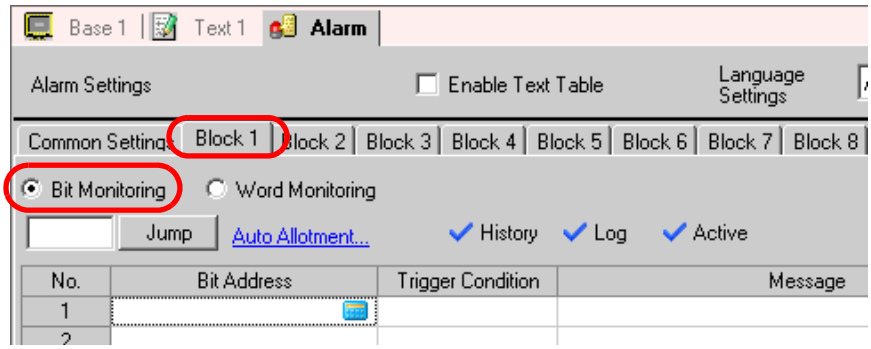


6 Check the [Backup History] box and select [Hide Continuing Alarms].

IMPORTANT

- When the [Backup History] box is not checked, the alarm history data will be erased when the GP unit is turned OFF or reset.

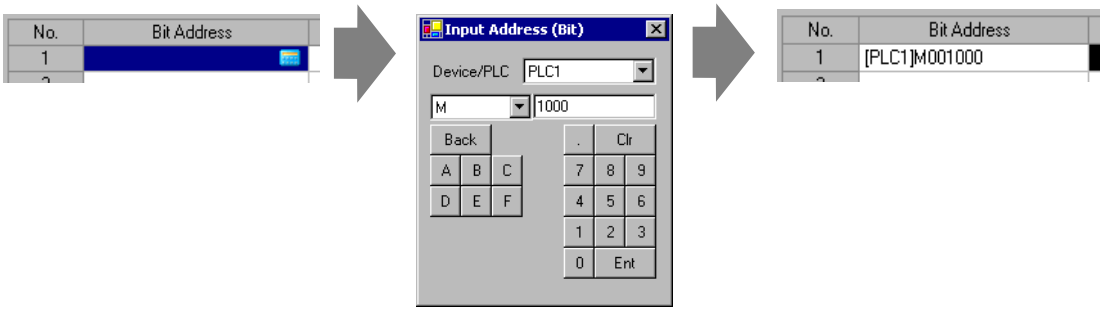
7 Open the [Block 1] tab, and select [Bit Monitoring].



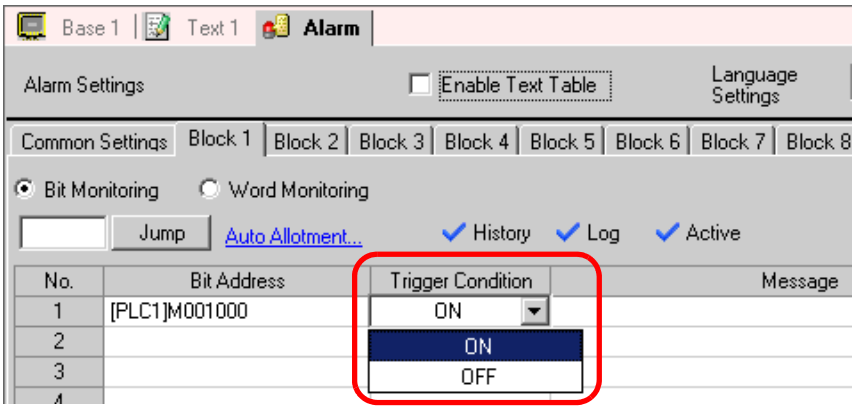
8 In [Bit Address], set the bit address to monitor the alarm's trigger. (e.g.: M1000)

Click on the icon and the address input keypad is displayed.

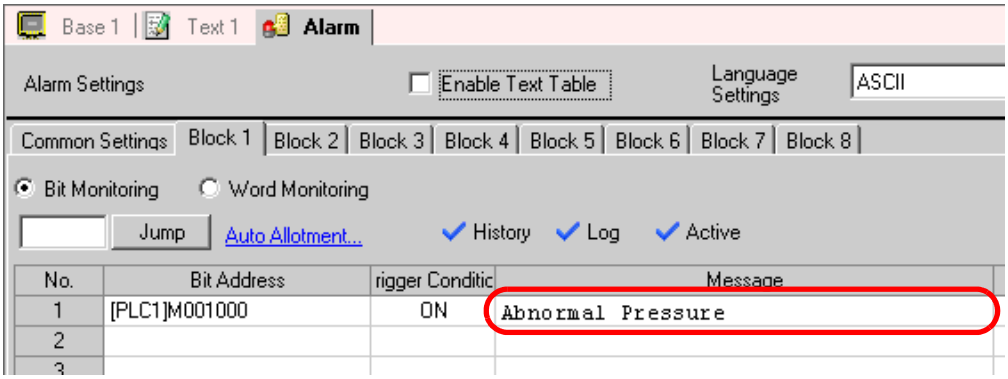
Select device "M", input "1000" as the address, and press the "Ent" key.



9 Click the [Trigger Condition] cell and select whether the alarm is triggered when the Monitoring Bit Address turns ON or turns OFF.



10 In the [Message] cell, input the alarm message that will display when the alarm is triggered.

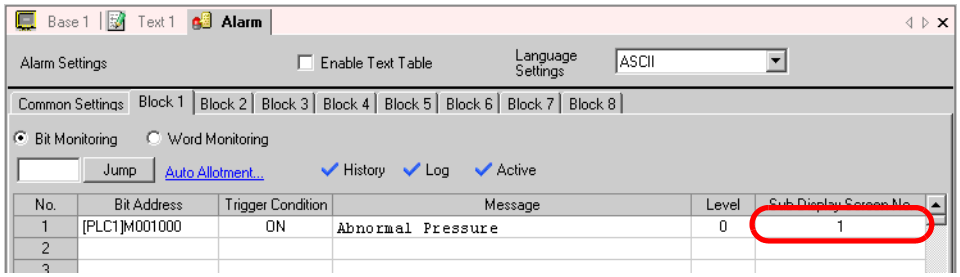


NOTE

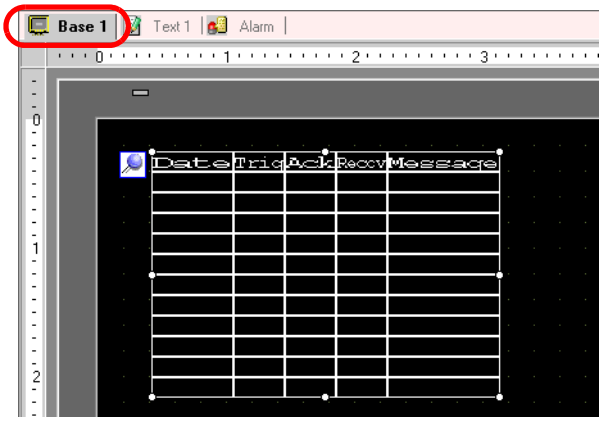
- Up to 160 single-byte characters can be registered in a single Alarm Message.
- When [Enable Text Table] is checked, the message language can be switched and displayed even while the system is running.

☞ "15.4 Changing Languages (Multilanguage)" (page 15-15)

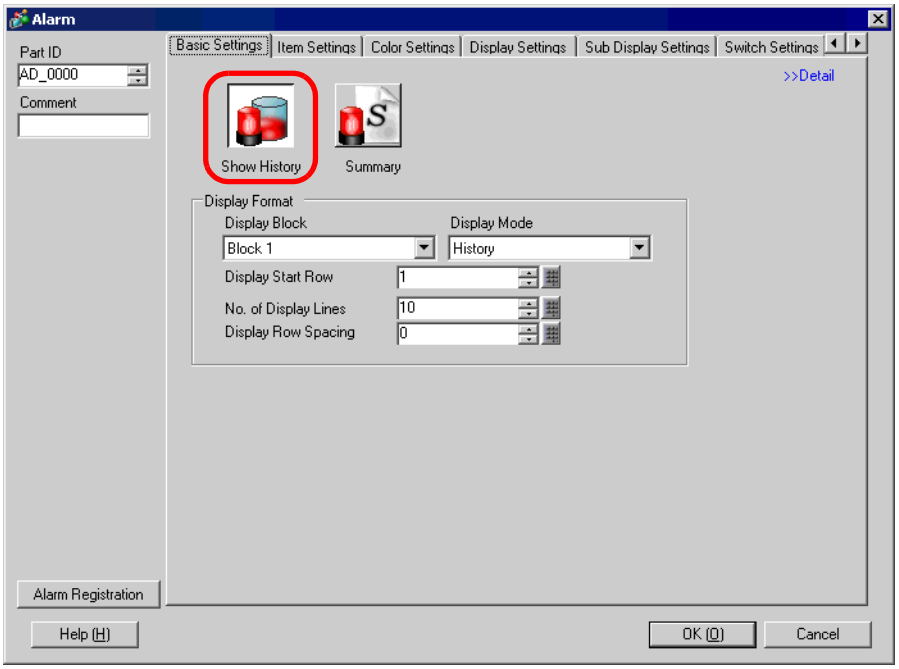
11 Set the Text No. for the Sub Display to display (e.g.: 1).



12 Set the Alarm Part that will display the Alarm.
Open the screen to display the Alarm (e.g.: Base 1), and select the [Part (P)] menu - [Alarm (A)] command or click , and place the Part on the screen.

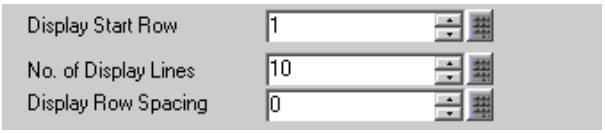


13 Double-click the placed Alarm and the settings dialog box opens.

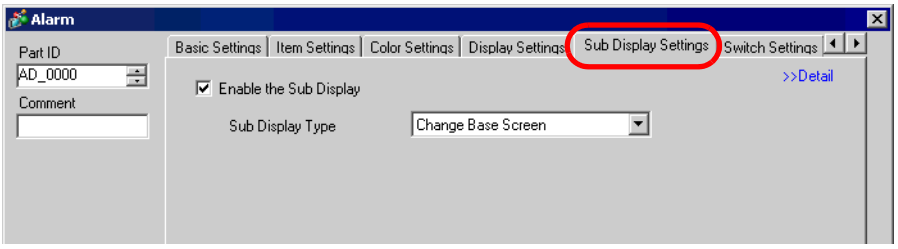


14 Set the block and mode to be displayed for the Alarm.

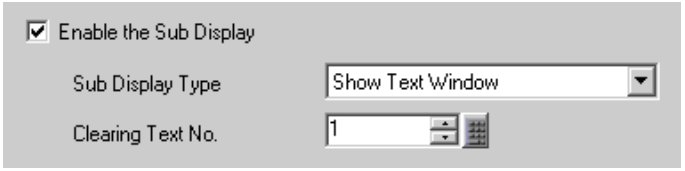
15 Set the [Display Start Row], [No. of Display Lines] and [Display Row Spacing].



16 Click the [Sub Display Settings] tab, and put a check mark next to the [Enable the Sub Display] box.



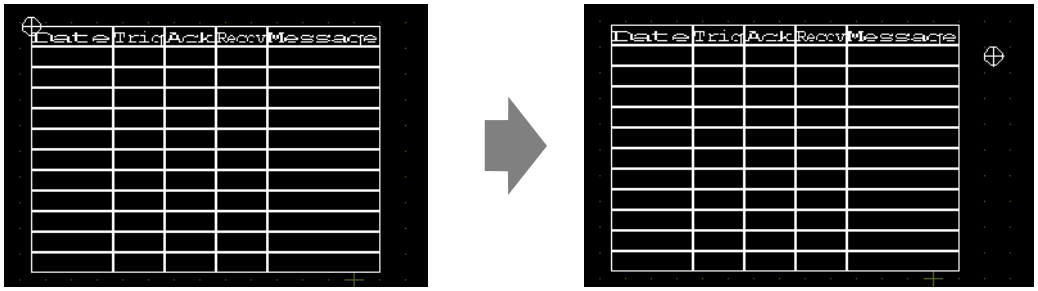
17 Select [Show Text Window] in the [Sub Display Type] list.



18 In [Window Size], select the size of the Window for the Sub Display.

19 As needed, set the number of display characters, text color, background color, font, and size of the alarm message in the [Item Settings] tab, [Color Settings] tab, and [Display Settings] tab. Click [OK].

20 The position setting mark  is displayed on the upper left of the Alarm Part. Move the position setting mark to the position where you want to display the text window as a Sub Display. All settings are now complete.

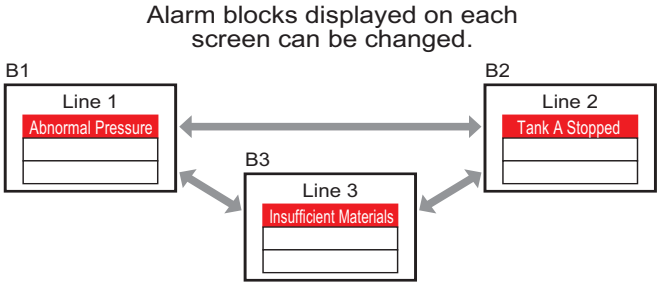


19.7 Viewing Alarms by Group

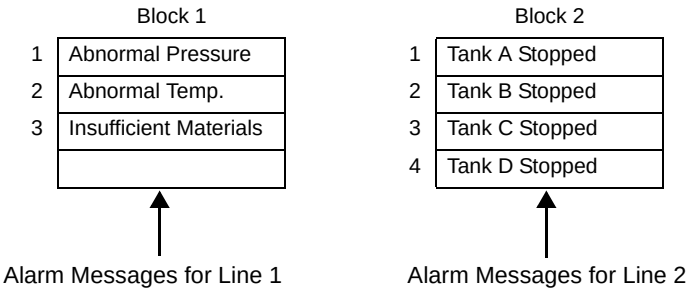
19.7.1 Details

You can change the Alarms displayed on each screen by registering different Alarm Messages with different groups (production lines).

"Display"



"Register"



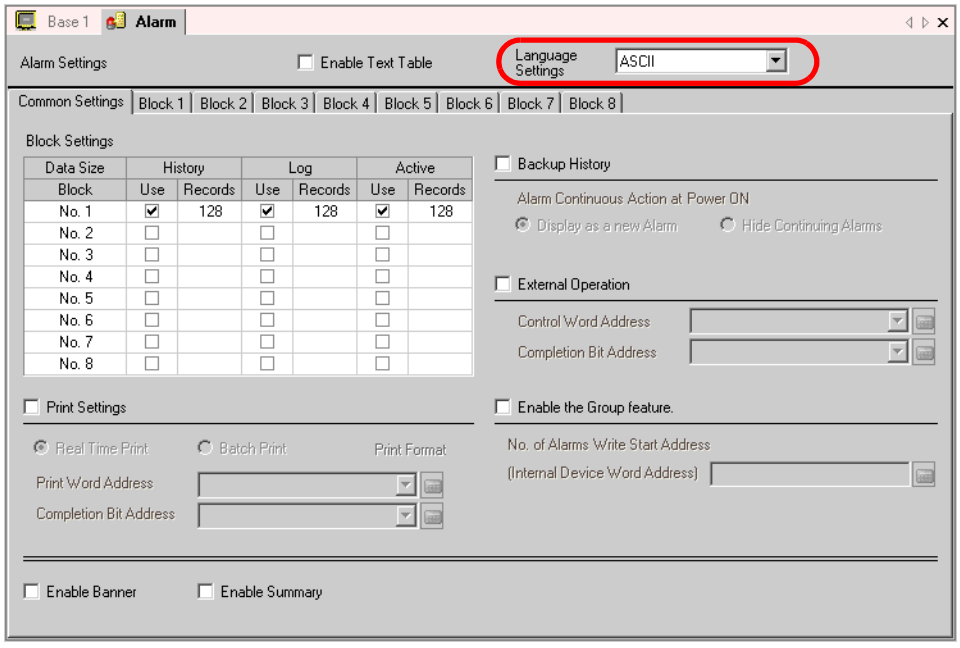
19.7.2 Setup Procedure

NOTE

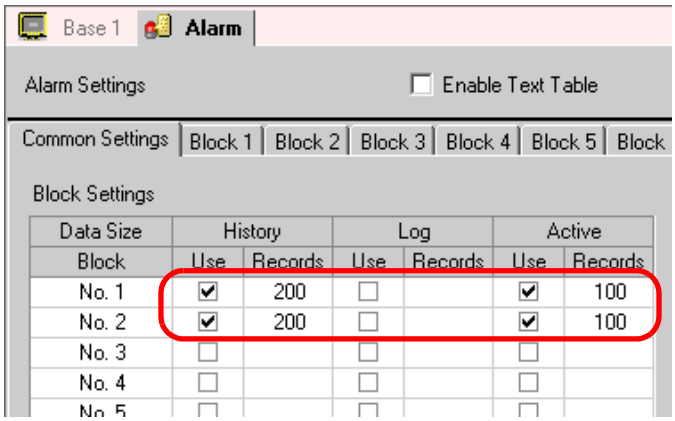
- Please refer to the settings guide for details.
  ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Common Settings)" (page 19-64)
  ☞ "19.9.2 Alarm Part Settings Guide" (page 19-85)
- For details about placing parts or setting addresses, shapes, colors, and labels, please refer to "Procedure for Editing a Part".
  ☞ "9.6.1 Procedure for Editing a Part" (page 9-36)

Displays the different blocks' alarm messages on each screen.

1 Select the [Common Settings (R)] menu - [Alarm Settings (A)] command, or click  to display the following screen. Specify a display language for the Alarm Message in [Language Settings].



2 On the [Block Settings] tab, select the display mode (History/Log/Active) for each of the blocks to which the messages are registered, and set the number of messages stored as history.

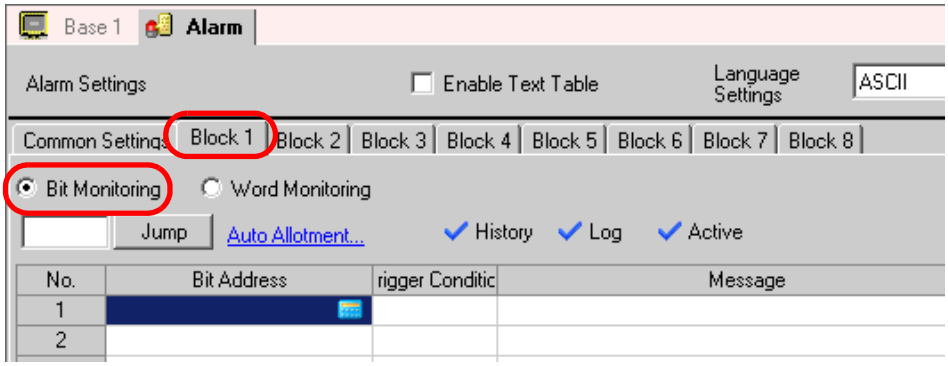


3 Check the [Backup History] box and select [Hide Continuing Alarms].

IMPORTANT

- When the [Backup History] box is not checked, the alarm history data will be erased when the GP unit is turned OFF or reset.

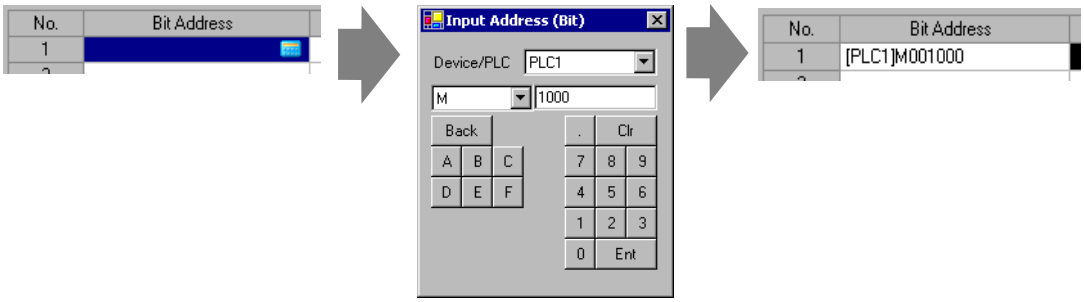
4 Open the [Block 1] tab, and select [Bit Monitoring].



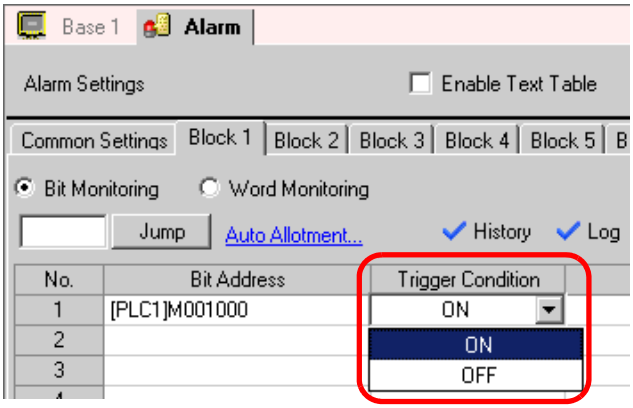
5 In [Bit Address], set the bit address to monitor the alarm's trigger. (e.g.: M1000)

Click on the icon and the address input keypad is displayed.

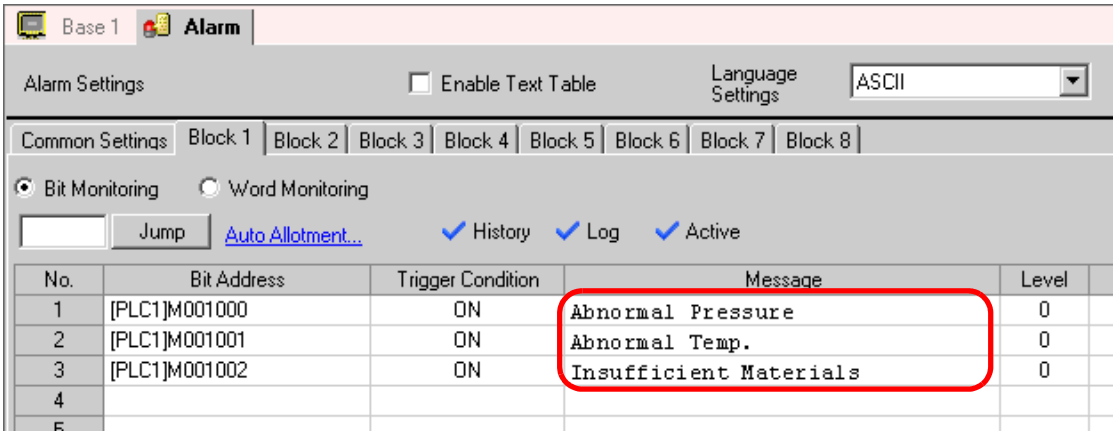
Select device "M", input "1000" as the address, and press the "Ent" key.



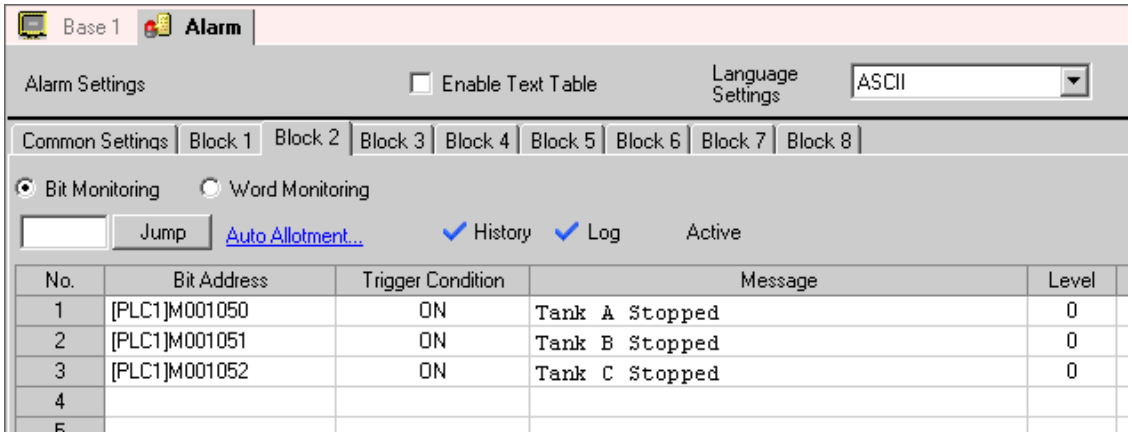
6 Click the [Trigger Condition] cell and select whether the alarm is triggered when the Monitoring Bit Address turns ON or turns OFF.



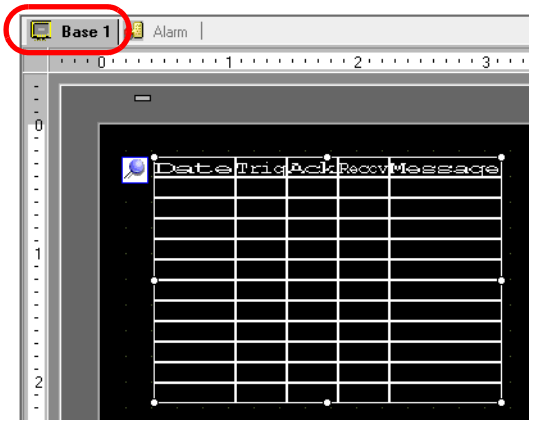
7 In the [Message] cell, input the alarm message for the alarm which will be triggered on Line 1.



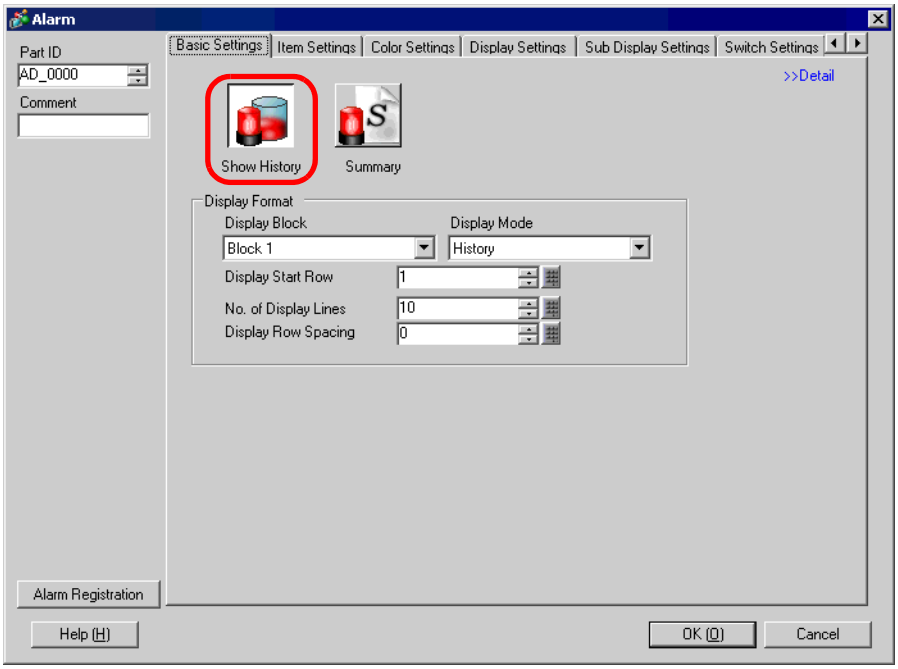
8 In the same manner, open the [Block 2] tab and register the Monitoring Bit Addresses and Alarm Messages for Line 2.



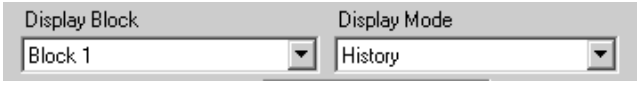
9 Open the screen to display the Alarms (e.g.: Base 1), and first set the Alarm Part to display the Alarms for Line 1. Select the [Part (P)] menu - [Alarm (A)] command or click , and place the Part on the screen.



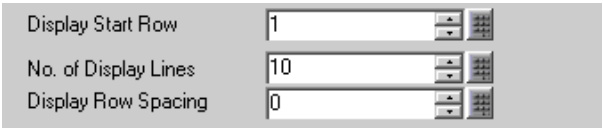
10 Double-click the placed Alarm and the settings dialog box opens.



11 Specify [Block 1] at [Display Block] and set the Display Mode.

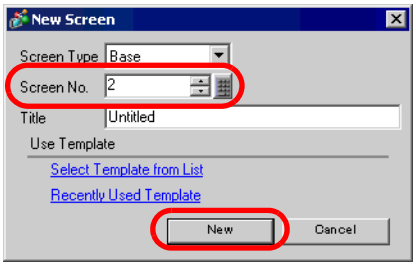


12 Set the [Display Start Row], [No. of Display Lines] and [Display Row Spacing].

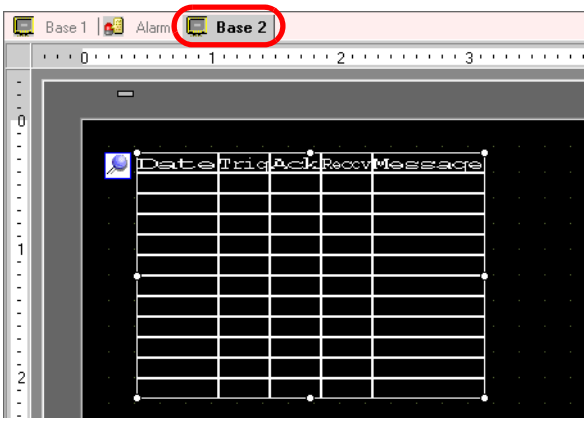


13 As needed, set the number of display characters, text color, background color, font, and size of the alarm message in the [Item Settings] tab, [Color Settings] tab, and [Display Settings] tab. Click [OK].
The creation of the screen to display the Alarm Messages of Block 1 is now complete.

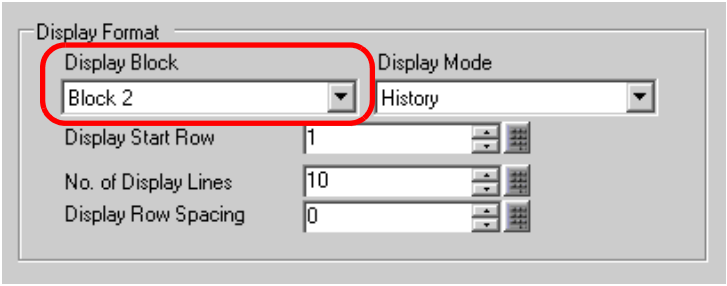
14 Select the [Screen (S)] menu - [New Screen (N)] command, or click  , and the [New Screen] dialog box appears. In [Screen No.], set the Base Screen No. (e.g.: 2), and click [New].



15 Select the [Part (P)] menu - [Alarm (A)] command in the [Base 2] screen or click , and place the Part on the screen.



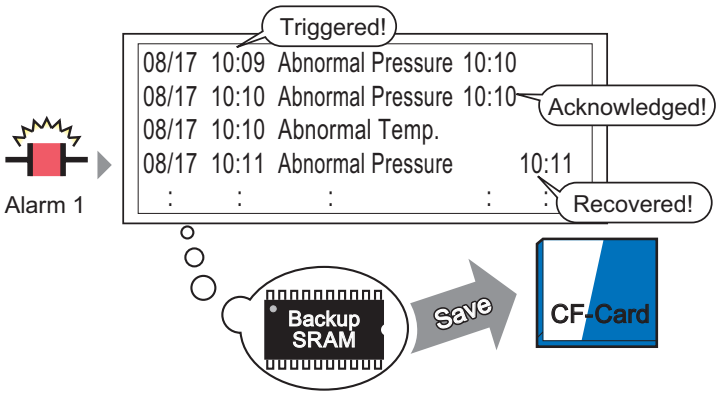
16 Double-click the placed Alarm Part to open the settings dialog box, and specify [Block 2] at [Display Block].



17 As needed, set the number of display characters, text color, background color, font, and size of the alarm message in the [Item Settings] tab, [Color Settings] tab, and [Display Settings] tab. Click [OK].
The creation of the screen to display the Alarm Messages of Block 2 is now complete.

19.8 Saving the Alarm History to a CF-Card

19.8.1 Details



The Alarm History data stored in the backup SRAM is saved to the CF-card.

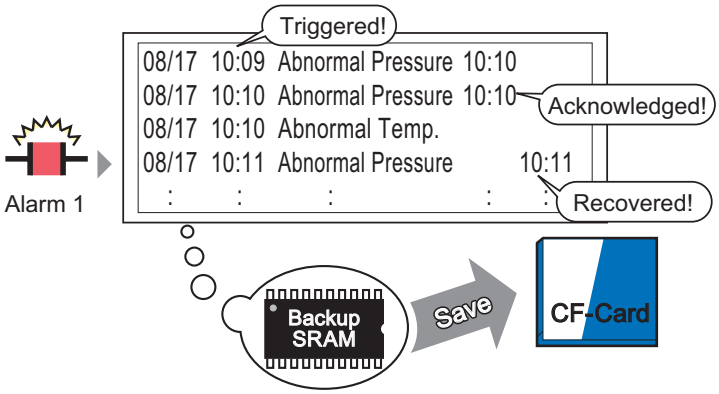
Save the Alarm History data stored in the backup SRAM of the GP to the CF-card.
Since the Alarm data is saved in CSV format, it can be edited in general-purpose spreadsheet software (such as Microsoft Excel).

19.8.2 Setup Procedure

NOTE

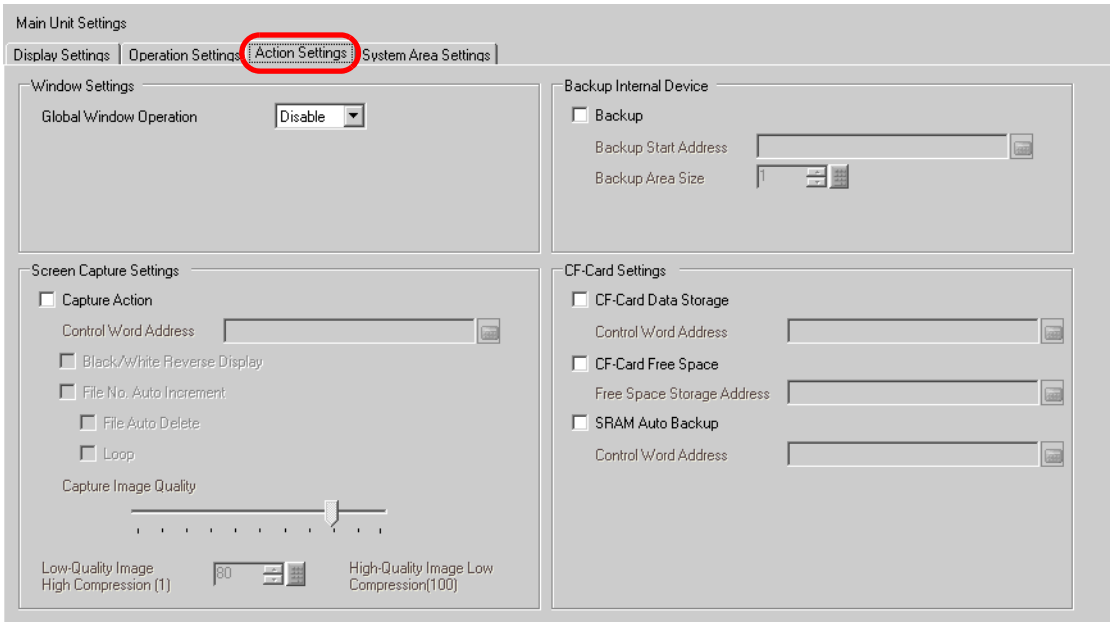
- Please refer to the settings guide for details.
  - ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Common Settings)" (page 19-64)
  - ☞ "6.13.6 [System Settings Window] Setting Guide ■ [Main Unit Settings] Settings Guide ◆ Action Settings" (page 6-94)

Configure settings to write the Alarm History data stored in the backup SRAM to the CF-card in CSV format.

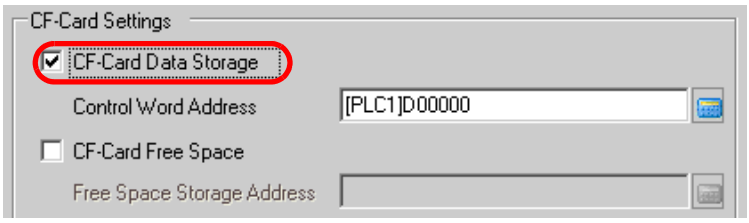


The Alarm History data stored in the backup SRAM is saved to the CF-card.

1 Click [Main Unit Settings] in the System Settings Window and open the [Action Settings] tab.



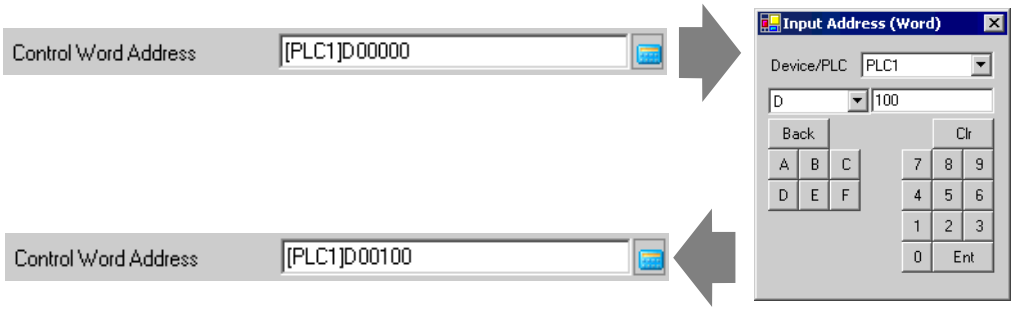
2 Under [CF-Card Settings], check [CF-Card Data Storage].



3 In [Control Word Address], set the address used to control the writing of data to the CF-card (e.g.: D100).

Click on the icon and the address input keypad is displayed.

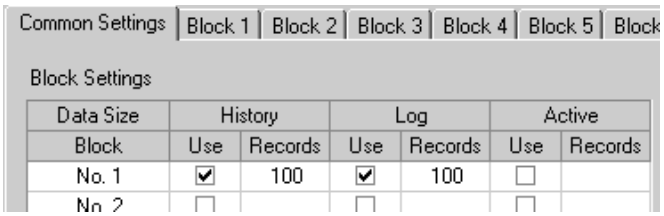
Select device “D”, input “100” as the address, and press the “Ent” key.



4 The settings for writing Alarm History data to the CF-card are now complete.

NOTE

- The CSV storage format is automatically determined according to the [Display Mode] setting. The setting is checked in the order of [History] → [Log] → [Active], and data is output in the format of the first [Display Mode] which is set to [Use].
  e.g.) When the data of Block 1 is saved to the CF-card

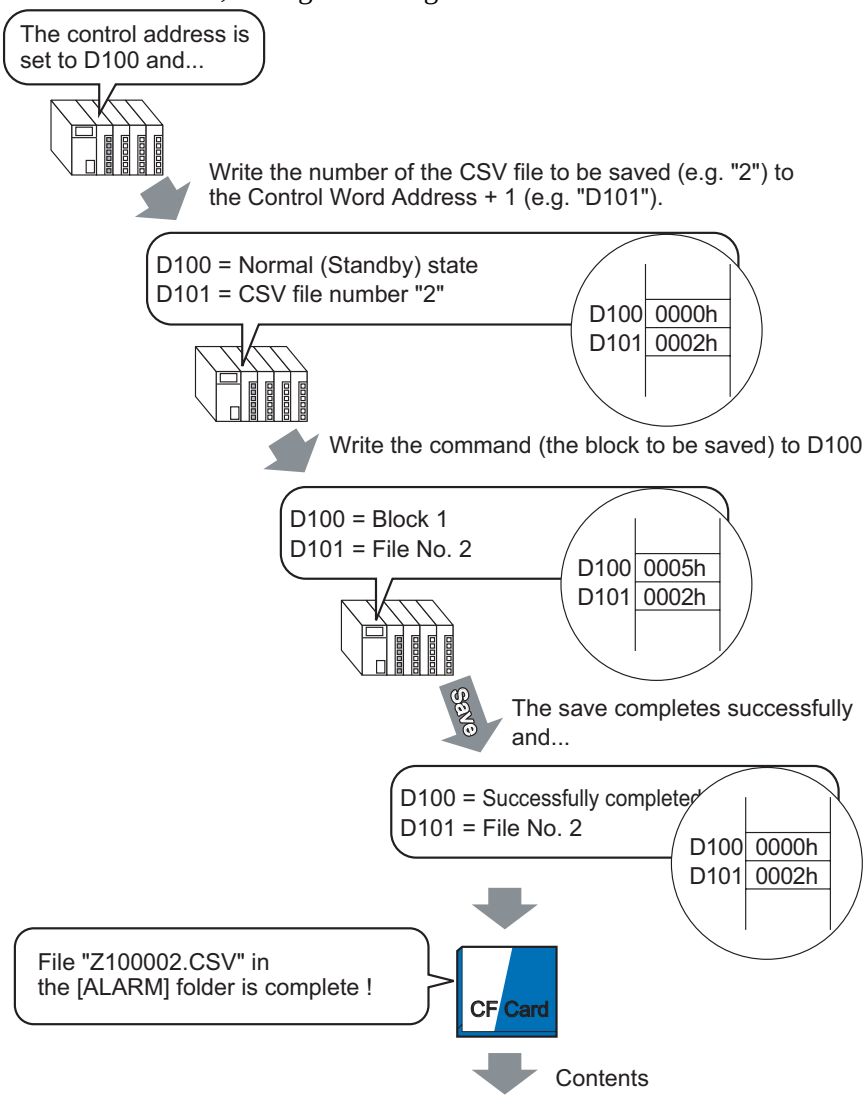


  In this case, the data is saved in [History] format. If [History] were not set, the data would be saved using [Log] format.
- Data is output with the latest information at the top regardless of the display mode.
- Item names such as [Trigger Date], [Trigger Time], and [Message(s)] are output as fixed data. The item names are output in Japanese when the language setting is Japanese, or in English when other language (ASCII, Taiwanese, Chinese, or Korean) is set.

19.8.3 Structure

■ CF-Card Save Process

To save data to the CF-Card, manage the designated control word address as follows.




```
"No. of Message(s)","3","","","",""
"","","","","",""
"Trigger Date","Trigger Time","Message(s)","Acknowledge Time","Recovery Time","No. of occ.","Acc. Time","Level"
"05/11/14","10:05:35","B Tank- Abnormal Pressure","10:20:35","11:00:15","1","1:00:00","1"
"05/11/13","12:15:00","A Tank - Low Water Level","13:20:00","16:15:00","2","03:00:00","0"
"05/11/13","12:00:10","Pump No. 1 Closed","14:00:20","16:50:30","1","4:50:20","2"
```

↓ When this data is opened in Microsoft Excel ...

No. of Message(s)	3						
Trigger Date	Trigger Time	Message(s)	Acknowledge Time	Recovery Time	No. of occ.	Acc. Time	Level
2005/11/14	10:05:35	B Tank- Abnormal Pressure	10:20:35	11:00:15	1	1:00:00	1
2005/11/13	12:15:00	A Tank - Low Water Level	13:20:00	16:15:00	2	3:00:00	0
2005/11/13	12:00:10	Pump No. 1 Closed	14:00:20	16:50:30	1	4:50:20	2

■ Control Word Address for a CF-Card Save

This address controls the writing of data to the CF-card. After designating a file number, write the command to the address.

Control Word Address	Command/Status
+1	File Number

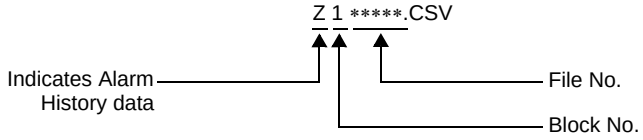
◆ Command/Status

Write the command, and the data is written to the CF-card. The operation result (status) is reflected in the address.

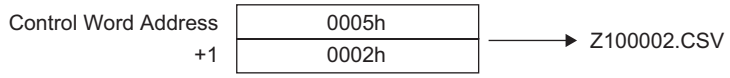
Mode	Word Data	Description
Command	0001h	Filing Data
	0002h	GP-PRO/PB III for Windows Logging data (compatible)
	0003h	GP-PRO/PB III for Windows Trend graph data (compatible)
	0004h	GP-PRO/PB III for Windows Sampling data (compatible)
	0005h	Block 1's Alarm History data
	0006h	Block 2's Alarm History data
	0007h	Block 3's Alarm History data
	0008h	Block 4's Alarm History data
	0009h	Block 5's Alarm History data
	000ah	Block 6's Alarm History data
	000bh	Block 7's Alarm History data
	000ch	Block 8's Alarm History data
	0020h	GP-PRO/PB III for Windows Logging loop auto-save start (compatible)
	0021h	GP-PRO/PB III for Windows Logging loop auto-save end (compatible)
Status	0000h	Completed Successfully
	0100h	Write Error
	0200h	No CF-card is inserted, or the cover is open.
	0300h	No data to be loaded (when no data is specified)
	0400h	File No. Error (File number is outside of range)
	2000h	GP-PRO/PB III for Windows Logging loop auto-save responding correctly (compatible) Control Address becomes this value during the auto-save mode. When the value is changed, the auto-save mode finishes.

◆ File Name and Save Location

Designate a file number from 0 to 65,535 in the address following the control word address prior to writing a command.
After writing a command, Alarm History data will be saved to the CF-card's [ALARM] folder with the following file name.



e.g.)



NOTE

- When the CF-card is reset by the GP unit, a folder will automatically be created to save data.

Folder	Data to be saved	File Name
\FILE	Filing Data	F*****.BIN
	Transfer CSV Data	ZR*****.CSV
\LOG	GP-PRO/PB III for Windows Logging data (compatible)	ZL*****.CSV
\DATA	Image Screen	I*****.BIN
	Sound data	O*****.BIN
\CAPTURE	Screen Capture Video Capture	CP*****.JPG
\TREND	GP-PRO/PB III for Windows Line Chart data (compatible)	ZT*****.CSV
	GP-PRO/PB III for Windows Sampling data (compatible)	ZS*****.CSV
\ALARM	Block 1's Alarm History data	Z1*****.CSV
	Block 2's Alarm History data	Z2*****.CSV
	Block 3's Alarm History data	Z3*****.CSV
	Block 4's Alarm History data	Z4*****.CSV
	Block 5's Alarm History data	Z5*****.CSV
	Block 6's Alarm History data	Z6*****.CSV
	Block 7's Alarm History data	Z7*****.CSV
	Block 8's Alarm History data	Z8*****.CSV
\SRAM	Backup SRAM data	ZD*****.BIN
\SAMP01	Sampling Group 1's data	SA*****.CSV
.	.	
.	.	
.	.	
\SAMP64	Sampling Group 64's data	SA*****.CSV

■ Notes on CF-Card Saving

- While data is being written to the CF-card, changes of parts and screens may slow down.
- It may take several seconds to write data, depending on the amount.
- After the Status data is read out from the GP, before the next command can be written be sure to allow time equal to at least one communication cycle[*1] or one Display Scan Time[*2] period, whichever is longer.
- Please do not call up screens that use the CF-card when it is not installed in the GP. Otherwise, they will not function properly.
- If a write error occurs, any file that has not finished loading may remain on the CF-Card.
- When overwriting a file by transferring data to the CF-card, the CF-card must have enough free room to allow the data. If the data is larger than the available space, a write error will occur.
- When data is saved to the CF-card and the target folder (e.g.: \ALARM) does not exist, the [ALARM] folder will be automatically created to save the data. However, if the folder cannot be created because the CF-card has not been reset or other reasons, a write error will occur.
- There is a limit to the frequency that data can be written to the CF-card (500 KB of data can be rewritten around 100,000 times).

■ CF-Card Usage Warnings

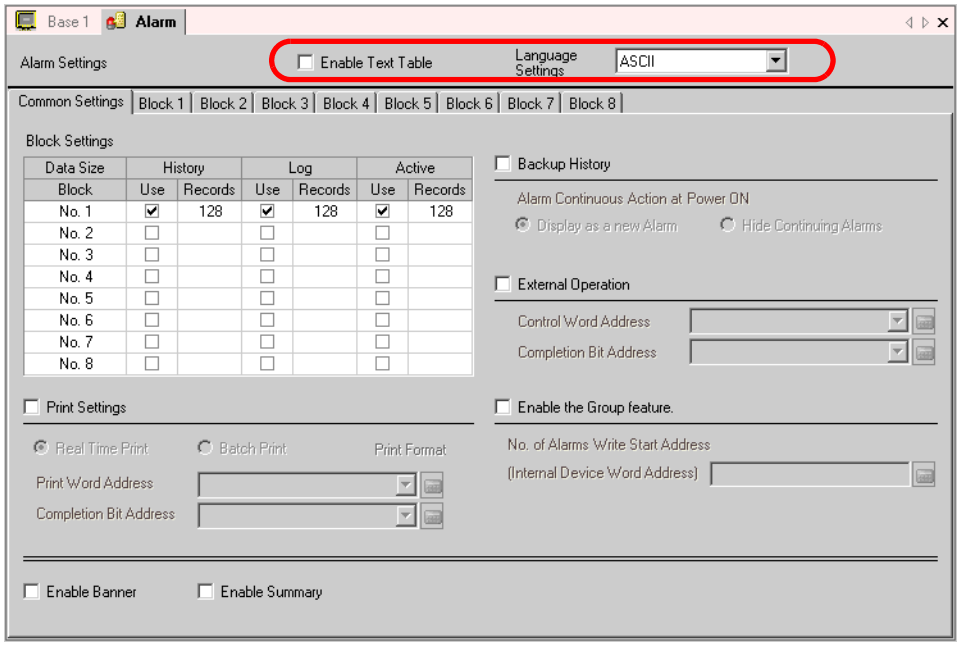
- When removing the CF-card, please verify that the access lamp is switched off. There is a chance that CF-card data can be lost or damaged.
- While accessing the CF-card, do not turn the GP unit off, reset the GP, or remove the CF-card. Create a preset verification screen for information about CF-card access. Turn off power, reset, open the CF-card cover, or remove the CF-card only after verifying that screen.
- When inserting the CF-card in the GP unit, please make sure you have the correct side up and the correct location for the CF-card connecter. If installed incorrectly, damage can occur to the data or to the CF-card/GP unit.
- Please use a CF-card made by Digital Electronics Corporation. If using another company's CF-card, damage may occur to the CF-card's data.
- Please make sure to back up all CF-card data.
- Please refrain from doing the following, as it can result in damage to data and equipment:
  - Bending the CF-card
  - Dropping the CF-card
  - Spilling water on the card
  - Touching the CF-card's connecters directly
  - Disassembling or modifying the CF-card

*1 The communication cycle time is the time it takes to request and take in data from the GP unit to the PLC. It is stored in the internal device's LS2037 as binary data. The unit is 10ms.

*2 Display Scan Time is the time it takes to display/calculate 1 screen. It is stored in the internal device's LS2036 as binary data. The unit is milliseconds (ms).

19.9 Settings Guide

19.9.1 Alarm Settings Guide



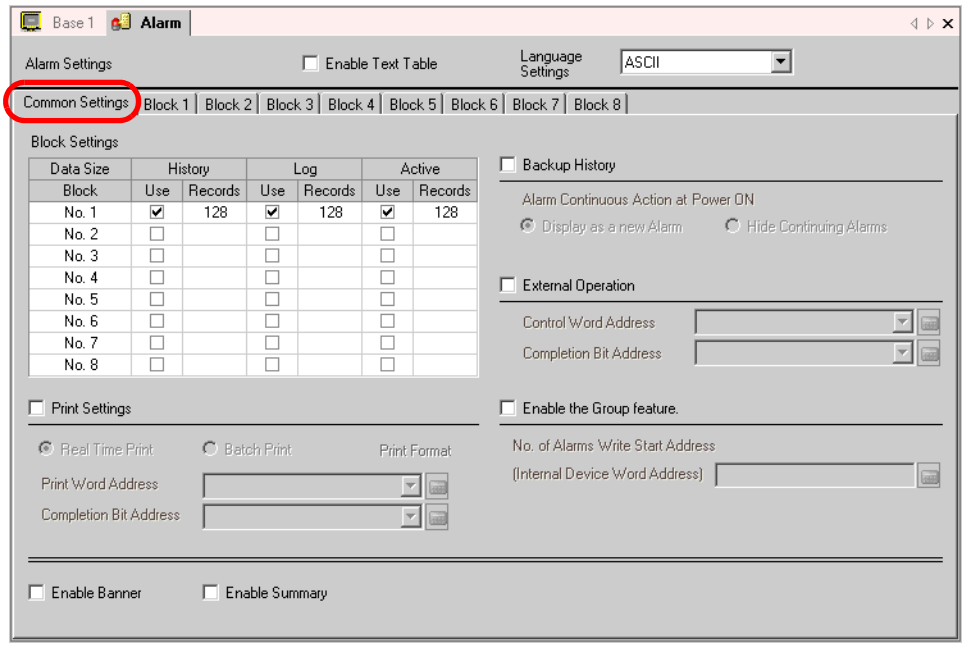
Setting	Description
Enable Text Table	Specify whether to use the character string registered in the text table for alarm messages. The language of alarm messages can be changed while the system is running. ☞ "15.7.7 Alarm Settings (Enable Text Table) Settings Guide" (page 15-59)
Language Settings	Choose the language of alarm messages to be registered from [ASCII], [Japanese], [Taiwanese], [Chinese], or [Korean] when you directly input a message without using the text table.

NOTE

- The setting of the text table or language is common to all alarm settings (History, Banner, Summary). When the selection of [Language Setting] is changed to [Enable Text Table] and vice versa, the messages which have been set are deleted.

■ Alarm Settings Guide (Common Settings)

You can set the block, display mode, and the number of Alarm Histories stored for Alarm Message (History).

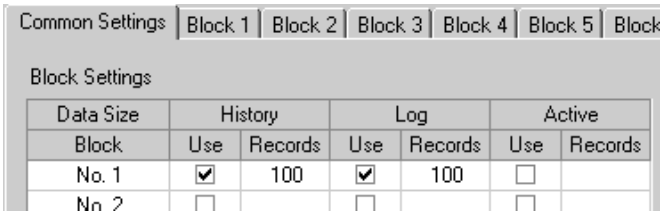
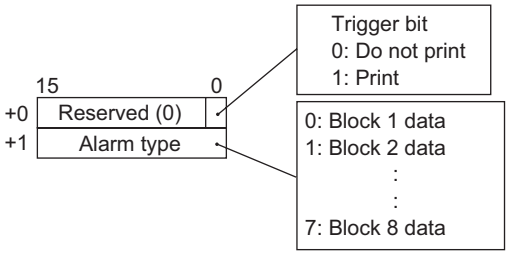


Setting	Description
Block Settings	Set the display mode and the number of Alarm History records (the number of Alarm Histories stored in the GP) in each mode for each block. A maximum of 768 Alarm Histories can be set.
Block	A group of Alarm Messages to be registered. A maximum of 8 blocks can be used.

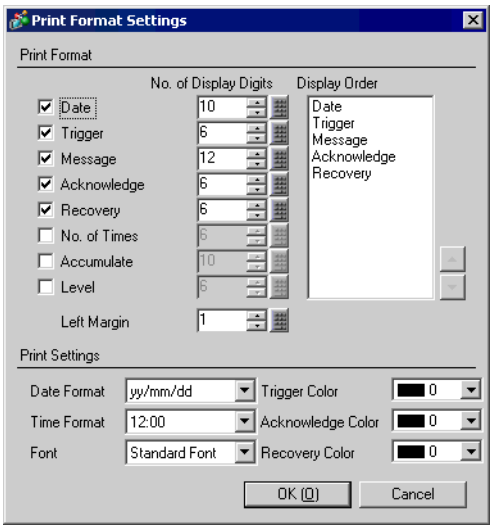
Continued

<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td rowspan="3">Block Settings</td><td>Display Mode</td><td>Choose the Alarm Message’s display method from [History], [Log], or [Active]. Choose [Active] to display only alarms which are currently triggered. To save old alarms choose [History] or [Log].
<table>
<tr><td>[History]</td><td>Displays Alarm Messages together with the trigger date and time in the order they are triggered. The time at which the Alarm is acknowledged or recovered will be added to the same row. The change in the state of each Alarm can be viewed on a single row.
<table>
<tr><th>Date</th><th>Trigger Time</th><th>Message</th><th>Acknowledge Time</th><th>Recovery time</th></tr>
<tr><td>2003/12/13</td><td>20:14</td><td>Conveyor Stopped</td><td></td><td></td></tr>
<tr><td>2003/12/13</td><td>20:02</td><td>Hopper Capacity Reduced</td><td>20:08</td><td></td></tr>
<tr><td>2003/12/13</td><td>19:30</td><td>Abnormal Voltage</td><td>19:40</td><td>20:00</td></tr>
</table></td></tr>
<tr><td>[Log]</td><td>The messages and date/time are displayed in separate rows every time the state changes from [Trigger], [Acknowledge], to [Recovery]. Date of every state can be checked.
<table>
<tr><th>Date</th><th>Trigger Time</th><th>Message</th><th>Acknowledge Time</th><th>Recovery time</th></tr>
<tr><td>2003/12/13</td><td>20:14</td><td>Conveyor Stopped</td><td></td><td></td></tr>
<tr><td>2003/12/13</td><td></td><td>Hopper Capacity Reduced</td><td>20:08</td><td></td></tr>
<tr><td>2003/12/13</td><td>20:02</td><td>Hopper Capacity Reduced</td><td></td><td></td></tr>
<tr><td>2003/12/13</td><td></td><td>Abnormal Voltage</td><td></td><td>20:00</td></tr>
<tr><td>2003/12/13</td><td></td><td>Abnormal Voltage</td><td>19:40</td><td></td></tr>
<tr><td>2003/12/13</td><td>19:30</td><td>Abnormal Voltage</td><td></td><td></td></tr>
</table></td></tr>
<tr><td>[Active]</td><td>Only [Trigger] and [Acknowledge] alarms are displayed. When an alarm recovers, it is automatically erased.
<table>
<tr><th>Date</th><th>Trigger Time</th><th>Message</th><th>Acknowledge Time</th></tr>
<tr><td>2003/12/13</td><td>20:14</td><td>Conveyor Stopped</td><td></td></tr>
<tr><td>2003/12/13</td><td>20:02</td><td>Hopper Capacity Reduced</td><td></td></tr>
<tr><td>2003/12/13</td><td>19:30</td><td>Abnormal Voltage</td><td>19:40</td></tr>
</table></td></tr>
</table></td></tr>
<tr><td>Use</td><td>Select the [Display Mode] to be used. A total of 8 display modes at maximum can be set for the whole Alarm History.</td></tr>
<tr><td>Records</td><td>Set the number of Alarm Histories stored for each display mode. Up to 768 Alarm Histories can be set in total. When triggered alarms exceed the specified number, the oldest alarm is deleted.</td></tr>
</table>

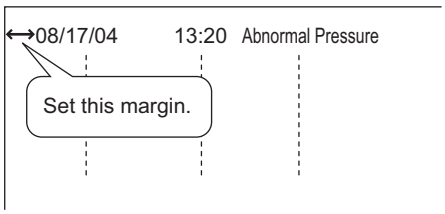
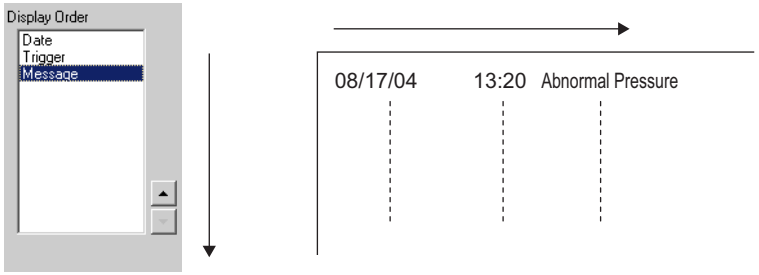
Continued

Setting	Description
Print Settings	Select whether or not to print the Alarm History. ☞ "19.10.1 Restrictions on Printing the Alarm History" (page 19-133)
Real Time Print/ Batch Print	Choose the printing timing from [Real Time Print] or [Batch Print]. • Real Time Print Alarm history is printed every time a [Trigger], [Acknowledge], and [Recovery] occurs. The print format is the same as the display format of [Log]. Even when two or more blocks are used, printing is performed as occasion arises regardless of the block. • Batch Print When the bit 0 in [Print Word Address] is turned ON, the whole Alarm Histories stored in the designated block are printed. The print format is decided by the block's [Display Mode] setting. The order is listed as [History] - [Log] - [Active] and data is printed in the format of the first [Display Mode] checked with [Use]. e.g.) When printing block 1  In this case, the block is printed using [History] format. If [History] were not set, the block would be printed using [Log] format. A page feed will occur after printing.
Print Word Address	This address controls the printing of the Alarm History. After setting the type of alarm, turn ON the trigger bit (bit 0) to start printing. 
Completion Bit Address	Set the bit address that will tell you when printing has completed. This bit will turn ON when printing finishes. **NOTE** • After the [Completion Bit] has been confirmed as ON, please turn it OFF again. It is recommended to turn OFF the bit 0 of [Print Word Address] also at this timing.

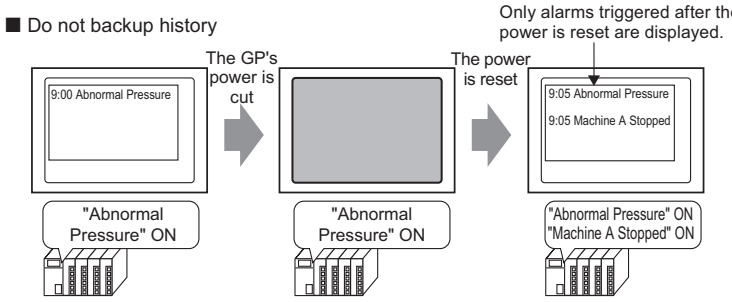
Continued

Setting			Description
Print Settings	Print Format		Displays the [Print Format Settings] dialog box. 
		Select blocks to print	Specify the blocks to print from [Date], [Trigger], [Message], [Acknowledge], [Recovery], [No. of Times], [Accumulate], and [Level]. • Date Prints the date when the alarm was triggered. • Trigger Prints the time when the alarm was triggered. • Message Prints Alarm Message. • Acknowledge Prints the time when the alarm message was confirmed. • Recovery Prints alarm's recovery time. • No. of Times Prints the number of times the alarm was triggered. The maximum count is 65,535. • Accumulate Prints the total duration of time when the alarm was in the triggered state. The maximum duration is 9,999 hours 59 minutes 59 seconds. • Level Prints alarm's importance level.

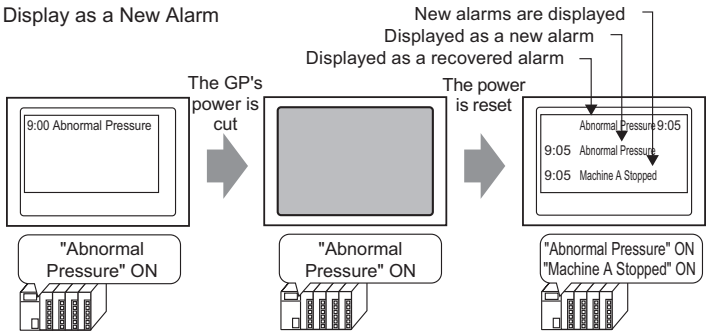
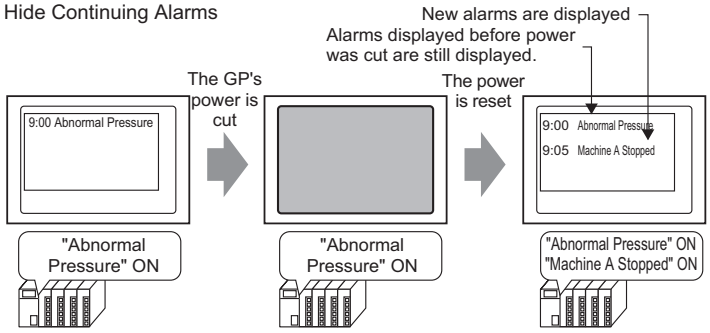
Continued

<table>
<tr><th colspan="3">Setting</th><th>Description</th></tr>
<tr><td rowspan="6">Print Settings</td><td rowspan="6">Print Format</td><td>No. of Display Digits</td><td>Set the number of characters displayed for each item. Each item’s setting range is as follows.
<table>
<tr><td>Date</td><td>5 to 100 or 8 to 100 characters
(The setting range differs depending on the selected date format)</td></tr>
<tr><td>Trigger,
Acknowledge,
Recovery</td><td>5 to 100 or 8 to 100 characters
(The setting range differs depending on the selected time format)</td></tr>
<tr><td>Message</td><td>1 to 160 characters</td></tr>
<tr><td>No. of Times,
Accumulate, Level</td><td>2 to 100 characters</td></tr>
</table>
NOTE
• When you want to provide spaces between the items, set [No. of Display Digits] larger than the number of characters that will actually be displayed.</td></tr>
<tr><td>Left Margin</td><td>Select the spacing between the character of the left-most item and the border from 0 to 100 characters.
 
</td></tr>
<tr><td>Display Order</td><td>Set the display order of all items. Blocks starting from the top of this list will be printed from left to right.
 
</td></tr>
<tr><td>Date Format</td><td>Choose a print format for the date from [yy/mm/dd], [mm/dd/yy], [dd/mm/yy], and [mm/dd].</td></tr>
<tr><td>Time Format</td><td>Choose a print format for the time from [12:00], [24:00], [12:00:00], and [24:00:00].</td></tr>
<tr><td>Font</td><td>Choose a font type for the Alarm Message from [Standard Font] or [Stroke Font].</td></tr>
</table>

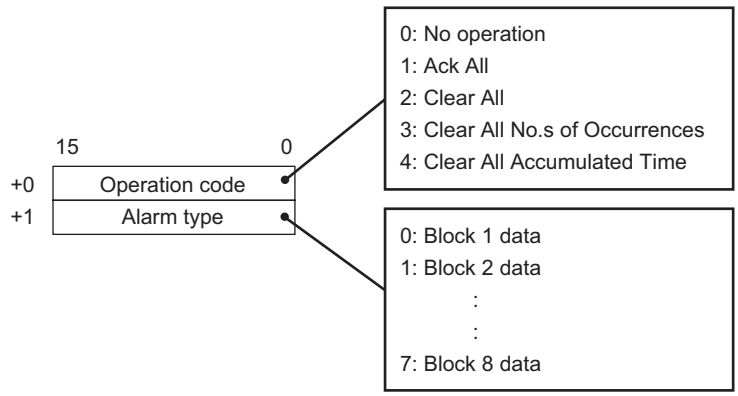
Continued

Setting			Description
Print Settings	Print Format	Trigger Color Acknowledge Color Recovery Color	Choose from 8 colors for the Alarm Message's [Trigger], [Acknowledge], and [Recovery] colors. Messages are printed in the specified colors regardless of the GP type. **NOTE** • When white is selected, messages are printed in black. • When the [Display Mode] is [History] and [Batch Print] is set, the trigger color will be used when printing a triggered alarm, the acknowledge color for an acknowledged alarm, and the recovery color for a recovered alarm. However, when acknowledging a previously recovered alarm, the recovery color will be used for printing. The color setting is effective for text only. A background color will not be printed.
Backup History			Select whether or not to backup the Alarm History to the backup SRAM of the GP. ☞ " ◆ Backup SRAM" (page 19-73) When backup is not selected and the GP is turned OFF, all the Alarm Histories displayed before are erased. When the GP is turned ON again, only the alarms triggered at the time and afterward are displayed. 

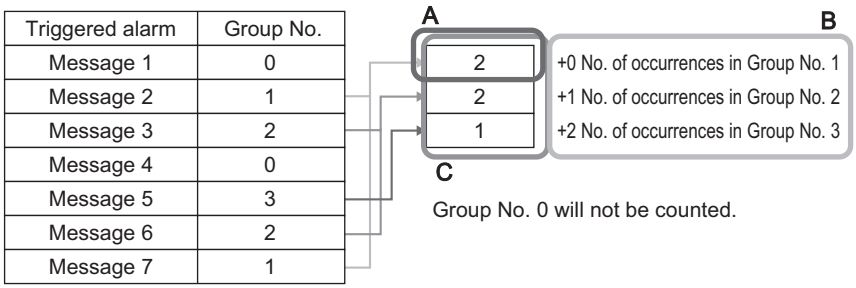
Continued

Setting		Description
Backup History	Alarm Continuous Action at Power ON	Select the display method to use when power is turned ON. • Display as a new Alarm The information of the host (PLC) before the GP was turned OFF is not retained. The Alarm Messages that were displayed before the GP was turned OFF are displayed as recovered state after the power is turned ON again. Any continuing alarms are separately displayed as new alarms. • Hide Continuing Alarms The information of the host (PLC) before the GP was turned OFF is retained. The Alarm Messages that were displayed before the GP was turned OFF are continuously displayed when power is turned ON again. If the trigger/recovery state of alarms changes after the GP was turned ON again, the change is displayed. Backup Function Examples ■ Display as a New Alarm  ■ Hide Continuing Alarms 

Continued

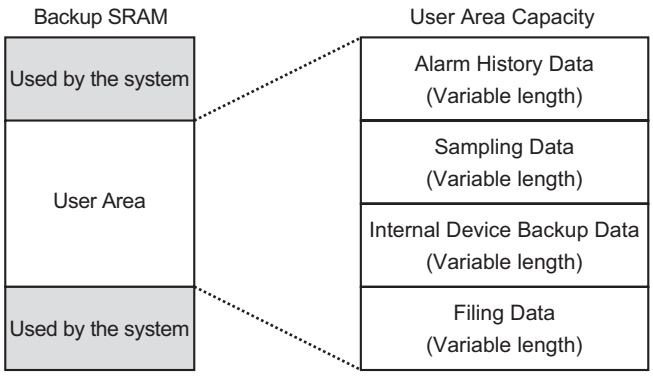
Setting	Description
External Operation	Select whether or not to perform [Ack All], [Clear All], [Clear All No. of Occurrences], and [Clear All Accumulated Time] from the host (PLC). ☞ "19.10.3 Restrictions for Performing External Operations from Multiple GP Units" (page 19-135)
Control Word Address	Set the address which will control the type of operation performed from the PLC (operation code), and the type of alarm.  **NOTE** • When an external operation is performed, it handles all Alarm Messages in the block (active, history, log). For example, if you perform a [Clear All] on block 1, all Alarm Messages in block 1 (active, history, log) are cleared. The Alarm Messages assigned to active, history, and log within the block are not treated individually. The operation's order is [History] → [Log] → [Active].
Completion Bit Address	Set the address which will monitor the completion of the operation. This bit will turn ON when the operation finishes.

Continued

Setting	Description
Enable the Group feature	Select whether or not to use the Group feature. Set this feature to count the number of times that alarms have been triggered by group number.
No. of Alarms Write Start Address (Internal Device Word Address)	(A) Set the start address in the GP internal device to write the number of alarm occurrences. (B) Starting with the address set in (A), the alarm frequency of the internal device addresses in the various group numbers will be stored. (C) Each time an alarm occurs, data in the corresponding group number's address (internal device) will be increased by 1.  **NOTE** • The largest group number is 6,096. Therefore, it is also possible to set each registered Alarm Message to its own group number. • Please ensure that the number of groups is within the internal device's area (USR area or LS area). For the LS area, refer to the following. ☞ "A.1.4 LS Area (Direct Access Method)" (page A-8) • The alarm frequency gets erased when the GP unit is turned OFF. When backing up the data, please use the internal device's backup feature. ☞ "6.13.6 [System Settings Window] Setting Guide ■ [Main Unit Settings] Settings Guide ◆ Action Settings" (page 6-94) • The frequency can be counted from 0 to 65,535. Even when the frequency passes 65,535, the count will still remain there. • When data is written to an internal device which stores alarm frequency or the GP's power turns OFF, data will be cleared and will not be counted properly. • The data format of the alarm frequency is fixed as Bin. • The alarm frequency of Group No. 0 will not be counted.
Enable Banner	Configure Alarm Messages to display as scroll banners. ☞ " ■ Alarm Settings Guide (Banner)" (page 19-80)
Enable Summary	This setting displays currently active alarms in a list. ☞ " ■ Alarm Settings Guide (Summary)" (page 19-83)

◆ Backup SRAM

The backup SRAM saves data even when the GP unit's power is OFF.
The backup SRAM's user area is used to save not only the Alarm History data but also the sampling data, internal device backup data, and filing data.
The capacity of the backup SRAM that can be used for Alarm History data depends on the type of GP and the space used by other data.



Backup SRAM has the following usage priorities:
(1) Alarm History data
(2) Sampling data
(3) Internal device backup data
(4) Filing data

IMPORTANT
- The Alarm History data stored in the backup SRAM is erased when:
  - Screen transfer occurs
  - Memory is reset (Offline)
  - Backup SRAM is initialized (Offline)

Size of Alarm History data
The space of the backup SRAM required to save the Alarm History data depends on the number of [Records] of all blocks and the number of registered messages (addresses).
When no message is registered, the data size is 0 byte regardless of the [Backup History] setting.

Calculation

- Size of the Alarm History data (all blocks) (Unit: byte)

$$= 576 + (28 \times \text{No. of records}) + (16 \times \text{No. of registered messages}) + 2 \times (4 \times \text{No. of registered messages})$$

Calculation Example

Setting	Description
No. of records (total of all blocks)	768
No. of registered messages	2048

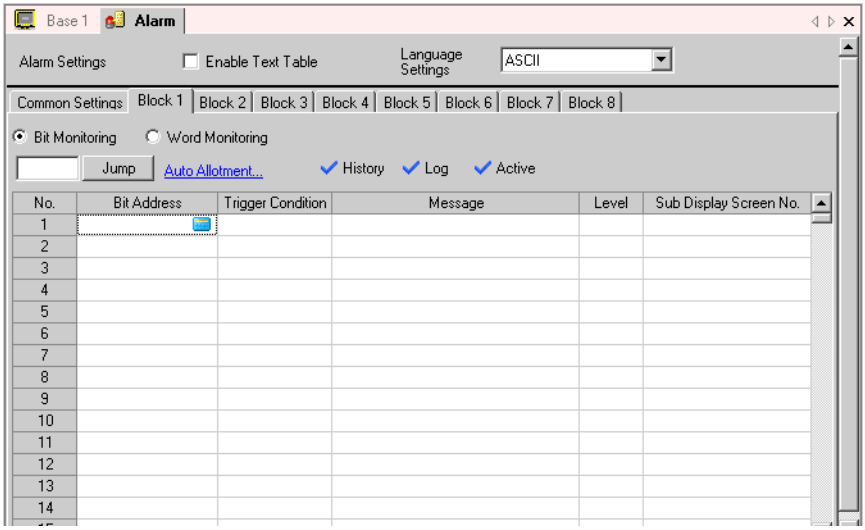
Calculation result $(576) + (28 \times 768) + (16 \times 2{,}048) + 2 \times (4 \times 2{,}048) = 71{,}232$ bytes

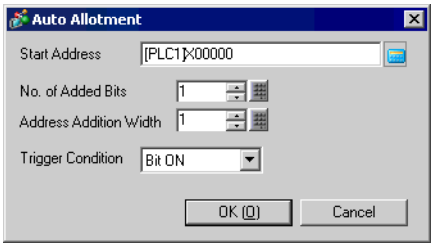
■ Alarm Settings Guide (Block 1)

There are two types of Trigger Method for the Alarm History: [Bit Monitoring] and [Word Monitoring].

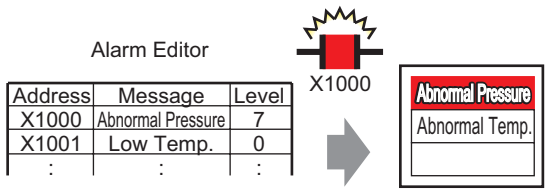
◆ Bit Monitoring

Configure settings to trigger the Alarm by monitoring a bit's ON/OFF state.



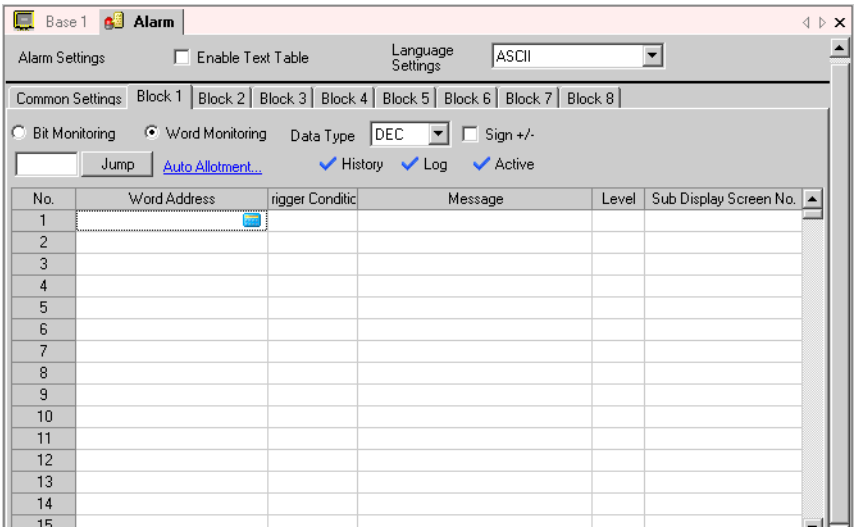
Setting		Description
Bit Monitoring		The alarm is triggered when the monitoring bit address turns ON (OFF).
Jump		Jump to a specific row number.
Auto Allotment		The [Auto Allotment] dialog box will appear. Configure settings to allocate designated addresses from [Start Address] by specified increments.  **NOTE** • When any previous address setting exists, it will be overwritten.
	Start Address	Set the Bit Address that will start the Auto Allotment.
	No. of Added Bits	Set the number of Bit Addresses (from 1 to "Alarm Settings' limit – Current row position + 1") for Auto Allotment.
	Address Addition Width	Set the number of bits to add during an Auto Allotment, from 0 to 4,096.
	Trigger Condition	Select whether the alarm will be triggered when the monitoring bit address turns ON or OFF.
History/Log/Active		Displays current display mode set in the [Common Settings] tab. ☞ " ■ Alarm Settings Guide (Common Settings)" (page 19-64)

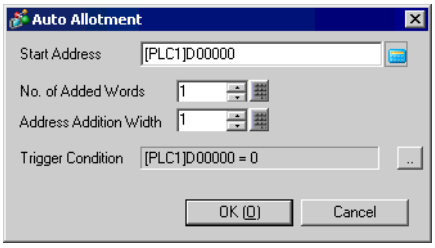
Continued

Setting	Description
No.	Displays the Alarm Message's registration number (Row No.) from 1 to 2,048. **NOTE** • For Alarm Messages, up to 2,048 Monitor Bits and Monitor Words can be registered but the maximum number of Alarms that can be stored by the GP for the whole Alarm History is 768.
Bit Address	Set the Bit Address to monitor the alarm's trigger. IMPORTANT • Please ensure that the total of [Monitoring Bit Address] and [Monitoring Word Address] for the whole Alarm History (Block 1 to Block 8) are within 256 words.
Trigger Condition	Select whether the alarm will be triggered when the monitoring bit address turns ON or OFF.
Message	Set an alarm message within 160 single-byte characters. **NOTE** • When [Enable Text Table] is selected, this displays with the text table's number of index characters.
Level	Each Alarm Message is ranked by importance from 0 (least important) to 7 (most important). The initial setting is "0". The Trigger, Acknowledgement, and Recovery colors for each level can be set with the Alarm Part.  Choose the color and attributes for 8 levels according to each Alarm's content. ☞ "19.9.2 Alarm Part Settings Guide ■ Show History ◆ Color Settings" (page 19-92)
Group No.	This item is displayed only when [Enable the Group feature] is selected in the [Common Settings] tab. Set a group number to each alarm message within the range between 0 and 6,096. ☞ " ■ Alarm Settings Guide (Common Settings)" (page 19-64) **NOTE** • When the [Group No.] is "0", it will not count.
Sub Display Screen No.	When using an Alarm part for a Sub Display, select the desired Base Screen No. from 0 to 9,999, or the Text No. from 0 to 8,999. **NOTE** • If no Sub Display is required, enter "0". The initial setting is "0".

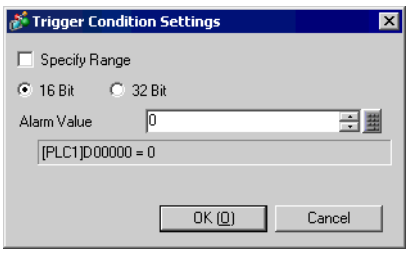
◆ Word Monitoring

Configure settings to trigger the Alarm by monitoring a word data's value.

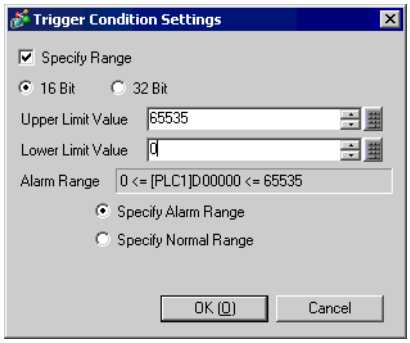
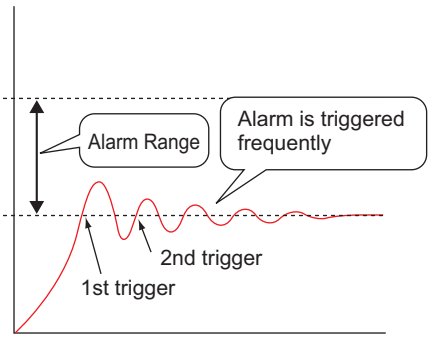


Setting	Description
Word Monitoring	An alarm is triggered when the value of the monitoring word address matches with the specified alarm value, or is within the specified alarm range.
Data Type	Choose the data format of the value stored in [Word Address] from [Dec], [Hex], or [BCD]. **NOTE** • When the [Data Type] is changed during editing, the data (alarm value) which cannot be converted into the new [Data Type] will become "0". e.g.) Dec 10 → Hex 000A Dec 10 → BCD 0 (Cannot be converted and displayed as 0).
Sign +/–	Select this if you will be using negative data for the alarm value. This can only be set when the [Data Type] is [Dec].
Jump	Jump to a specific row number.
Auto Allotment	The [Auto Allotment] dialog box will appear. Configure settings to allocate designated addresses from [Start Address] by specified increments.  **NOTE** • When any previous address setting exists, it will be overwritten.

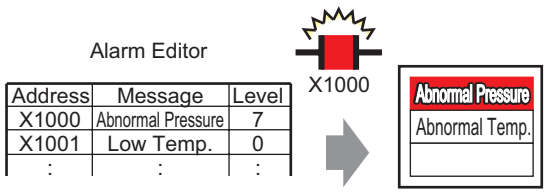
Continued

<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td rowspan="4">Auto Allotment</td><td>Start Address</td><td>Set the Word Address that will start the Auto Allotment.</td></tr>
<tr><td>No. of Added Words</td><td>Set the number of Word Addresses (from 1 to “Alarm Settings’ limit – Current row position + 1”) for Auto Allotment.</td></tr>
<tr><td>Address Addition Width</td><td>Set the number of Words to add during an Auto Allotment, from 0 to 4,096.</td></tr>
<tr><td>Trigger Condition</td><td>Set the condition that will trigger the alarm. Click [...] and the [Trigger Condition Settings] dialog box will be displayed.</td></tr>
<tr><td colspan="2">History/Log/Active</td><td>Displays current display mode set in the [Common Settings] tab.
☞ “ ■ Alarm Settings Guide (Common Settings)” (page 19-64)</td></tr>
<tr><td colspan="2">No.</td><td>Displays the Alarm Message’s registration number (Row No.) from 1 to 768.
NOTE
• For Alarm Messages, up to 2,048 Monitor Bits and Monitor Words can be registered but the maximum number of Alarms that can be stored by the GP for the whole Alarm History is 768.</td></tr>
<tr><td colspan="2">Word Address</td><td>Set the Word Address to monitor the alarm’s trigger.
IMPORTANT
• Please ensure that the total of [Monitoring Bit Address] and [Monitoring Word Address] for the whole Alarm History (Block 1 to Block 8) are within 256 words.</td></tr>
<tr><td colspan="2">Trigger Condition</td><td>Set the alarm value that will trigger the alarm. Click the cell’s [...] and the [Trigger Condition Settings] dialog box will be displayed.
 
</td></tr>
<tr><td></td><td>16 Bit/32 Bit</td><td>Choose the alarm value’s bit length from [16 Bit] or [32 Bit].</td></tr>
<tr><td></td><td>Alarm Value</td><td>Select which range of values stored in the monitoring word address will trigger the alarm. The set range varies depending on the [Data Type] and [Sign +/–].
<table>
<tr><th>Bit Length</th><th>Data Type</th><th>Sign +/–</th><th>Setting Range</th></tr>
<tr><td rowspan="4">16 Bit</td><td rowspan="2">Dec</td><td>Checked</td><td>–32768 to 32767</td></tr>
<tr><td>Unchecked</td><td>0 to 65535</td></tr>
<tr><td>Hex</td><td></td><td>0 to FFFF</td></tr>
<tr><td>BCD</td><td></td><td>0 to 9999</td></tr>
<tr><td rowspan="4">32 Bit</td><td rowspan="2">Dec</td><td>Checked</td><td>–2147483648 to 2147483647</td></tr>
<tr><td>Unchecked</td><td>0 to 4294967295</td></tr>
<tr><td>Hex</td><td></td><td>0 to FFFFFFFF</td></tr>
<tr><td>BCD</td><td></td><td>0 to 99999999</td></tr>
</table></td></tr>
</table>

Continued

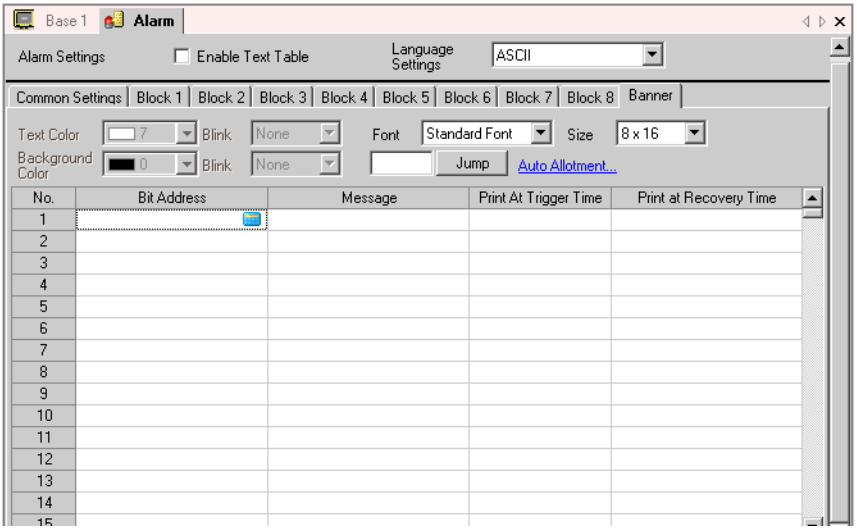
<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td rowspan="4">Trigger Condition</td><td>Specify Range</td><td>Select whether or not to set a range for the alarm value. The display will change as follows.
 
</td></tr>
<tr><td>Upper Limit Value/Lower Limit Value</td><td>Select which range of values stored in the monitoring word address will trigger the alarm. The set range varies depending on the [Data Type] and [Sign +/–].
<table>
<tr><th>Bit Length</th><th>Data Type</th><th>Sign +/–</th><th>Setting Range</th></tr>
<tr><td rowspan="4">16 Bit</td><td rowspan="2">Dec</td><td>Checked</td><td>–32768 to 32767</td></tr>
<tr><td>Unchecked</td><td>0 to 65535</td></tr>
<tr><td>Hex</td><td></td><td>0 to FFFF</td></tr>
<tr><td>BCD</td><td></td><td>0 to 9999</td></tr>
<tr><td rowspan="4">32 Bit</td><td rowspan="2">Dec</td><td>Checked</td><td>–2147483648 to 2147483647</td></tr>
<tr><td>Unchecked</td><td>0 to 4294967295</td></tr>
<tr><td>Hex</td><td></td><td>0 to FFFFFFFF</td></tr>
<tr><td>BCD</td><td></td><td>0 to 99999999</td></tr>
</table></td></tr>
<tr><td>Alarm Range</td><td>The specified alarm range is displayed.</td></tr>
<tr><td>Specify Alarm Range
Specify Normal Range</td><td>• Specify Alarm Range
Set the alarm range as “Lower Limit Value ≤ Address Value ≤ Upper Limit Value”.
• Specify Normal Range
Set the alarm range as “Lower Limit Value ≥ Address Value” or “Address value ≥ Upper Limit Value”.
NOTE
• If the alarm value stored in the [Word Address] fluctuates frequently, the alarm will be triggered often.
E.g.) When 50 ≤ Alarm Range ≤ 100
 
</td></tr>
</table>

Continued

Setting	Description
Message	Set an alarm message within 160 single-byte characters. **NOTE** • When [Enable Text Table] is selected, this displays with the text table's number of index characters.
Level	Each Alarm Message is ranked by importance from 0 (least important) to 7 (most important). The initial setting is "0". The Trigger, Acknowledgement, and Recovery colors for each level can be set with the Alarm Part.  Choose the color and attributes for 8 levels according to each Alarm's content. ☞ "19.9.2 Alarm Part Settings Guide ■ Show History ◆ Color Settings" (page 19-92)
Group No.	This item is displayed only when [Enable the Group feature] is selected in the [Common Settings] tab. Set a group number to each alarm message within the range between 0 and 6,096. ☞ " ■ Alarm Settings Guide (Common Settings)" (page 19-64) **NOTE** • When the [Group No.] is "0", it will not count.
Sub Display Screen No.	When using an Alarm part for a Sub Display, select the desired Base Screen No. from 0 to 9,999, or the Text No. from 0 to 8,999. **NOTE** • If no Sub Display is required, enter "0". The initial setting is "0".

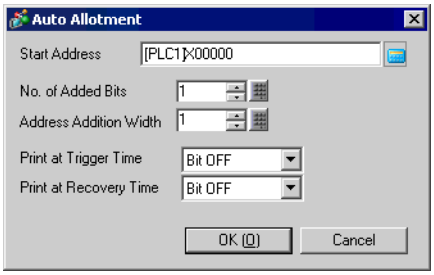
■ Alarm Settings Guide (Banner)

Configure Alarm Messages to display as scroll banners.

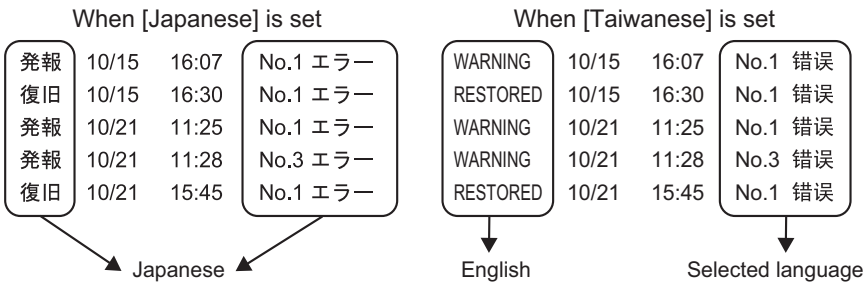


Setting	Description
Text Color	Select a color for the message's text.
Background Color	Select a background color for the message's text.
Blink	Select whether or not the Switch will blink, and the blink speed. You can choose different blink settings for [Text Color] and [Background Color]. **NOTE** • There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings' [Color Settings]. ☞ "9.5.1 Specify Color ■ Supported Color List" (page 9-33)
Font	Choose a font type for the Alarm Message from [Standard Font] or [Stroke Font].
Size	Choose a text size for the Alarm Message. Each font type has a different range of styles. Standard Font: [8×16], [8×32], [8×64], [16×16], [16×32], [16×64], [32×16], [32×32], [32×64] Stroke Font: [8], [16], [32]
Jump	Jump to a specific row number.

Continued

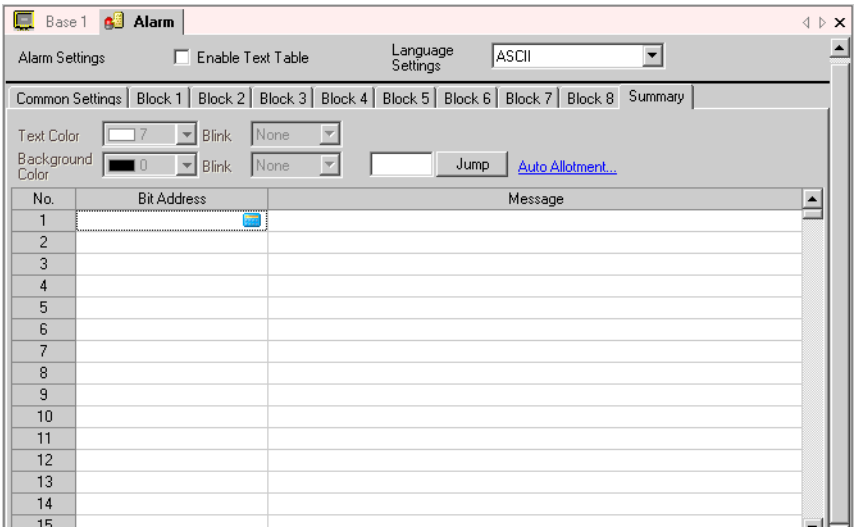
Setting		Description
Auto Allotment		The [Auto Allotment] dialog box will appear. Configure settings to allocate designated addresses from the starting address.  **NOTE** • When any previous address setting exists, it will be overwritten.
	Start Address	Set the Bit Address that will start the Auto Allotment.
	No. of Added Bits	Set the number of Bit Addresses (from 1 to "Alarm Settings' limit – Current row position + 1") for Auto Allotment.
	Address Addition Width	Set the number of bits to add during an Auto Allotment, from 0 to 4,096.
	Print at Trigger Time	Select whether or not to print the trigger time (or recovery time) along with the Alarm Message at the triggering of (recovery from) the alarm. Set this to [ON] to print.
	Print at Recovery Time	
No.		Displays the Banner Alarm Message's registration number (row number) from 1 to 512.
Bit Address		Set the Bit Address to monitor the alarm's trigger. When the Monitoring Bit Address turns ON (Trigger), the Alarm Message scrolls. When the monitor bit address turns OFF (Recovery), the Alarm Message display ends. **NOTE** • Set the monitoring bits within 128 words for the whole Alarm Message (Banner).
Message		Set an alarm message within 160 single-byte characters. **NOTE** • When [Enable Text Table] is selected, this displays with the text table's number of index characters.

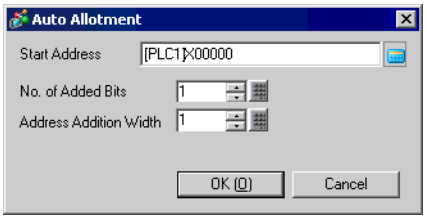
Continued

Setting	Description
Print at Trigger Time Print at Recovery Time	Select whether or not to print the trigger time (or recovery time) along with the Alarm Message at the triggering of (recovery from) the alarm. Set this to [ON] to print. **NOTE** • The print color is limited to black. • Printing will use the font designated in the [Banner] tab of [Alarm Settings]. • The state such as “Trigger” or “Recovery” is automatically printed in Japanese when the language setting for the Alarm Message is Japanese, or in English when other language (ASCII, Taiwanese, Chinese, or Korean) is set.  • The GP unit can store printing information for a maximum of 1,000 Alarm Messages (Banner) and Alarm Histories (Real Time Print). If no printer is connected to the GP, it can still store up to 1,000 messages, but any messages over 1,000 will be lost while the GP is waiting to print. • If the printer goes offline during printing due to a paper jam, etc., fix the printer error without turning off the GP’s power. Print information stored in the GP will be sent to the printer when it comes back online. • If the printer’s power goes off during printing, the data sent from the GP during that time will not be printed.

■ Alarm Settings Guide (Summary)

This setting displays triggered alarms in a list.



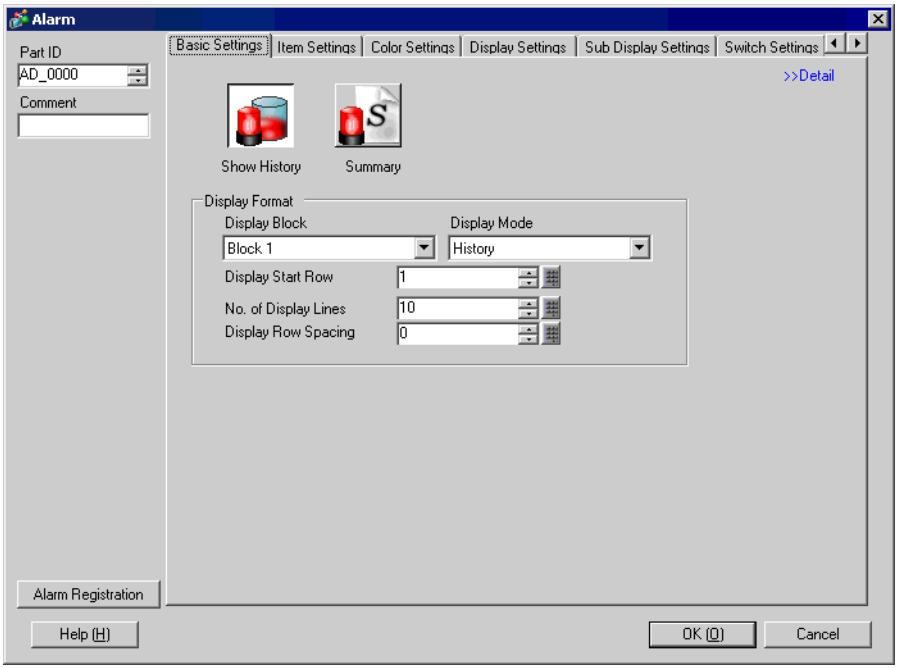
Setting	Description
Text Color	Select a color for the message's text.
Background Color	Select a background color for the message's text.
Blink	Select whether or not the Switch will blink, and the blink speed. You can choose different blink settings for [Text Color] and [Background Color]. **NOTE** • There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings' [Color Settings]. ☞ "9.5.1 Specify Color ■ Supported Color List" (page 9-33)
Jump	Jump to a specific row number.
Auto Allotment	The [Auto Allotment] dialog box will appear. Configure settings to allocate designated addresses from [Start Address] by specified increments.  **NOTE** • When any previous address setting exists, it will be overwritten.
Start Address	Set the Bit Address that will start the Auto Allotment.
No. of Added Bits	Set the number of Bit Addresses (from 1 to "Alarm Settings' limit – Current row position + 1") for Auto Allotment.
Address Addition Width	Set the number of bits to add during an Auto Allotment, from 0 to 4,096.

Continued

Setting	Description
No.	Displays the Alarm Message's registration number (Row No.) from 1 to 8,999.
Bit Address	Set the Bit Address to monitor the alarm's trigger. When the Monitoring Bit Address turns ON, the alarm triggers and the Alarm Message is displayed. When the Monitoring Bit Address turns OFF, the alarm recovers and the Alarm Message is erased. **NOTE** • For the Monitoring Bit Address, please use a word-designated bit device, or a bit-designated word device. Please allocate the Monitoring Bit Addresses of the Alarm Messages displayed in a single Alarm Part (Summary) as continuous addresses inside the same device. It cannot be set over different types of devices.
Message	Set an alarm message within 160 single-byte characters. **NOTE** • When [Enable Text Table] is selected, this displays with the text table's number of index characters.

19.9.2 Alarm Part Settings Guide

Configure settings for the Part to display the Alarm Messages registered in [Alarm Settings]. There are two types of display method: [Show History] and [Summary].



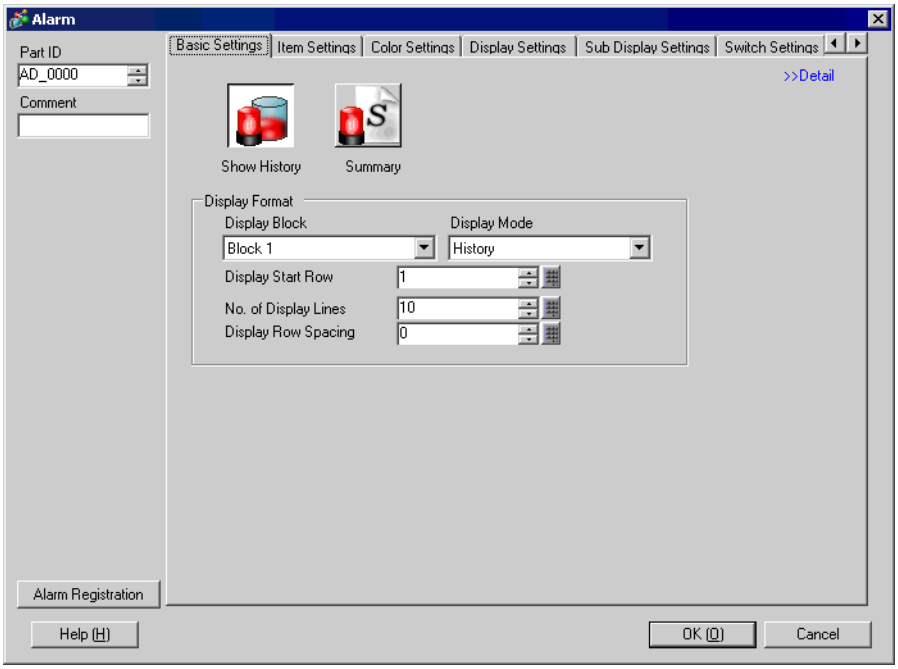
Setting	Description
Part ID	Placed parts are automatically assigned an ID number. Alarm Part's ID: AD_**** (4 digits) The letter portion is fixed. The number portion can be modified from 0000 to 9999.
Comment	The comment for each Part can be up to 20 characters long.
Alarm Registration	Change to the Common Settings' [Alarm Settings].
Display Type	Select the Alarm part's type. • Show History Alarm Messages are displayed in a row in order of when they were triggered. ☞ "■ Show History" (page 19-86) • Summary Alarm Messages that are currently active are displayed in a list. ☞ "■ Summary" (page 19-114)

■ Show History

Alarm Messages are displayed in a row in order of when they were triggered.

◆ Basic Settings/Basic

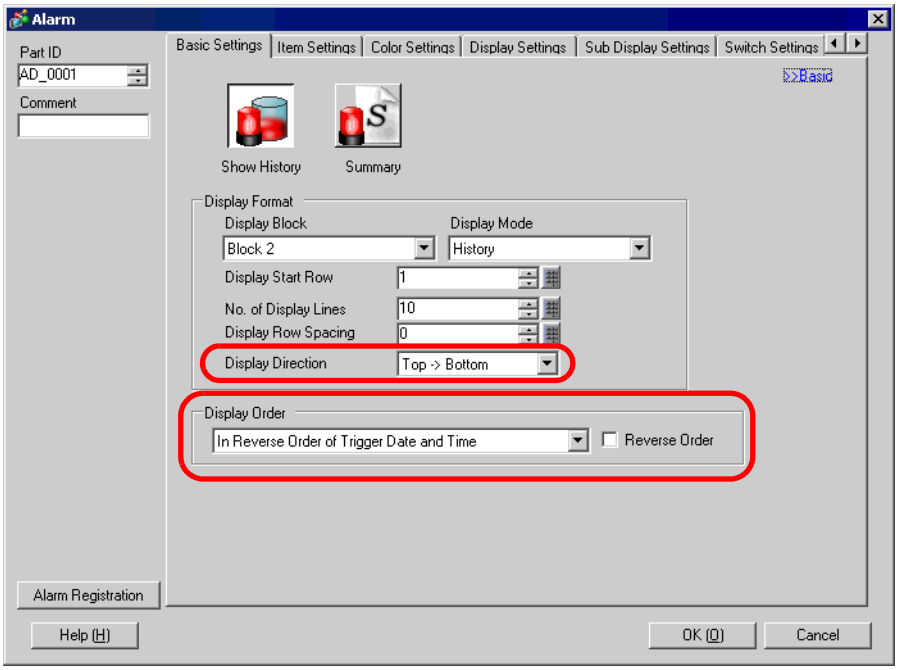
Set the display format of the Alarm Messages.



Setting		Description
Display Format		Set the format of the Alarm History display.
	Display Block	Choose the block with which the desired Alarm Messages are registered from [Block 1] to [Block 8].
	Display Mode	Choose the Alarm Message's display method from [History], [Log], or [Active]. ☞ "19.9.1 Alarm Settings Guide ■ Alarm Settings Guide (Common Settings)" (page 19-64)
	Display Start Row	Set the row where the Alarm Message will start displaying from 1 to 768.
	No. of Display Lines	Set how many Alarm Message rows will display on one screen from 1 to 50.
	Display Row Spacing	Set the space between Alarm Messages from 0 to 7 dots. A A From 0 to 7 dots.

◆ Basic Settings/Detail

You can change the Alarm Messages' Display Direction and Sort Order.



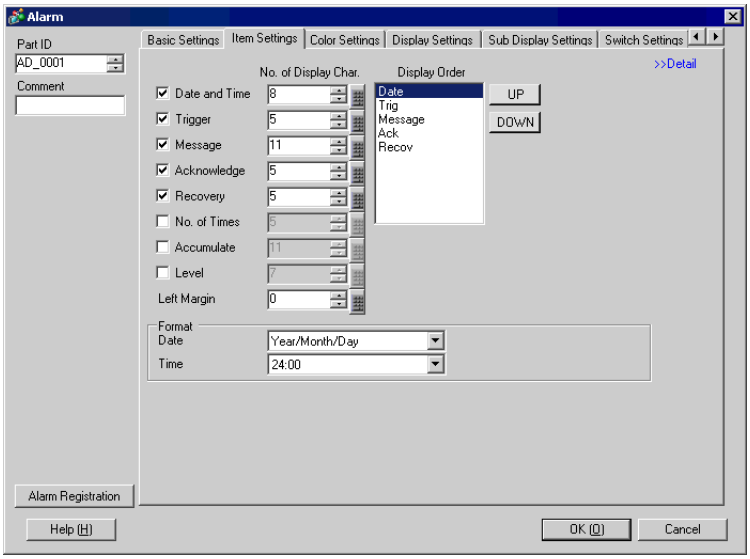
Setting	Description
Display Direction	Choose the scroll direction for the Alarm Message from [Bottom → Top] or [Top → Bottom]. Registered message No. 1 Pump Closed Tank A Low Water Tank B Abnormal Pressure : : Trigger order : Tank B Abnormal Pressure→Pump 1 Closed →Tank A Low Water Sort order : In Reverse Order of Trigger Date and Time • When scroll direction is [Bottom→Top] Scroll direction ↑ Start position → 04/07/25 09:19 Tank B Abnormal Pressure 04/07/25 14:20 No. 1 Pump Closed 04/07/25 20:23 Tank A Low Water • When scroll direction is [Top→Bottom] Start position → Scroll direction ↓ 04/07/25 20:23 Tank A Low Water 04/07/25 14:20 No. 1 Pump Closed 04/07/25 09:19 Tank B Abnormal Pressure

Continued

Setting	Description
Display Order	Select the display order for Alarm Messages from [In Reverse Order of Trigger Date], [In No. of Occurrences Order], [In Descending Order of Accumulated Time], [Level & In Reverse Order of Trigger Date], [Level & In Descending Order of No. of Occurrences], or [Alarm Registration Order].
Reverse Order	Display items in reverse [Display Order].

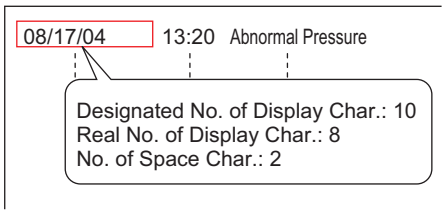
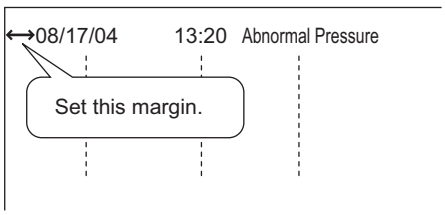
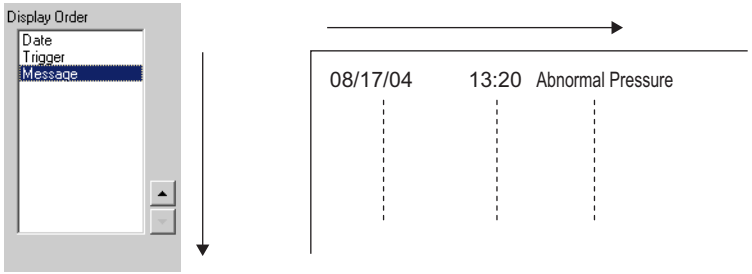
◆ Item Settings/Basic

Configure the items, the number of characters, and the date/time format displayed in the Alarm Part. The item names are not displayed on the GP screen. To display the item names, set them by selecting [Detail].



Setting	Description
Select Items to Display	Choose which items to display in the Alarm part from [Date and Time], [Trigger], [Message], [Acknowledge], [Recovery], [No. of Times], [Accumulate], and [Level]. • Date and Time Displays the date and time when the alarm was triggered. • Trigger Displays the time when alarm was triggered. • Message Displays Alarm Message. • Acknowledge Displays the time when alarm message was confirmed. • Recovery Displays alarm's recovery time. • No. of Times Displays the number of times alarm was triggered. The maximum count is 65,535. • Accumulate Displays the total duration of time when the alarm was in the triggered state. The maximum duration is 9,999 hours 59 minutes 59 seconds. • Level Displays the Alarm Message's set importance level. **NOTE** • Once the values of [No. of Times] and [Accumulate] reach the maximum, they will remain there.

Continued

Setting	Description
No. of Display Char.	Set the number of characters displayed for each item. Set a value so that the total of [No. of Display Char.] and [Left Margin] for the item is within 160 single-byte characters. **NOTE** • When you want to provide spaces between the items, set a value larger than the number of characters that will actually be displayed. 
Left Margin	Select the spacing between the left-most item name and the border. Set a value so that the total of [No. of Display Char.] and [Left Margin] is within 160 single-byte characters. 
Display Order	Set the display order of all items. Items starting from the top of this list will be displayed on the Alarm part from left to right. 
Format	Set the date and time format.
Date	Choose a format for the date from [Month/Day/Year], [Month/Day], [Year/Month/Day], or [Day/Month/Year].
Time	Choose a format for the time from [12:00], [24:00], [12:00:00], or [24:00:00].

◆ Item Settings/Detail

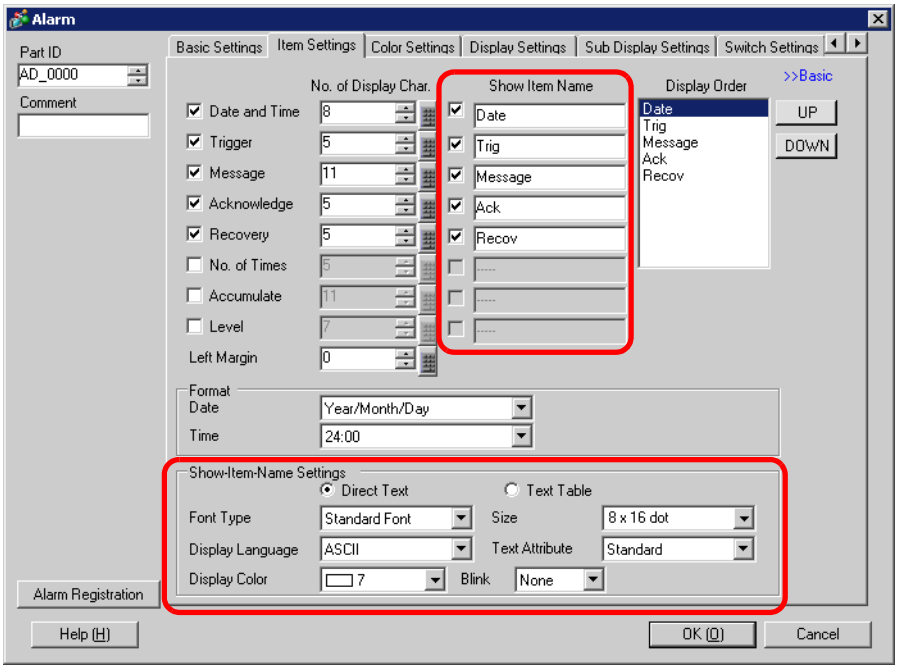
Set the Item Names to display in the Alarm part.

No Item Names

08/17/04	15:10	Tank A ...
08/17/04	16:23	Tank B ...

Has Item Names

Date	Trigger	Message
08/11/04	15:10	Tank A ...
08/11/04	16:23	Tank B ...



Setting		Description
Show Item Name		Check the item names to be displayed, and enter the item name's text.
Show-Item-Name Settings		Configure settings for the item name display.
	Direct Text/ Text Table	Set whether to input directly for item names or to reference text registered in a Text Table. • Direct Text Directly input the item name to be displayed. • Text Table Use an Item Name registered in a Text Table. ☞ "15.7.6 Alarm Part - Item Settings/Detail (Text Table) Settings Guide" (page 15-58)
	Font Type	Choose a font type for the item names from [Standard Font] or [Stroke Font].

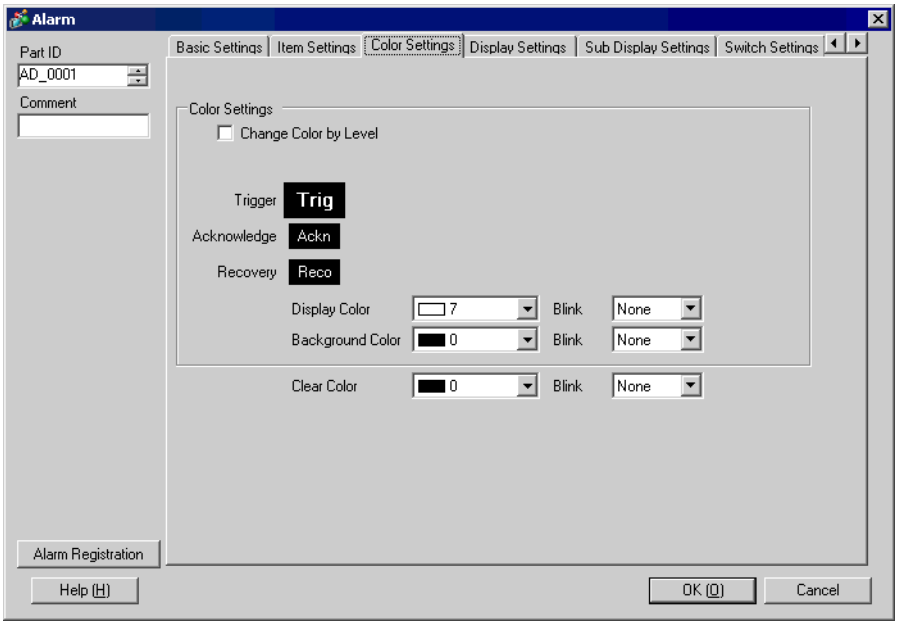
Continued

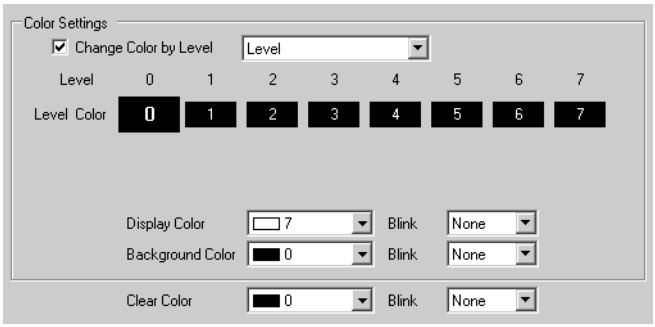
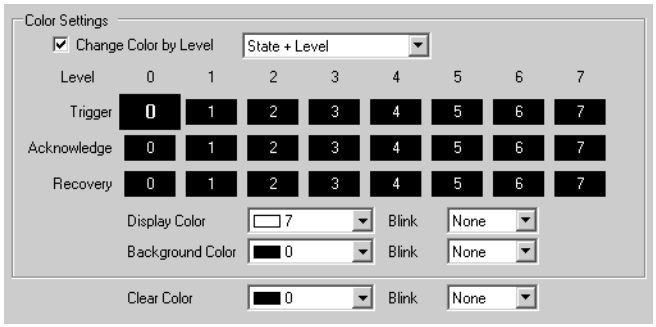
Setting		Description
Show-Item-Name Settings	Size	Choose a font size for the Item Names. Standard Font: Specify “Width × Height” within the range between [8 × 8] to [64 × 128] in the unit of 8 dots, or select a fixed size from [6 × 10], [8 × 13], and [13 × 23]. The fixed sizes can be selected for displaying single-byte alphanumeric characters only. Stroke Font: 6 to 127
	Display Language	When selecting [Direct Text], select the language of the item name from [ASCII], [Japanese], [Taiwanese], [Chinese], or [Korean].
	Text Attribute	Select the font’s text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] (When the fixed size [6 × 10] is selected, choose from [Standard] or [Shadow].) Stroke Font: Choose from [Standard], [Bold], [Outline]
	Display Color	Choose a color for the Item Names.
	Blink	Select whether or not the Switch will blink, and the blink speed. **NOTE** • There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings’ [Color Settings]. ☞ “9.5.1 Specify Color ■ Supported Color List” (page 9-33)

◆ Color Settings

Alarm Messages can be color-coded according to whether they are in the [Trigger], [Acknowledge], or [Recovery] state.

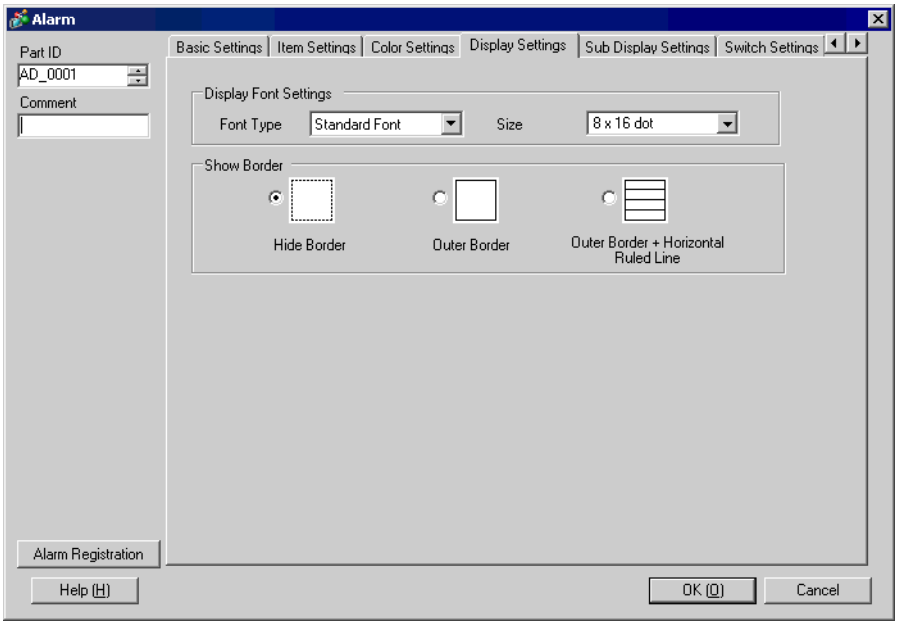
When Alarm Messages have levels attached during the registration, the levels can also be color-coded.



Setting		Description
Color Settings		Configure color settings to correspond to the states of Alarm Messages (Trigger, Acknowledge, and Recovery).
	Change Color By Level	Select this to color code the various Alarm Messages by their attached level set in [Alarm Settings]. Choose the color-coding criteria from [Level] or [State+Level]. • Level Display the color based on the level (8 levels from 0 to 7) set in the [Block] in [Alarm Settings].  • State+Level Display the color based on the level (8 levels from 0 to 7) set in the [Block] in [Alarm Settings], and divide each level into colors based on the state [Trigger], [Acknowledge], and [Recovery]. 
	Trigger/Acknowledge/Recovery	Specify the state to set a color. **NOTE** • When a recovered alarm message is acknowledged, the message is displayed in the color specified to the recovery state.
	Display Color	Select a color for the Alarm Message's text.
	Background Color	Select a background color for the Alarm Message.
Clear Color		Select a color used when an Alarm Message is cleared or not displayed.
Blink		Select whether or not the Switch will blink, and the blink speed. You can choose different blink settings for [Text Color], [Background Color], and [Clear Color]. **NOTE** • There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings' [Color Settings]. ☞ "9.5.1 Specify Color ■ Supported Color List" (page 9-33)

◆ Display Settings

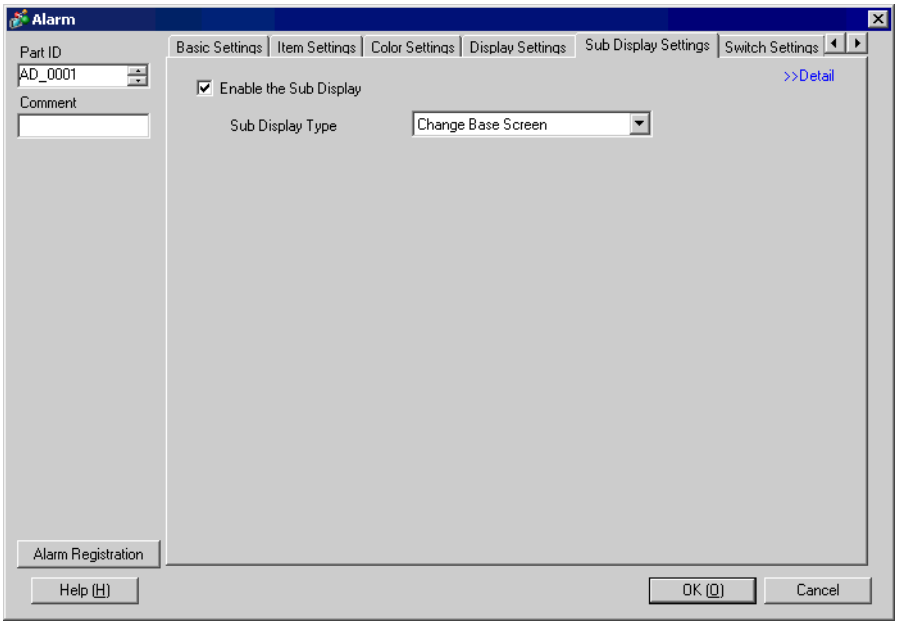
Set a font and border for the Alarm Message.

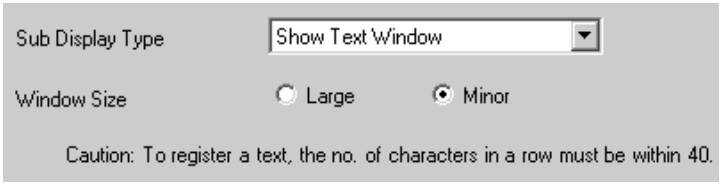


Setting		Description
Display Font Settings		Set a font for the text.
	Font Type	Choose a font type for the Alarm Message from [Standard Font] or [Stroke Font].
	Size	Choose a font size for the Item Names. Standard Font: Specify "Width × Height" within the range between [8 × 8] to [64 × 128] in the unit of 8 dots, or select a fixed size from [6 × 10], [8 × 13], and [13 × 23]. The fixed sizes can be selected for displaying single-byte alphanumeric characters only. Stroke Font: 6 to 127
Show Border		Choose the Alarm Message's border from [Hide Border], [Outer Border], or [Outer Border + Horizontal Ruled Line]. **NOTE** • The color of the border and ruled line is fixed to white. • When [Outer Border + Horizontal Ruled Line] is selected, set the [Display Row Spacing] to "1" or a larger value. When "0" is set, the horizontal ruled lines cannot be displayed.

◆ Sub Display Settings/Basic

You can set a different Sub Screen to display when each Alarm Message is touched.

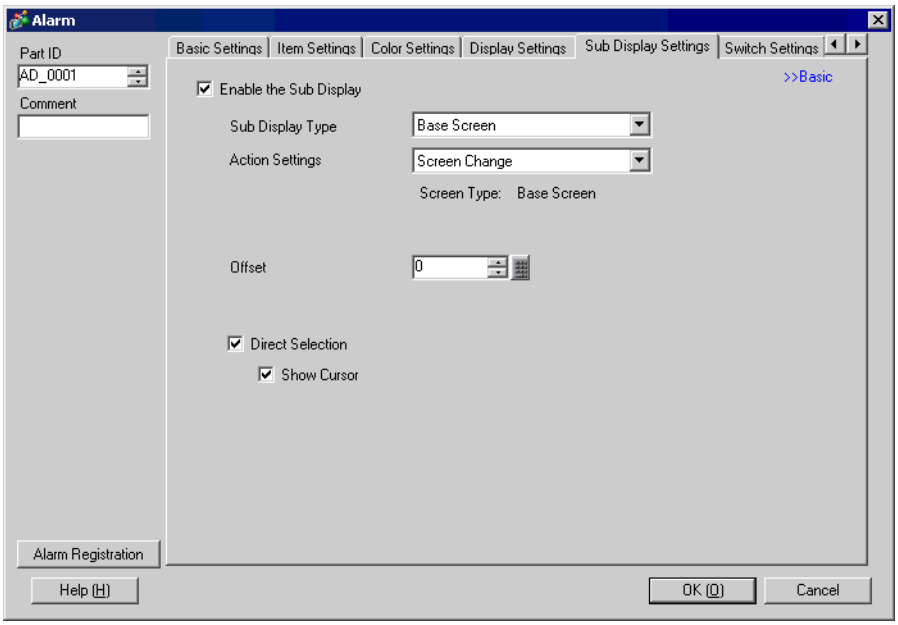


Setting	Description
Enable the Sub Display	Select whether or not to use a Sub Display.
Sub Display Type	Select the Sub Display's Type. • Change Base Screen This setting changes the entire screen to another screen. It works the same as a normal screen change. In [Alarm Settings], set the [Sub Display Screen No.] to the destination [Base Screen No.]. • Show Text Window Display [Text] in a Window. In [Alarm Settings], set the [Sub Display Screen No.] to the [Text No.] you want to display in the window. 
Window Size	When the [Sub Display Type] is [Show Text Window], choose the window's size from [Large] or [Minor]. **NOTE** • The maximum number of text characters on one line of a window is as follows. Large Window Size: Up to 30 characters Minor Window Size: Up to 20 characters

◆ Sub Display Settings/Detail

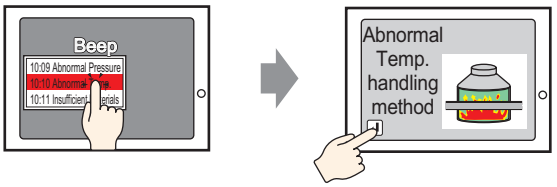
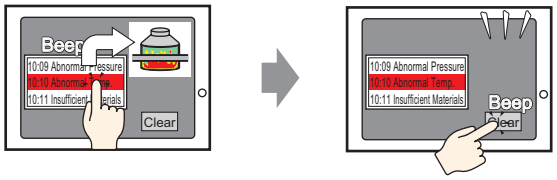
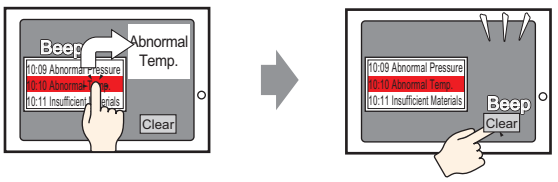
Configure settings to switch a Base or Window Screen to a Sub Screen, or to use Picture Display or Message Display [Text Display] to display a sub screen on a Base or Window Screen.

☞ "19.10.2 Restrictions for Sub Display Settings/Detail" (page 19-134)

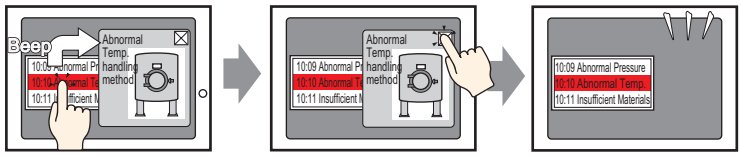
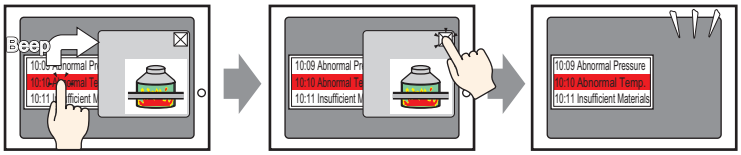
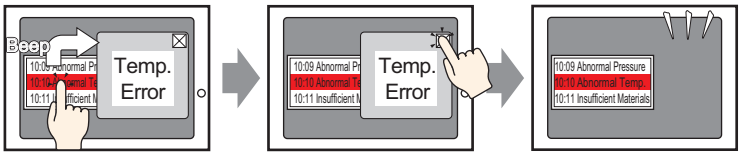
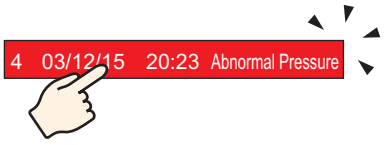


Setting	Description
Enable the Sub Display	Select whether or not to use a Sub Display.
Sub Display Type	Select the Sub Display's Type. • Base Screen Change the display to other screen, or display a picture or text directly on a base screen. • Window Display a Sub Screen in a Window. Change the window to another one, or display a picture or text in the Window. **NOTE** • An alarm message with a [Sub Display Screen No.] equal to "0" will not display a Sub Screen.

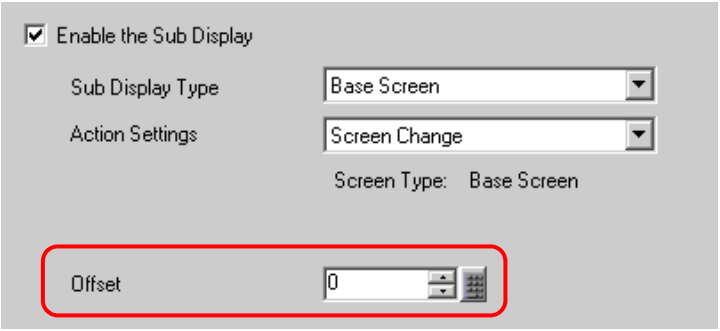
Continued

Setting	Description
Action Settings (Base Screen)	Select the action type from [Screen Change], [Change Picture Display], and [Text Display Change] when [Sub Display Type] is [Base Screen], • Screen Change Change the screen to display the sub screen.  Touch the alarm message, and the screen changes to the screen corresponding to the message is displayed. Touch the Change Screen Switch to return to the alarm screen. • Change Picture Display Use a Picture Display to display the sub screen.  Touch the alarm message, and a picture corresponding to the message is displayed. Touch the Clearing Switch created separately to erase the sub display. • Text Display Change Use a Message Display to display the sub screen.  Touch the alarm message, and a text corresponding to the message is displayed. Touch the Clearing Switch created separately to erase the sub display.

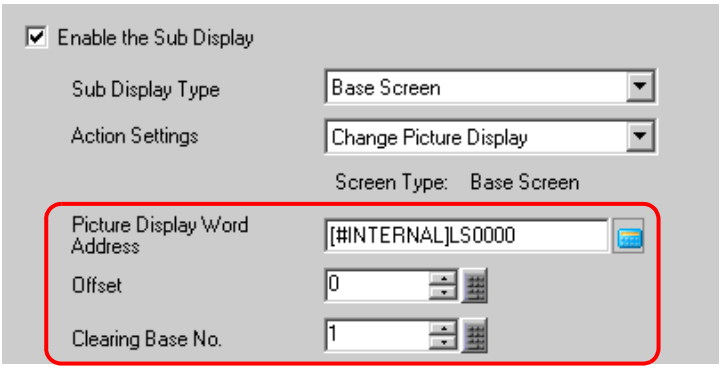
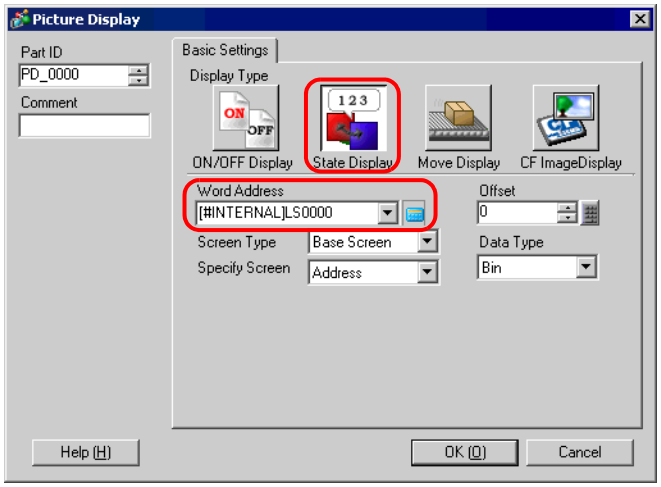
Continued

Setting	Description
Action Settings (Window)	Select the action type from [Window Change], [Change Picture Display], and [Text Display Change] when [Sub Display Type] is [Window], • Window Change Change the Window Screen to display the sub screen.  Touch the alarm message, and a Window Screen corresponding to the message is displayed. Touch the switch specially created to delete the window. Window display is erased • Change Picture Display Use a Picture Display to display the sub screen.  Touch the alarm message, and a picture corresponding to the message is displayed in a window. Touch the switch specially created to delete the window. Window display is erased • Text Display Change Use a Message Display to display the sub screen.  Touch the alarm message, and a text corresponding to the message is displayed in a window. Touch the switch specially created to delete the window. Window display is erased
Direct Selection	The Alarm Message displayed on the screen can be selected by touching it directly. When the Alarm Message to which a Sub screen has been set is touched, the Sub screen is displayed.  When this option is not designated, use the [Switch Settings] tab and place a [Sub Display] switch to display a sub screen.
Show Cursor	If [Direct Selection] is designated, set whether or not to display the cursor when the Alarm Message is touched.

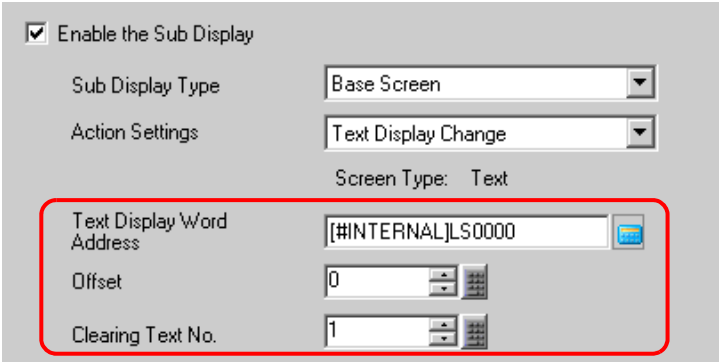
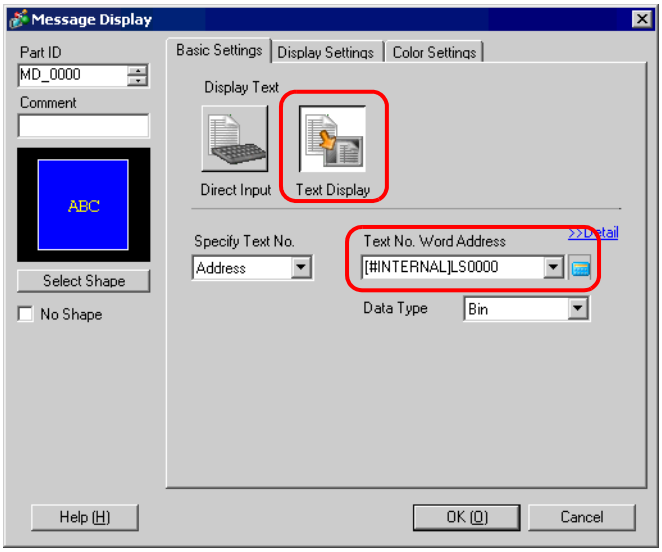
Continued

Setting		Description
[Base Screen] - [Screen Change]		This setting changes the entire screen to another screen. It works the same as a normal screen change. 
	Offset	Set the offset value for the Sub Display Screen No. from 0 to 9999. The screen designated as “[Sub Display Screen No.] in [Alarm Settings] + Offset value” will be displayed.

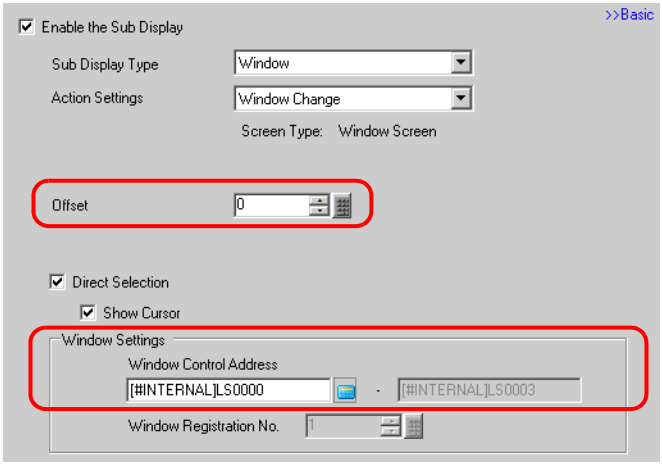
Continued

Setting	Description
[Base Screen] - [Change Picture Display]	Display a picture corresponding to the Alarm Message in the Picture Display placed on the same screen as the Alarm Part. 
Picture Display Word Addres	Specify the address of the GP internal device (LS area, user area) to store the number which has been set in [Sub Display Screen No.] in [Alarm Settings]. The number stored in this address is the base screen No. displayed on the Picture Display. Set the same address to the [Word Address] of the Picture Display placed on the same screen as the Alarm Part.  **NOTE** • Set the Picture Display's [Screen Type] to [Base Screen], [Specify Screen] to [Address], and [Data Type] to [Bin].
Offset	Set the offset value for the Sub Display Screen No. from 0 to 9,999. The screen designated as "[Sub Display Screen No.] in [Alarm Settings] + Offset value" will be displayed.
Clearing Base No.	When you select the [Sub Display Screen No.] in [Alarm Settings] to be Alarm Message "0", the base screen designated here will be called and the previous screen will be erased. Set the screen number that has been created to clear the contents (such as a screen with a black-filled square) from 1 to 9,999.

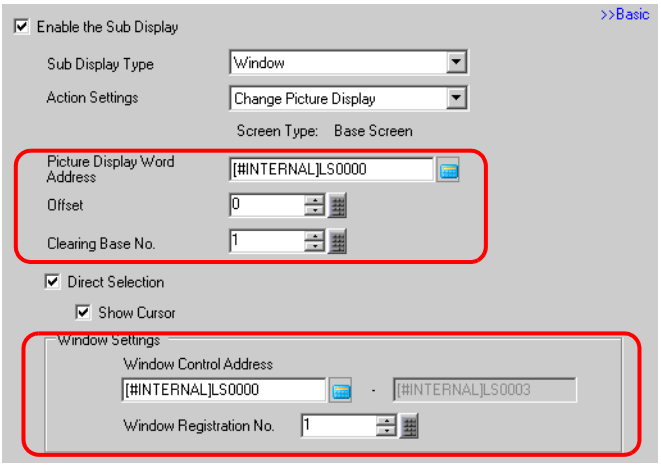
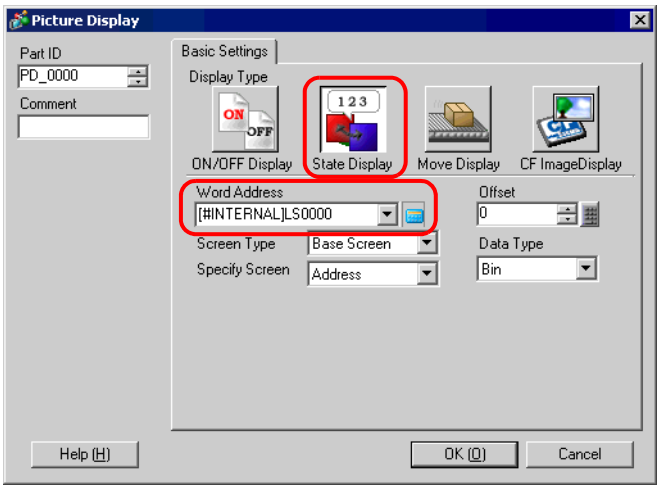
Continued

Setting	Description
[Base Screen] - [Text Display Change]	Display a text corresponding to the Alarm Message in the Message Display placed on the same screen as the Alarm Part. 
Text Display Word Addres	Specify the address of the GP internal device (LS area, user area) to store the number which has been set in [Sub Display Screen No.] in [Alarm Settings]. The number stored in this address is the text No. displayed on the Message Display. Set the same address to the [Text No. Word Address] of the Message Display placed on the same screen as the Alarm Part.  **NOTE** • Set the Message Display [Text Display]'s [Specify Text No.] to [Address], and [Data Type] to [Bin].
Offset	Set the offset value for the Sub Display Screen No. from 0 to 8,999. The text designated as "[Sub Display Screen No.] in [Alarm Settings] + Offset value" will be displayed.
Clearing Text No.	When you select the [Sub Display Screen No.] in [Alarm Settings] to be Alarm Message "0", the text designated here will be called and the previous text will be erased. Set the text number that has been created to clear the contents (such as text with no content) from 1 to 8,999.

Continued

Setting	Description
[Window] - [Window Change]	Displays the Window Screen which corresponds to the Alarm Message. 
Offset	Set the offset value for the Sub Display Screen No. from 0 to 2000. The screen designated as “[Sub Display Screen No.] in [Alarm Settings] + Offset value” will be displayed.
Window Settings	Configure settings to display a Window Part placed on the same screen as the Alarm Part.
Window Control Address	Specify the address to control the Window display. Four consecutive words will automatically be used, starting from the designated address. Only the address of the GP internal device (LS area, user area) can be used. The number set at [Sub Display Screen No.] in [Alarm Settings] is written to the address identified as “the address designated here + 1”, and treated as the Window Screen No. to be displayed. Set the same address to the [Window Control Address] of the Window Part placed on the same screen as the Alarm Part. ☞ “18.7.2 Word Action” (page 18-23) **NOTE** • Set the Window Part’s [Window Specification] to [Address], and [Data Type] to [Bin].

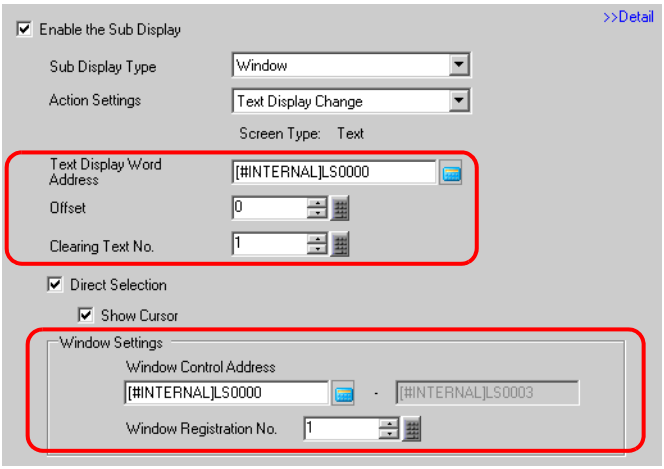
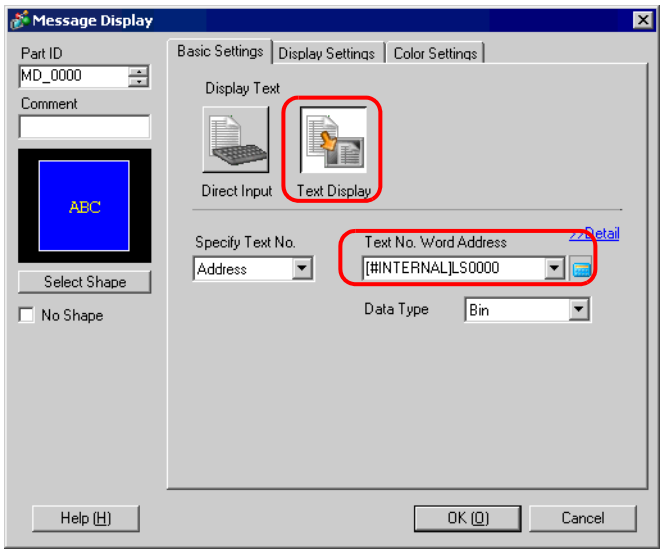
Continued

Setting	Description
[Window] - [Change Picture Display]	Display a picture corresponding to the Alarm Message in the Picture Display placed on the Window Screen. 
Picture Display Word Addres	Specify the address of the GP internal device (LS area, user area) to store the number which has been set in [Sub Display Screen No.] in [Alarm Settings]. The number stored in this address is the screen No. displayed on the Picture Display. Set the same address to the [Word Address] of the Picture Display placed on the Window Screen.  **NOTE** • Set the Picture Display's [Screen Type] to [Base Screen], [Specify Screen] to [Address], and [Data Type] to [Bin].
Offset	Set the offset value for the Sub Display Screen No. from 0 to 9,999. The screen designated as "[Sub Display Screen No.] in [Alarm Settings] + Offset value" will be displayed.

Continued

Setting			Description
	Clearing Base No.		When you select the [Sub Display Screen No.] in [Alarm Settings] to be Alarm Message “0”, the base screen designated here will be called and the previous screen will be erased. Set the screen number that has been created to clear the contents (such as a screen with a black-filled square) from 1 to 9,999.
	Window Settings		Configure settings to display a Window Part placed on the same screen as the Alarm Part.
		Window Control Address	Specify the address to control the Window display. Four consecutive words will automatically be used, starting from the designated address. Only the address of the GP internal device (LS area, user area) can be used. Set the same address to the [Window Control Address] of the Window Part placed on the same screen as the Alarm Part. ☞ “18.7.2 Word Action” (page 18-23) **NOTE** • Set the Window Part’s [Window Specification] to [Address], and [Data Type] to [Bin].
		Window Registration No.	Set the Window Screen No. to display (the window which contains the Picture Display) from 1 to 2,000. This number is written to the address identified as “designated [Window Control Address] + 1”.

Continued

Setting	Description
[Window] - [Text Display Change]	Display a text corresponding to the Alarm Message in the Message Display [Text Display] placed on the Window Screen. 
Text Display Word Addres	Specify the address of the GP internal device (LS area, user area) to store the number which has been set in [Sub Display Screen No.] in [Alarm Settings]. The number stored in this address is the text No. displayed on the Message Display. Set the same address to the [Text No. Word Address] of the Message Display placed on the Window Screen.  **NOTE** • Set the Message Display [Text Display]'s [Specify Text No.] to [Address], and [Data Type] to [Bin].
Offset	Set the offset value for the Sub Display Screen No. from 0 to 8,999. The text designated as "[Sub Display Screen No.] in [Alarm Settings] + Offset value" will be displayed.

Continued

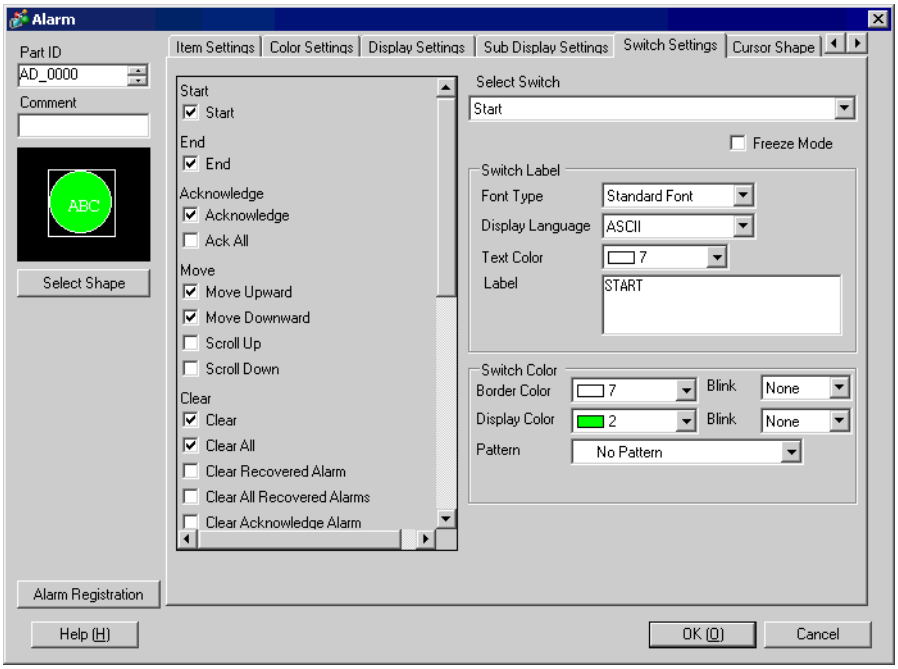
Setting			Description
Text Display Change	Clearing Text No.		When you select the [Sub Display Screen No.] in [Alarm Settings] to be Alarm Message “0”, the text designated here will be called and the previous text will be erased. Set the text number that has been created to clear the contents (such as text with no content) from 1 to 8,999.
	Window Settings		Configure settings to display a Window Part placed on the same screen as the Alarm Part.
		Window Control Address	Specify the address to control the Window display. Four consecutive words will automatically be used, starting from the designated address. Only the address of the GP internal device (LS area, user area) can be used. Set the same address to the [Window Control Address] of the Window Part placed on the same screen as the Alarm Part. ☞ “18.7.2 Word Action” (page 18-23) **NOTE** • Set the Window Part’s [Window Specification] to [Address], and [Data Type] to [Bin].
		Window Registration No.	Set the Window Screen No. to display (the window which contains the Message Display) from 1 to 2,000. This number is written to the address identified as “designated [Window Control Address] + 1”.

NOTE

- The GP internal device [#INTERNAL] consists of two areas: the [LS] area and [USR] area. For the available addresses in the LS area, refer to the following:
  ☞ “A.1.4 LS Area (Direct Access Method)” (page A-8)

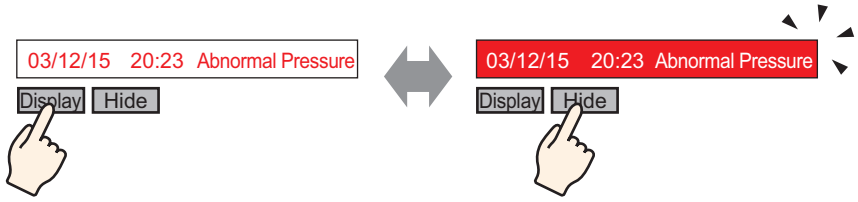
◆ Switch Settings

Set operation switches to display Alarm Messages.

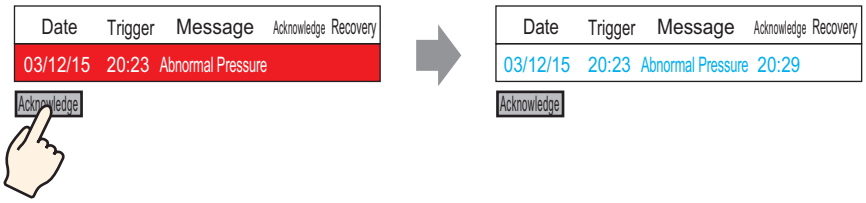
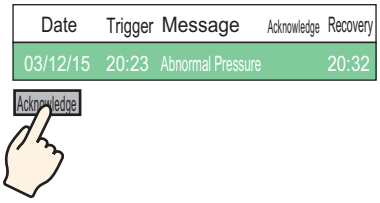
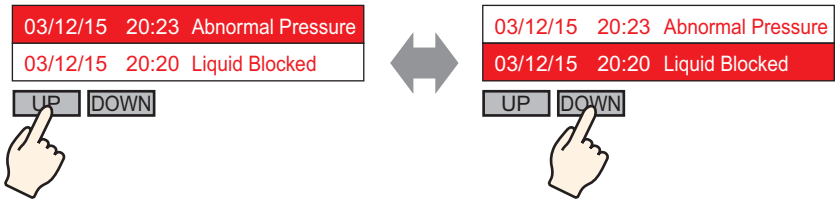
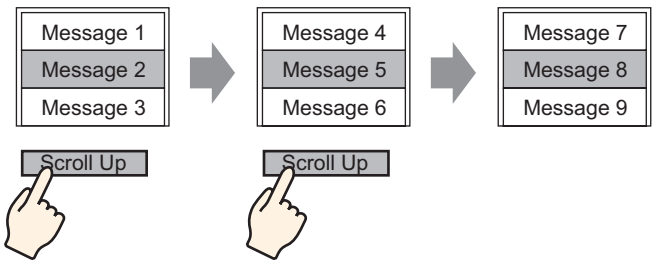


NOTE

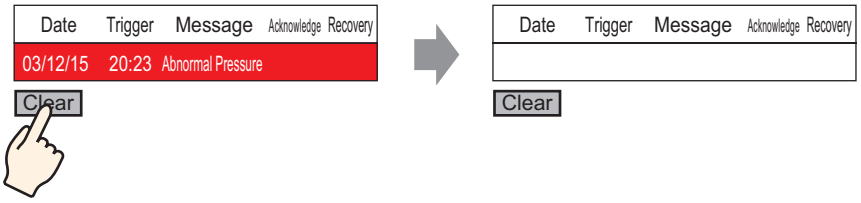
- The same Switch as the one set on this tab can be created with a Switch Lamp Part's [Special Switch] - [Alarm History Switch].
  ☞ "11.14.4 Special Switch ■ Switch Feature ◆ Alarm History Switch" (page 11-63)

Setting	Description
Switch Preview	Displays the selected switch's shape.
Select Shape	Open the Select Shape dialog box to choose the Part's shape.
Types of Switches	Set the Switch's type.
Start/End	Set a switch to start/end operation.
Start/End	Touch [Start] and the cursor will appear to operate the other switches. Touching [End] cancels the cursor. 

Continued

Setting			Description
Types of Switches	Acknowledge		Set the Acknowledge switch.
		Acknowledge	Acknowledges the alarm in the cursor's current position. Press [Acknowledge] and the currently triggered Alarm Message's trigger time will be displayed.  Alarms that have already recovered will not change when [Acknowledge] is touched.  **NOTE** • If an Alarm Message is already displayed with the acknowledge time, the time will not be updated.
		Ack All	Acknowledges all Alarm Messages that are currently triggered.
	Move		Set the Move switches.
		Move Upward Move Downward	Moves the cursor 1 row up or down. 
		Scroll Up Scroll Down	Alarm Messages that are currently displayed are scrolled up or down by a given number of rows. e.g.) No. of Active Alarms: 9, No. of Display Lines: 3, No. of Scroll: 3 

Continued

Setting		Description
Types of Switches	Clear	Set a switch to clear the display. The bit or word data of the host (PLC) will not be cleared.
	Clear	Touch [Clear], and the Alarm Message display at the current cursor position is erased. 
	Clear All	All displayed Alarm Messages are erased, regardless of whether they are in the [Trigger], [Acknowledge], or [Recovery] state.
	Clear Recovered Alarm	Erases the recovered alarm message at the current cursor position. The message is not erased if it is not in the Recovery state.
	Clear All Recovered Alarms	Erases all recovered Alarm Messages.
	Clear Acknowledge Alarm	Erases the acknowledged alarm message at the current cursor position. The message is not erased if it is not in the Acknowledge state.
	Clear All Acknowledge Alarms	Erases all Acknowledge Alarm Messages.
	Clear Individual No. of Occurrences	Clears the No. of Occurrences for the alarm in the cursor's current position and replace that value with "0".
	Clear All No. of Occurrences	Clears the No. of Occurrences for all displayed alarms and replace that value with "0".
	Clear Individual Accumulated Time	Clears the accumulated time for the alarm in the cursor's current position and replace that value with "0".
	Clear All Accumulated Time	Clears the accumulated time for all displayed alarms and replace that value with "0".
	Sort	Set a switch to sort Alarm Messages. **NOTE** • This setting is disabled when the Display Mode is set to [Log]. • Even when the display order of the messages changes on the screen, the Alarm History data is printed or saved to the CF-card in the order of occurrence.

Continued

Setting			Description
Types of Switches	Sort	In Reverse Order of Trigger Date	Displays Alarm Messages in the order of occurrence, according to the scroll direction.
		In No. of Occurrences Order	Displays Alarm Messages in the order starting with the largest occurrence frequency, according to the scroll direction. **NOTE** • If multiple alarms with the same frequency exist, they will display in the decreasing order of the accumulated time, according to the scroll direction. If multiple alarms have the same frequency and accumulated time, the newest alarm will display first.
		In Descending Order of Accumulated Time	Displays Alarm Messages in the order starting with the largest accumulated time, according to the scroll direction. **NOTE** • If multiple alarms with the same accumulated time exist, they will display in the decreasing order of the number of occurrences, according to the scroll direction. If multiple alarms have the same number of occurrences and accumulated time, the newest alarm will display first.
		Level & In Reverse Order of Trigger Date	Displays Alarm Messages in the order starting with the highest registered level, according to the scroll direction. If multiple Alarm Messages with the same level exist, messages will display in the order starting with the latest occurrence date.
		Level & In Descending Order of No. of Occurrences	Displays Alarm Messages in the order starting with the highest registered level, according to the scroll direction. If multiple Alarm Messages with the same level exist, messages will display in the decreasing order of the alarm frequency, according to the scroll direction. **NOTE** • If multiple alarms with the same frequency exist, they will display in the decreasing order of the accumulated time.
		Alarm Registration Order	Displays Alarm Messages in ascending order of the registration number (Row No.) set in [Alarm Settings], according to the scroll direction.
		Reverse Order Display	Displays Alarm Messages in the reverse order of the specified sorting order.
	Sub Display		Set the Sub Display switch.
		Sub Display	Displays the sub screen registered to the Alarm Message at the current cursor position.
	Alarm No. Acquisition		Set the Alarm No. Acquisition switch.
		Alarm No. Acquisition	Obtains the Alarm Message No. (the row number registered in [Alarm Settings]) of the message at the current cursor position.
Select Switch			Choose a switch to set the label or scroll count.
No. of Samples to Scroll			Set the number of rows to scroll up or down from 1 to 768 when you place the [Scroll Up]/[Scroll Down] switch.

Continued

<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td colspan="2">Freeze Mode</td><td>Specify whether to use Freeze Mode when you place the [Start] switch. Freeze Mode suspends the currently displayed alarms and prohibits the screen display from refreshing. This can be used to temporarily stop the display when alarms are triggered too often to be seen.
When Freeze Mode is set, touch [Start] twice to begin freeze mode, and touch [End] to cancel it.

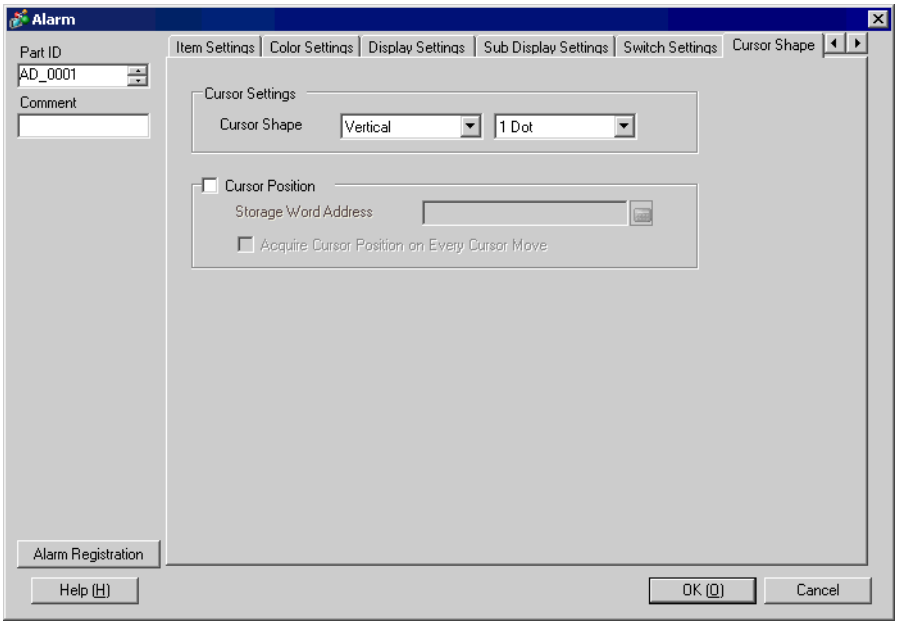
When the following operations are performed in freeze mode, the management and display will be as follows.

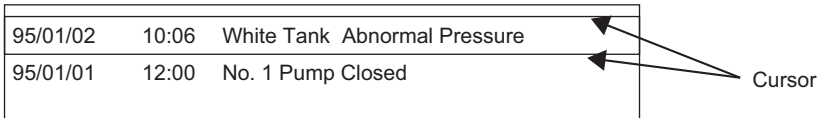
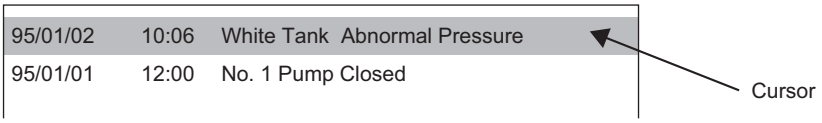
<table>
<tr><th>Action/Switch operation</th><th>Management</th><th>Display</th></tr>
<tr><td>Alarm: Trigger, Recovery
Switch operation: [Acknowledge], [Clear]</td><td>○</td><td>×</td></tr>
<tr><td>Switch operation: [Move Upward], [Move Downward], [Scroll Up], [Scroll Down], [Sort], [Sub Display]</td><td>○</td><td>○</td></tr>
<tr><td>Switch operation: [Alarm No. Acquisition Key]</td><td>○</td><td>–</td></tr>
</table>

NOTE
• Note that executing a clear while Freeze Mode is activated will clear the messages stored inside the GP, even though the messages remain on the display.
• When the message stored in the GP has been cleared as mentioned above, that message’s sub display is not displayed in the Freeze Mode.</td></tr>
<tr><td colspan="2">Switch Label</td><td>Set the text to display on the switch’s label.</td></tr>
<tr><td></td><td>Font Type</td><td>Choose a font type for the switch’s label from [Standard Font] or [Stroke Font].</td></tr>
<tr><td></td><td>Display Language</td><td>Choose the label’s language from [ASCII], [Japanese], [Taiwanese], [Chinese], or [Korean].</td></tr>
<tr><td></td><td>Text Color</td><td>Select a color for the switch’s label.</td></tr>
<tr><td></td><td>Label</td><td>Input the text to display on the switch’s label.</td></tr>
<tr><td colspan="2">Switch Color</td><td>Set the Switch’s color.</td></tr>
<tr><td></td><td>Border Color</td><td rowspan="2">Designate the switch’s border color and background color.
NOTE
• The Switch Color setting is common to all Alarm parts, regardless of the switch type selected.</td></tr>
<tr><td></td><td>Display Color</td></tr>
<tr><td></td><td>Blink</td><td>Select whether or not the Switch will blink, and the blink speed. You can choose different blink settings for the [Border Color], [Display Color], and [Pattern Color].
NOTE
• There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings’ [Color Settings].
☞ “9.5.1 Specify Color ■ Supported Color List” (page 9-33)</td></tr>
<tr><td></td><td>Pattern</td><td>Select the switches’ pattern from 9 types.</td></tr>
<tr><td></td><td>Pattern Color</td><td>Specify the pattern color when you select options other than [No Pattern].</td></tr>
</table>

◆ Cursor Shape

If handling Alarm Messages, choose the cursor's display shape. Also, select cursor settings for when the Alarm Message confirmation is sent from the device/PLC.



Setting		Description
Cursor Settings		Choose the display shape of the cursor used to handle Alarm Messages.
	Cursor Shape	Choose the cursor shape from [Vertical] or [Reverse]. Up/Down  Reverse 
	No. of Dots	If the cursor shape is [Vertical], choose the cursor thickness from [1 dot] or [2 dots].

Continued

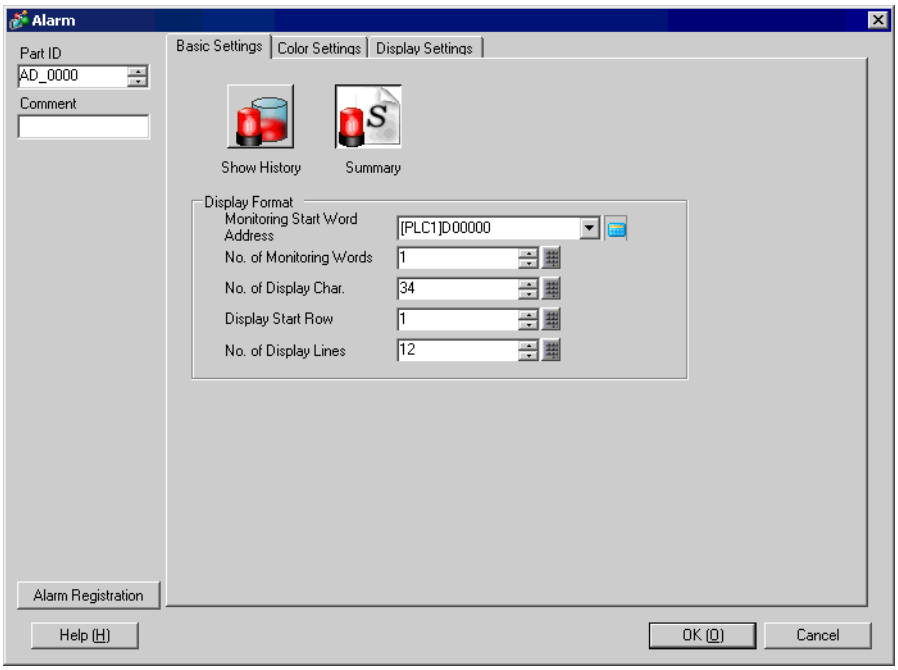
Setting		Description
Cursor Position		Configure settings for the notification of the registration number (Row No.) of the Alarm Message selected with the cursor.
	Storage Word Addres	Set the address where the registration number (Row No.) of the selected Alarm Message will be stored. When Alarm Messages are registered with [Bit Monitoring], the value of the registration number (Row No.) will be directly stored. When Alarm Messages are registered with [Word Monitoring], the value of "the registration number (Row No.) + 10,000" will be stored. e.g.) When an Alarm Message is registered with Word Monitoring and the registration number (Row No.) of the Alarm Message is 152: Value stored in the [Storage Word Address] = 152 + 10000 = 10152 **NOTE** • While in [Freeze Mode], the notification of the current cursor position for cleared data is not provided.
	Acquire Cursor Position on Every Cursor Move	Automatically stores the Alarm Message's registration number (Row No.) to [Storage Word Address] every time the cursor moves. **NOTE** • To provide the notification of the alarm cursor position without designating this option, you need to place the [Alarm No. Acquisition Key] switch.

■ Summary

Alarm Messages that are currently triggered are displayed in a list.

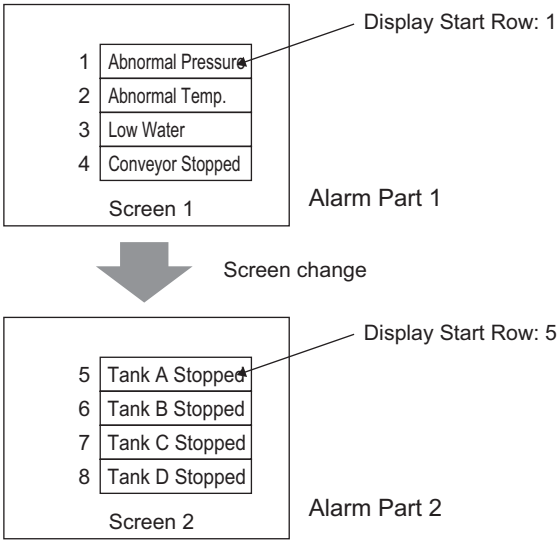
◆ Basic Settings

Set the format of the Alarm Summary display.



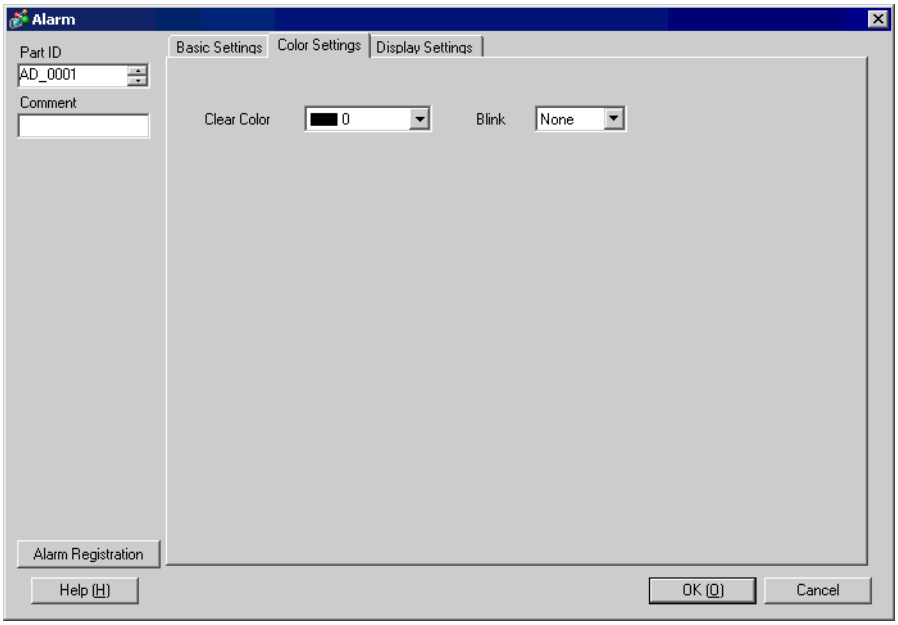
Setting		Description
Display Format		Set the format of the Alarm Summary display.
	Monitoring Start Word Address	Set the top address of the monitoring bit for the Alarm Message designated in [Alarm Settings].
	No. of Monitoring Words	Set the number of words allotted for the Monitoring Bits from 1 to 100. **NOTE** • For the number of monitoring words, 1 word is treated as 16 bits. For 32-bit devices, set the number of monitoring words to multiples of 2 (2, 4, 6, and so on).
	No. of Display Char.	Set the maximum number of Alarm Message characters that can display on one row from 1 to 160.

Continued

Setting		Description
Display Format	Display Start Row	Designate the row of the currently active Alarm Messages to start a display from 1 to 1,600. When multiple alarms are triggered, the extra rows that did not fit into a single Alarm part can be seen by setting a different display start row for several Alarm parts. 
	No. of Display Lines	Set how many Alarm Message rows will display at maximum on one screen from 1 to 50.

◆ Color Settings

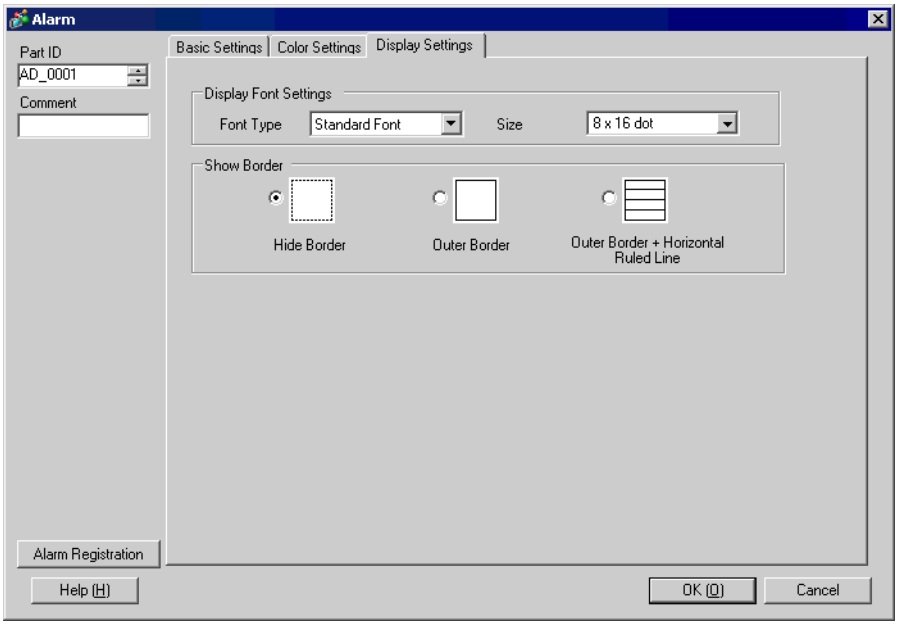
Select the color when the Alarm Message is not displayed. (The Alarm Message's text color and background color are designated in [Alarm Settings].)



Setting	Description
Clear Color	Select a color used when an Alarm Message is cleared (or not displayed). **NOTE** • The Alarm Message's text color and background color are designated in [Alarm Settings].
Blink	Select whether or not the Switch will blink, and the blink speed. You can choose blink settings for [Clear Color]. **NOTE** • There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings' [Color Settings]. ☞ "9.5.1 Specify Color ■ Supported Color List" (page 9-33)

◆ Display Settings

Set a font and border for the Alarm Message.



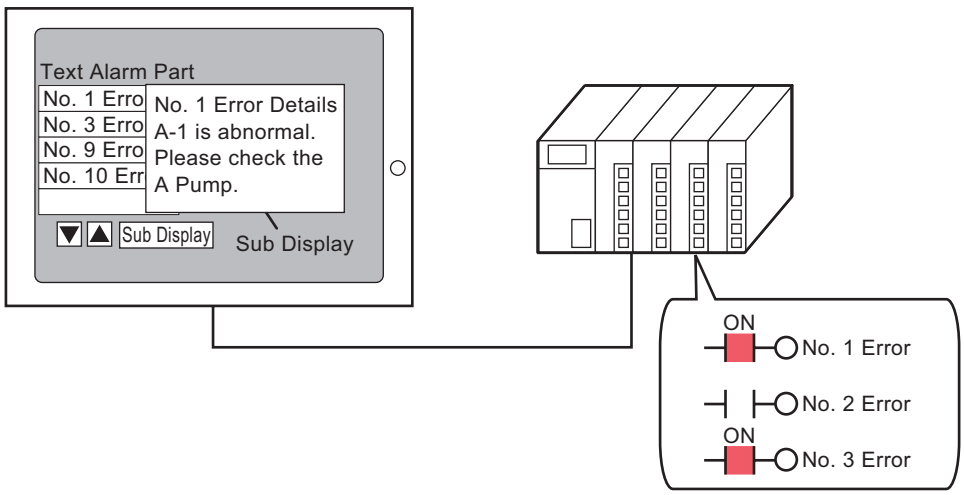
Setting		Description
Display Font Settings		Configure font settings.
	Font Type	Choose a font type for the Alarm Message from [Standard Font] or [Stroke Font].
	Size	Choose a font size for the Alarm Message. Standard Font: Specify "Width x Height" within the range between [8 × 8] to [64 × 128] in the unit of 8 dots, or select a fixed size from [6 × 10], [8 × 13], and [13 × 23]. The fixed sizes can be selected for displaying single-byte alphanumeric characters only. Stroke Font: 6 to 127
Show Border		Choose the Alarm Message's border from [Hide Border], [Outer Border], or [Outer Border + Horizontal Ruled Line]. **NOTE** • The color of the border and ruled line is fixed to white.

19.9.3 Text Alarm Settings Guide

■ Text Alarm

A Message registered on a Text Screen is displayed by each row. (It does not need to be registered in Common Settings [Alarm Settings].
Among the Messages registered as a batch on a Text Screen, only the necessary rows are listed on the screen. Each message can be displayed as a Sub Screen so this is useful for showing troubleshooting guides.

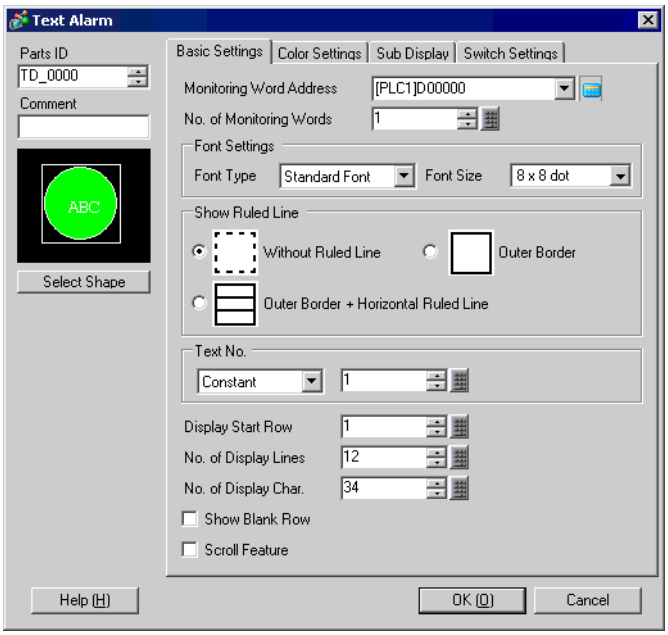
☞ "19.10.4 Text Alarm Restrictions" (page 19-137)

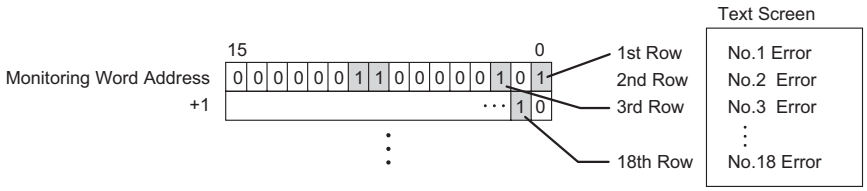


When the bit turns ON, the message is displayed. When the bit turns OFF, the message is erased.

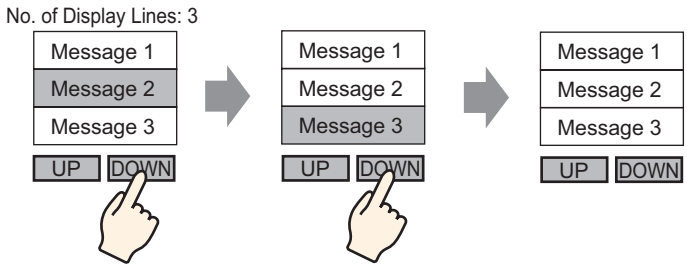
◆ Basic Settings

Configure settings to display alarm messages registered on a Text Screen.



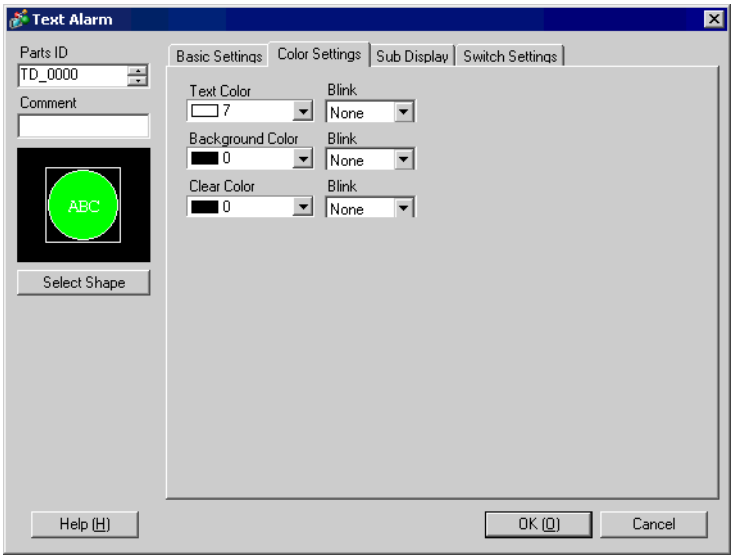
Setting	Description
Monitoring Word Address	Set the word which contains the monitoring bit's top address. When the Monitoring Word Address is set, one monitoring bit is automatically allotted to each row of the text. 
No. of Monitoring Words	Set the number of words allotted for the Monitoring Bits from 1 to 32. Set the number according to the number of rows inputted in the text. When the device address is expressed as 32 bits, one address contains two words.
Font Settings	Set a font for the Alarm Message to be displayed.
Font Type	Choose a font type for the Alarm Message from [Standard Font] or [Stroke Font].
Font Size	Choose a font size for the Alarm Message. Standard Font: Specify "Width × Height" within the range between [8 × 8] to [64 × 128] in the unit of 8 dots, or select a fixed size from [6 × 10], [8 × 13], and [13 × 23]. The fixed sizes can be selected for displaying single-byte alphanumeric characters only. Stroke Font: 6 to 127

Continued

Setting		Description
Show Ruled Line		Choose the ruled line of the Text Alarm Part from [Without Ruled Line], [Outer Border], or [Outer Border + Horizontal Ruled Line]. **NOTE** • The color of the border and ruled line is fixed to white.
Text No.		Set the text No. of the text to be displayed.
	Constant/ Address	Select the designation method of the text No. from [Constant] or [Address]. • Constant Designate a set constant as the Text No. (Direct Specification) • Address Specify the address where the Text No. will be stored. (Indirect Specification)
	Text Screen No.	Set the text No. from 1 to 8,999.
Display Start Row		Designate the row of the currently active Alarms to start a display from 1 to 512. **NOTE** • When [Show Blank Row] is selected, the maximum number of rows is 512 including blank rows.
No. of Display Lines		Set how many Alarm Message rows will display at maximum on one screen from 1 to 50.
No. of Display Char.		Set the maximum number of Alarm Message characters that can display on one row from 1 to 100.
Show Blank Row		Specify whether to display any blank lines in the text as an Alarm Message.
Scroll Feature		Set whether to use the scroll feature or not. When the scroll feature is not used, touching the cursor moving switch does not move the cursor to the messages out of the display area, and the cursor disappears. 

◆ Color Settings

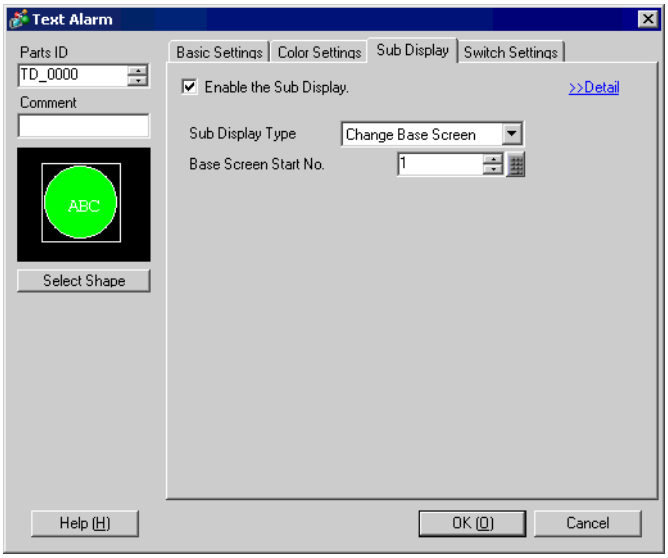
Set the color of the Alarm Message.

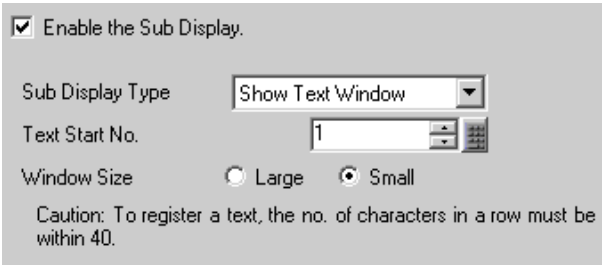


Setting	Description
Text Color	Select a color for the message's text.
Background Color	Select a background color for the message's text.
Clear Color	Select a color used when an Alarm Message is cleared (or not displayed).
Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for [Text Color], [Background Color], and [Clear Color]. **NOTE** • There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings' [Color Settings]. ☞ "9.5.1 Specify Color ■ Supported Color List" (page 9-33)

◆ Sub Display/Basic

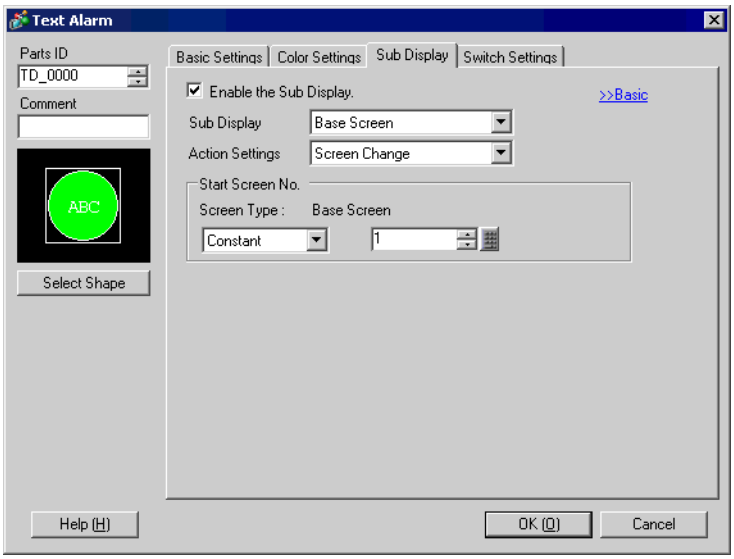
Configure settings to display a sub screen corresponding to each Alarm Message.



Setting	Description
Enable the Sub Display	Select whether or not to use a Sub Display.
Sub Display Type	Select the Sub Display's Type. • Change Base Screen This setting changes the entire screen to another screen. It works the same as a normal screen change. • Show Text Window Display the registered text in a Window. 
Base Screen Start No.	When setting [Sub Display Type] to [Change Base Screen], set the Start Base Screen No. to change screens with the Sub Display from 1 to 9,999.
Text Start No.	When setting [Sub Display Type] to [Show Text Window], set the Start Text No. to display in the Sub Screen from 1 to 8,999.
Window Size	When the [Sub Display Type] is [Show Text Window], choose the window's size to display text from [Large] or [Minor]. **NOTE** • The maximum number of text characters on one line of a window is as follows. Large Window Size: Up to 30 characters Minor Window Size: Up to 20 characters

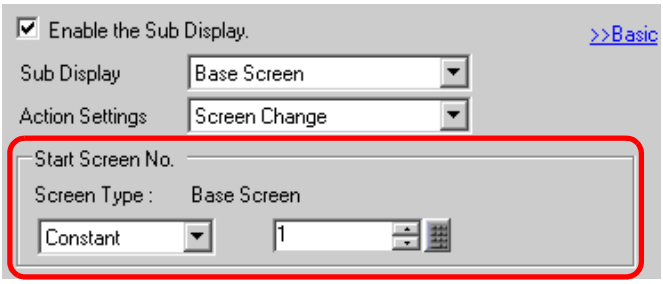
◆ Sub Display/Detail

Configure settings to change a Base or Window Screen into a Sub Screen, or to use a Picture Display or a Message Display to display a sub screen on a Base or Window Screen.

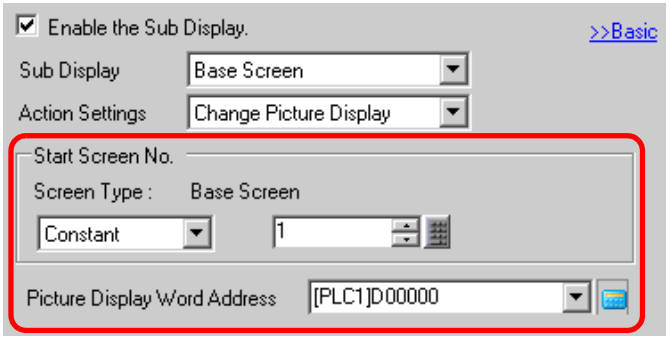
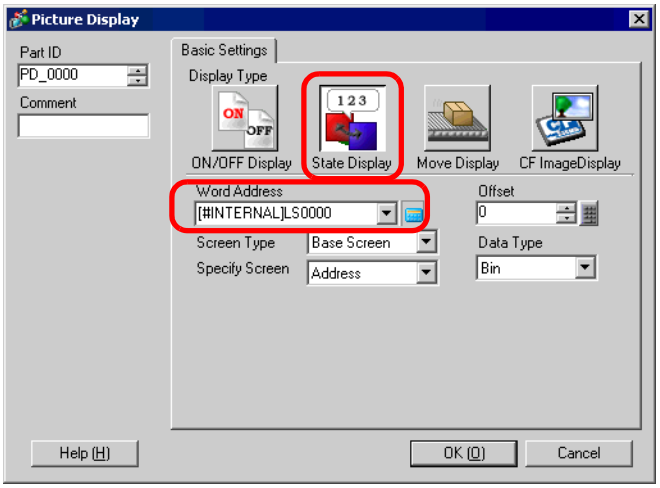


Setting	Description
Enable the Sub Display	Select whether or not to use a Sub Display.
Sub Display Type	Select the Sub Display's Type. • Base Screen Change the display to other screen, or display pictures or text on a base screen. • Window Display a Sub Screen in a Window. Change the window to another one, or display a picture or text in the Window.
Action Settings	Select the Sub Display's action type. "When [Base Screen] is selected for [Sub Display]" • Screen Change Change the Base Screen to display the sub screen. • Change Picture Display Use a Picture Display to display the sub screen. • Text Display Change Use a Message Display to display the sub screen. "When [Window] is selected for [Sub Display]" • Window Change Change a Window Screen to display the sub screen. • Change Picture Display Use a Picture Display on the Window Screen to display the sub screen. • Text Display Change Use a Message Display on the Window Screen to display the sub screen.

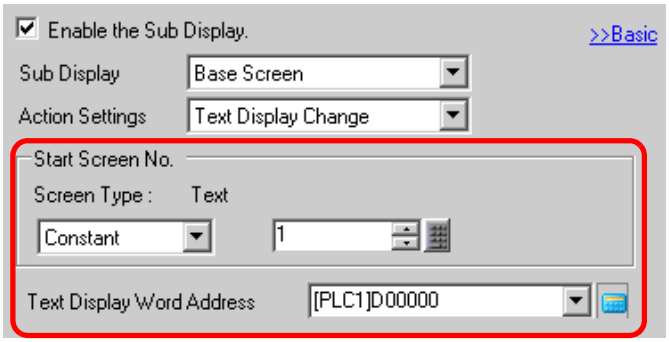
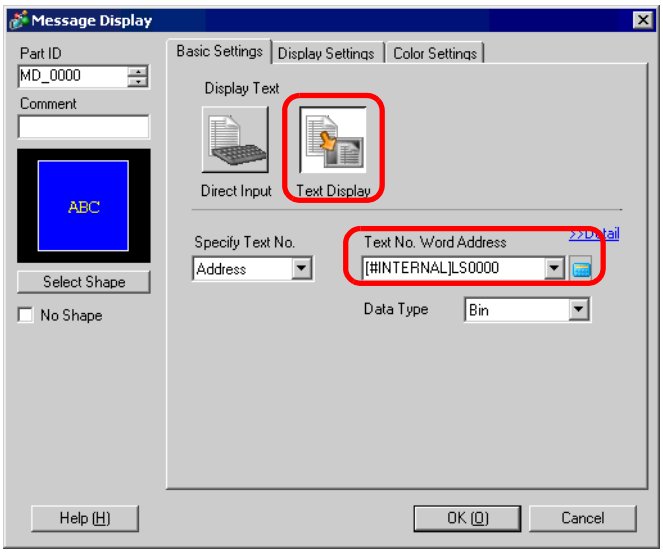
Continued

Setting		Description
[Base Screen] - [Screen Change]		This setting changes the entire screen to another screen. It works the same as a normal screen change. 
	Start Screen No.	Set the Base Screen's Start No. to display a sub screen. Select the method to designate the screen No. from [Constant] or [Address]. • Constant Designate a set constant as the Base Screen's Start No. The value can be from 1 to 9,999. • Address Select a word address that stores the Base Screen's Start No.

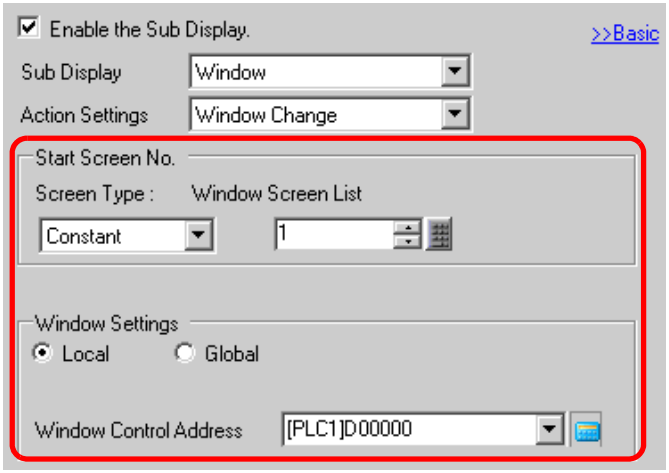
Continued

Setting	Description
[Base Screen] - [Change Picture Display]	Display a picture corresponding to the Alarm Message in the Picture Display placed on the same screen as the Text Alarm Part. 
Start Screen No.	Set the Base Screen's Start No. to display a sub screen for a Picture Display. Select the method to designate the screen No. from [Constant] or [Address]. • Constant Designate a set constant as the start No. of the screen used for picture display. The value can be from 1 to 9,999. • Address Select a word address that stores the start No. of the screen used for picture display.
Picture Display Address	Set a word address to store the screen No. of the screen displayed in a Picture Display. Set the same address as the [Word Address] of the Picture Display placed on the same screen as the Text Alarm Part.  **NOTE** • Set the Picture Display [State Display]'s [Screen Type] to [Base Screen], [Specify Screen] to [Address], and [Data Type] to [Bin].

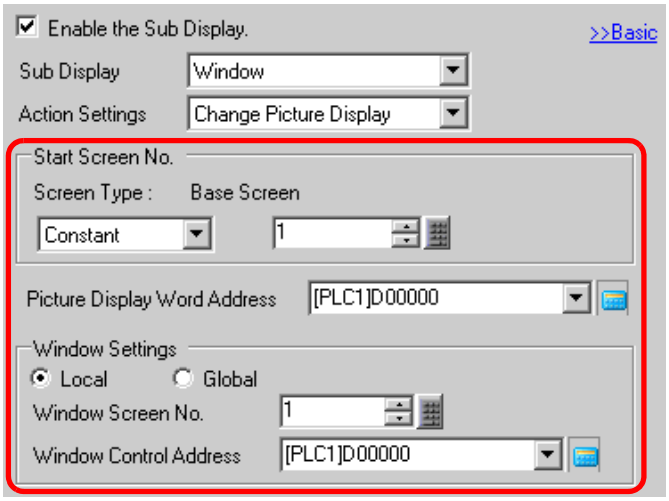
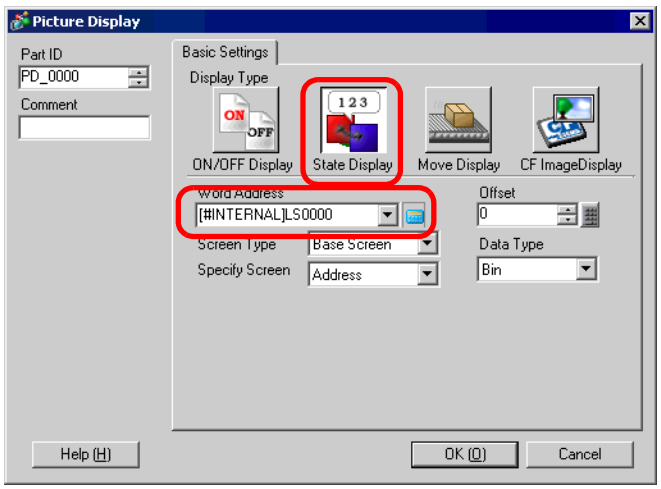
Continued

Setting	Description
[Base Screen] - [Text Display Change]	Display a text corresponding to the Alarm Message in the Message Display placed on the same screen as the Text Alarm Part. 
Start Screen No.	Set the Base Screen's Start No. to display a sub screen for a Message Display. Select the method to designate the text No. from [Constant] or [Address]. • Constant Designate a set constant as the Text's Start No. The value can be from 1 to 8,999. • Address Select a word address that stores the Text's Start No.
Text Display Word Addres	Set a word address to store the Text No. of the text displayed in a Message Display. Set the same address as the [Text No. Word Address] of the Message Display placed on the same screen as the Text Alarm Part.  **NOTE** • Set the Message Display [Text Display]'s [Specify Text No.] to [Address], and [Data Type] to [Bin].

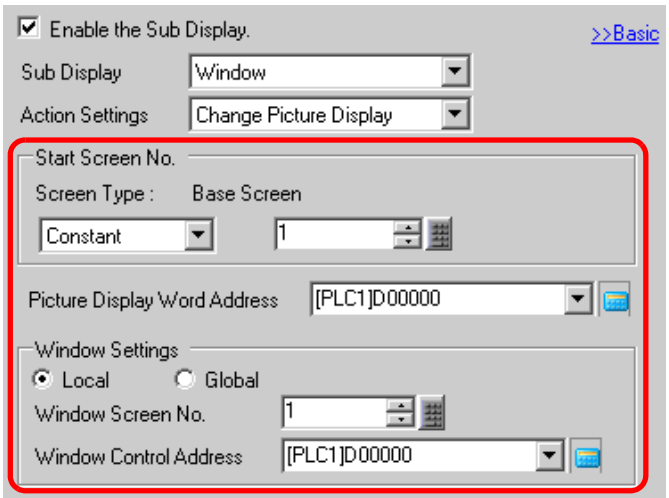
Continued

Setting	Description
[Window] - [Window Change]	Displays the Window Screen which corresponds to the Alarm Message. 
Start Screen No.	Set the Window Screen's Start No. to display a sub screen. Select the method to designate the Window Screen No. from [Constant] or [Address]. • Constant Designate a set constant as the start No. of the Window Screen used for a Sub Display. The value can be from 1 to 2,000. • Address Set the address where the Start Screen No. of the Window Screen used for a Sub Display is stored.
Window Settings	Configure the Window's settings.
Local/ Global	Set whether to use a local window or global window for a Sub Display. **NOTE** • To use a global window, refer to "18.6.2 Setup Procedure" (page 18-18) . on the [System Settings Window] - [Main Unit Settings] - [Action Settings] tab, set [Global Window Operation] to [Indirect], and [Data Type] to [Bin]. Use LS16 to display or erase the Window.
Window Control Address	To use a local window for a Sub Display, designate the address used to control the window display. Four consecutive words will automatically be used, starting from the designated address. Set the same address as the [Window Control Address] of the Window Part placed on the same screen as the Text Alarm Part. ☞ "18.7.2 Word Action" (page 18-23) Set the Window Part's [Window Specification] to [Address], and [Data Type] to [Bin].

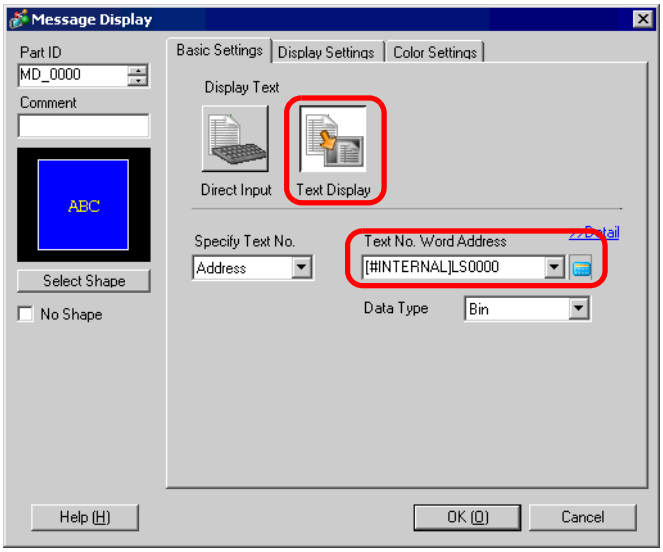
Continued

Setting	Description
[Window] - [Change Picture Display]	Display a picture corresponding to the Alarm Message in the Picture Display placed on the Window Screen. 
Start Screen No.	Set the Base Screen's Start No. to display a sub screen for a Picture Display on the Window Screen. Select the method to designate the screen No. from [Constant] or [Address]. • Constant Designate a set constant as the start No. of the screen used for picture display. The value can be from 1 to 9,999. • Address Select a word address that stores the start No. of the screen used for picture display.
Picture Display Address	Set a word address to store the screen No. of the screen displayed in a Picture Display. Set the same address as the [Word Address] of the Picture Display placed on the Window Screen.  **NOTE** • Set the Picture Display [State Display]'s [Screen Type] to [Base Screen], [Specify Screen] to [Address], and [Data Type] to [Bin].

Continued

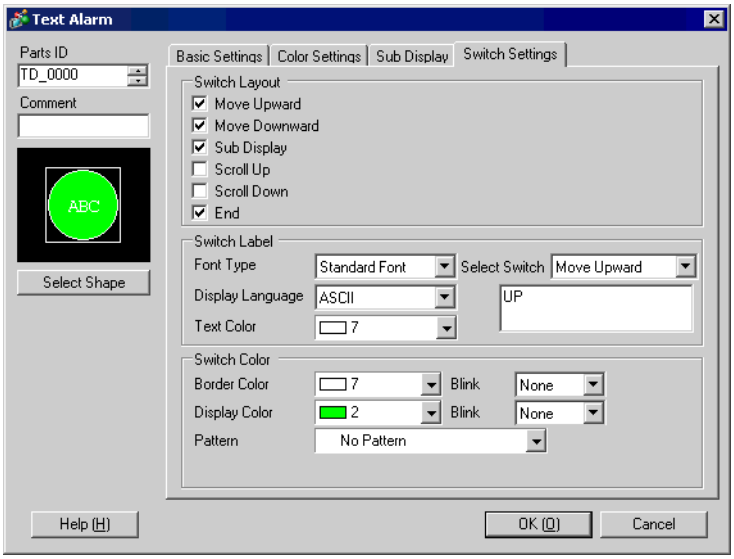
Setting			Description
Change Picture Display	Window Settings		Configure the Window's settings.
		Local/Global	Set whether to use a local window or global window for a Sub Display. **NOTE** • To use a global window, refer to "18.6.2 Setup Procedure" (page 18-18) . On the [System Settings Window] - [Main Unit Settings] - [Action Settings] tab, set [Global Window Operation] to [Indirect], and [Data Type] to [Bin]. Use LS16 to display or erase the Window.
		Window Screen No.	Designate the Screen No. of the window used for a Sub Display from 1 to 2,000.
		Window Control Address	To use a local window for a Sub Display, designate the address used to control the window display. Four consecutive words will automatically be used, starting from the designated address. Set the same address as the [Window Control Address] of the Window Part placed on the same screen as the Text Alarm Part. ☞ "18.7.2 Word Action" (page 18-23) **NOTE** • Set the Window Part's [Window Specification] to [Address], and [Data Type] to [Bin].
[Window] - [Text Display Change]			Display a text corresponding to the Alarm Message in the Message Display placed on the Window Screen. 
	Start Screen No.		Set the Start No. of the text for a sub screen displayed in a Message Display on the Window Screen. Select the method to designate the text No. from [Constant] or [Address]. • Constant Designate a set constant as the Text's Start No. The value can be from 1 to 8,999. • Address Select a word address that stores the Text's Start No.

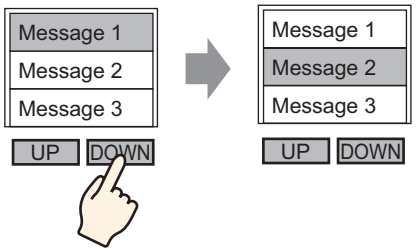
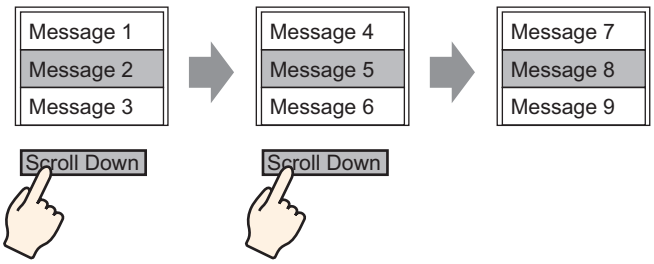
Continued

Setting			Description
Text Display Change	Text Display Word Addres		Set a word address to store the Text No. of the text displayed in a Message Display. Set the same address as the [Text No. Word Address] of the Message Display placed on the Window Screen.  **NOTE** • Set the Message Display [Text Display]'s [Specify Text No.] to [Address], and [Data Type] to [Bin].
	Window Settings		Configure the Window's settings.
		Local/Global	Set whether to use a local window or global window for a Sub Display. **NOTE** • To use a global window, refer to "18.6.2 Setup Procedure" (page 18-18) . On the [System Settings Window] - [Main Unit Settings] - [Action Settings] tab, set [Global Window Operation] to [Indirect], and [Data Type] to [Bin]. Use LS16 to display or erase the Window.
		Window Screen No.	Designate the Screen No. of the window used for a Sub Display from 1 to 2,000.
		Window Control Address	To use a local window for a Sub Display, designate the address used to control the window display. Four consecutive words will automatically be used, starting from the designated address. Set the same address as the [Window Control Address] of the Window Part placed on the same screen as the Text Alarm Part. ☞ "18.7.2 Word Action" (page 18-23) **NOTE** • Set the Window Part's [Window Specification] to [Address], and [Data Type] to [Bin].

◆ Switch Settings

Select an operation switch to display an Alarm Message. Using a Sub Display requires an operation switch to designate the message to display its sub display.



Setting		Description
Switch Layout		Set the Switches to be placed.
	Move Upward/ Move Downward	Moves the cursor 1 row up or down. 
	Sub Display	Shows the Sub Display of the message currently selected with the cursor.
	Scroll Up/Scroll Down	Alarm Messages that are currently displayed are scrolled up or down by a given number of rows. e.g.) No. of Active Alarms: 9, No. of Display Lines: 3, No. of Rows to Move: 3 
	No. of Rows to Move	Set the number of rows to scroll up and scroll down from 1 to 512.
	End	Set a switch to end the Text Alarm. Touching the switch erases the cursor as well as the Sub Display.

Continued

Setting		Description
Switch Label		Set the Switch's label.
	Font Type	Choose a font type for the switch's label from [Standard Font] or [Stroke Font].
	Display Language	Choose the label's language from [ASCII], [Japanese], [Taiwanese], [Chinese], or [Korean].
	Text Color	Select a color for the switch's label.
	Select Switch	Select the switch to which the label is set.
	Label	Input the text of the label.
Switch Color		Set the switches' color. **NOTE** • The Switch Color setting is common to all Text Alarm parts, regardless of the switch type selected.
	Border Color	Select a border color for the Switch.
	Display Color	Set the switches' color.
	Pattern	Select the switches' pattern from 9 types.
	Pattern Color	Specify the pattern color when you select options other than [No Pattern].
	Blink	Select whether or not the Switch will blink, and the blink speed. You can choose different blink settings for the [Border Color], [Display Color], and [Pattern Color]. **NOTE** • There are cases where you cannot set Blink depending on the model of the Main Unit and the System Settings' [Color Settings]. ☞ "9.5.1 Specify Color ■ Supported Color List" (page 9-33)

NOTE

- If you want to change the shape and color of each switch, create a switch with a Switch Lamp Part's Special Switch (Text Alarm Switch).
  ☞ "11.14.4 Special Switch ■ Switch Feature ◆ Text Alarm Switch" (page 11-64)
- If [Scroll Feature] is not set on the [Basic Settings] tab, the messages are not scrolled even when the [Move Upward], [Move Downward], [Scroll Up], or [Scroll Down] switch is touched. The cursor moves only within the display area.

19.10 Restrictions

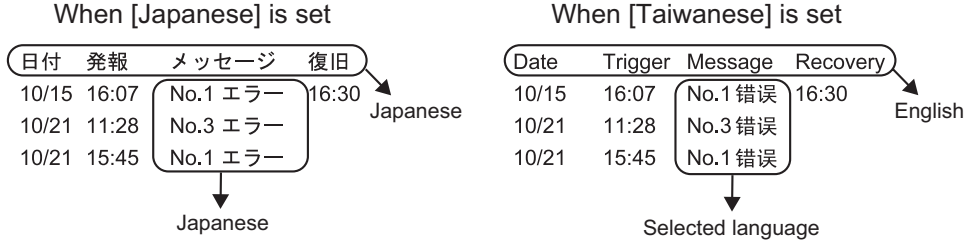
19.10.1 Restrictions on Printing the Alarm History

◆ For [Real Time Print]

- In the Real Time Print, block names such as “Message”, “Date”, and “Trigger” are not printed.
- The GP unit can store printing information for a maximum of 1,000 Alarm Messages (Banner) and Alarm Histories. If no printer is connected to the GP, it can still store up to 1000 messages, but any messages over 1000 will be lost while the GP is waiting to print.
- If the printer goes offline during printing due to a paper jam, etc., fix the printer error without turning off the GP’s power. Print information stored in the GP will be sent to the printer when it comes back online.
- If the printer’s power goes off during printing, the data sent from the GP during that time will not be printed.

◆ For [Batch Print]

- Alarms that are triggered or recover during printing will not be printed. Alarm information which exists when printing starts will be printed.
- If the GP unit turns OFF during printing, printing will not continue when power is turned back ON. If the trigger bit is ON when power is turned back ON, printing will start from the beginning.
- When turning the print trigger bit from ON to OFF or from OFF to ON, be sure to allow at least one communication cycle[*1] or one Display Scan Time[*2] period, whichever is longer.
- If the number of stored alarms is set to “0” on the [Alarm Settings] - [Common Settings] tab, or if no alarms have yet been triggered, “No. of Messages = 0” will be printed.
- If the number of stored alarms is set to “0” on the [Alarm Settings] - [Common Settings] tab, the [Completion Bit] will not turn ON.
- Only the first 2 lines of block names, such as [Messages], [Date], [Trigger], etc. will be printed. However, even if the line extends over several pages, block names will only be printed on the first page.
- Block names such as “Message”, “Date”, or “Trigger” are printed in Japanese when the language setting for Alarm Message is Japanese, or in English when other language (ASCII, Taiwanese, Chinese, or Korean) is set.



*1 The communication cycle time is the time it takes to request and take in data from the GP unit to the PLC. It is stored in the internal device’s LS2037 as binary data. The unit is 10 milliseconds (ms).

*2 The Display Scan Time is the time it takes to display or calculate one screen. It is stored in the internal device’s LS2036 as binary data. The unit is milliseconds (ms).

19.10.2 Restrictions for Sub Display Settings/Detail

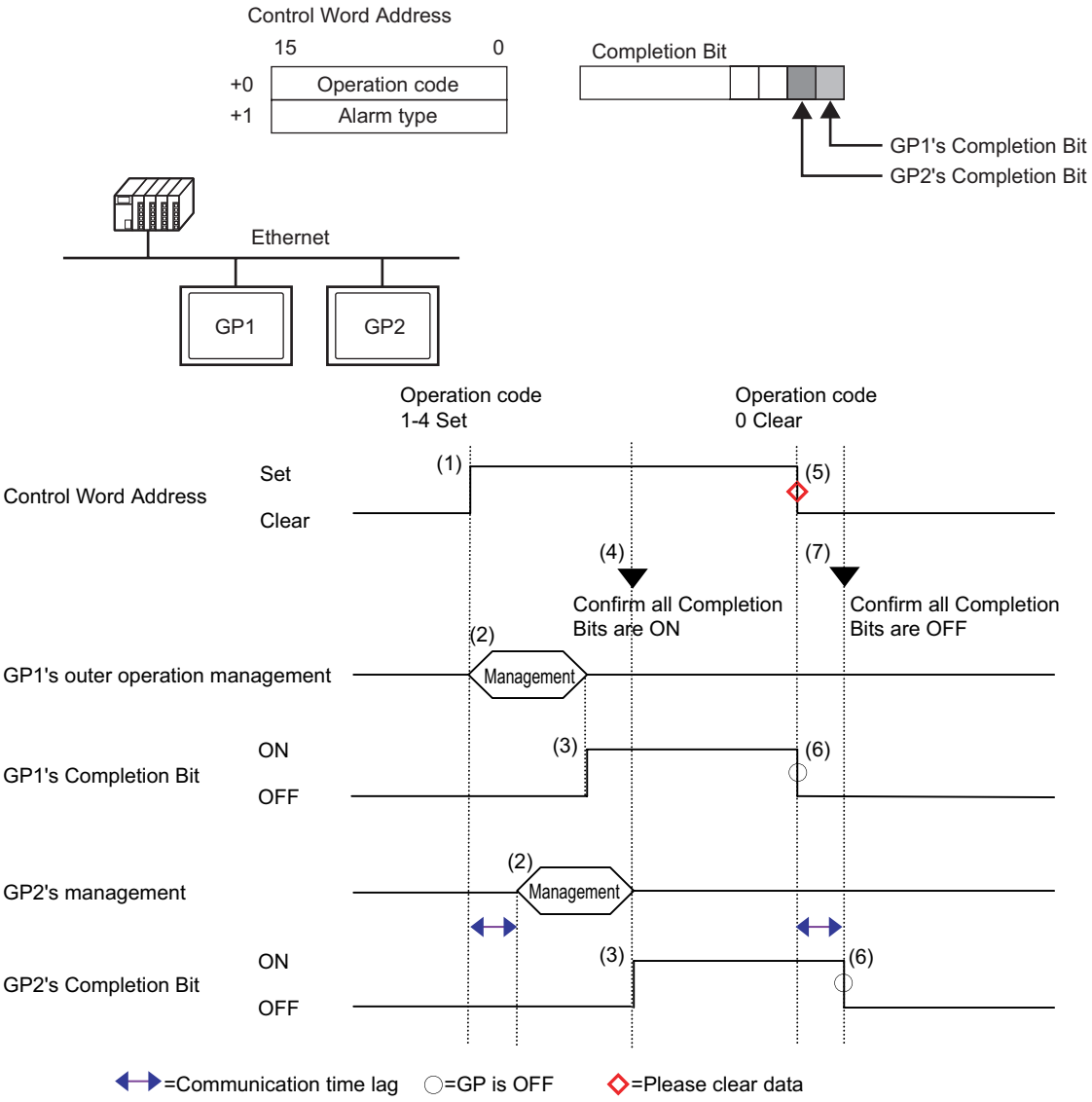
- The Message Display [Text Display] and Picture Display [State Display]'s word addresses as well as Window Part's window control addresses used for a Sub Display are set only in the address of the internal device (LS area, user area).
- The cursor movement and sub display are not linked. Even when the cursor moves, the sub display remains the same.
- Sub displays will not be cleared automatically. Even when an Alarm Message in the sub screen is cleared, the sub display still remains. When, however, the screen is changed, "0" is written to the word address of the Picture Display [State Display] and Message Display [Text Display], and window control address used for the sub display, and the sub display is cleared.
- When displaying a sub screen, only one Alarm Part (History Display) can be set on each base screen. If multiple Alarm Parts (History Display) are set, a sub display is disabled.
- When [Direct Selection] is set, buttons may be hard to touch depending on the calibration of the touch panel[*1] and the message line spacing.

*1 The adjustment of the touch panel's touch area and display so that their settings synchronize. This can be set in the GP unit.

19.10.3 Restrictions for Performing External Operations from Multiple GP Units

External operations can be performed by multiple GP units at the same time. However, a time lag will occur due to each GP's read time, and the order in which the operations are performed and the [Completion Bit] turns ON will differ. Set the operation code after verifying that every [Completion Bit] in each GP has turned OFF.
Also, when clearing the operation code to "0", ensure that every [Completion Bit] in every GP has turned ON.

e.g.)
Set the external operation's [Control Word Address] for several GP units (GP1, GP2) to the same address, and set the [Completion Bit] to separate addresses.



(1) Set the operation code and alarm type in the [Control Word Address] from the PLC.

(2) GP1 and GP2 process orders from the PLC.

(3) When the operations finish, GP1's and GP2's [Completion Bit] turns ON.

(4) The PLC verifies that each [Completion Bit] in all the GP units is now turned ON.

(5) Run the [Control Word Address]'s [Operation Code] "0" (no operation) from the PLC.

(6) When the GP writes "0" as the [Operation Code], the [Completion Bit] turns OFF.

(7) The PLC verifies that each [Completion Bit] in all the GP units is now turned OFF.

NOTE

- Please take into consideration cases when the power turns OFF during this process. Please ensure that when starting the [Control Word Address] is cleared (set to "0") and that every [Completion Bit] is turned OFF.
- While running operations on multiple GP units from the PLC, alarms that are triggered or recovered may not be the same on each GP unit.
- In [Alarm Settings]-[Common Settings], when [Print Settings] is set to [Real Time Print], if you run an external operation to acknowledge all within a block, the acknowledge order will be [History]→[Log]→[Activ]. [If the same message is registered in both [History] and [Log], the History acknowledge time and Log acknowledge time will both be printed in real time, so the same message's acknowledge will be printed twice.

19.10.4 Text Alarm Restrictions

- Only one Text Alarm can be set to a single Base Screen. To display two or more Text Alarm Parts on one screen, use a Window Screen in which Text Alarm Parts are placed.
- The maximum number of display characters on one row is decided by the GP model and the text size.
- If your alarm message is wider than the display area, the portion that exceeds the area is truncated and is not displayed.
- When the Text No. of the text displayed in the Text Alarm Part is changed during operation, the cursor and sub display being displayed are cleared.
- When too many alarms arise simultaneously, you can place Text Alarm Parts on multiple screens and designate [Display Start Row] as follows to view the messages by changing screens.

  1st screen: Start row (normally, “1”)
  2nd screen: No. of display lines on one screen + Start row
  nth screen: No. of display lines on one screen × (n–1) + Start row
- The Base Screen No. or Text No. used for a sub display should be created in sequential numbers in the same order as the text rows to which Alarm Messages are registered.
- The Base Screen and Text used for a Sub Display use screens equal to “(16 × No. of Monitoring Words) + 1”. These screens cannot be used for other purposes.
- When the cursor is cleared during a sub display (the cursor is moved to the place outside of the display area, or the “End” switch is touched), the sub display is also be cleared.
- The value of “the designated [Start Screen No.] + (No. of Monitoring Words × 16)” is used as the Clear Base Screen No. or Clear Text No. to clear the sub display.
  For example, when the Start Screen No. is “100” and the No. of Monitoring Words is “1”, Screen Nos. 100 to 115 are used for the sub display screen and Screen No. 116 is used for the clearing screen.
- When a sub screen is displayed with a Message Display [Text Display] and no clearing text is provided, the sub screen is cleared with [Clear Color] designated for the Message Display.
- When a screen with a sub screen is changed, the sub screen is cleared. The GP writes “0” to the designated word addresses of the Picture Display [State Display], Message Display [Text Display], and Window Part used for a Sub Display.
- When [Start Screen No.] of the sub display is designated with [Address], do not change the Start Screen No. while the sub screen is displayed. This may interfere with proper sub display.
- While a Sub Screen is displayed, communication time may increase.

19.11 Alarm Feature List