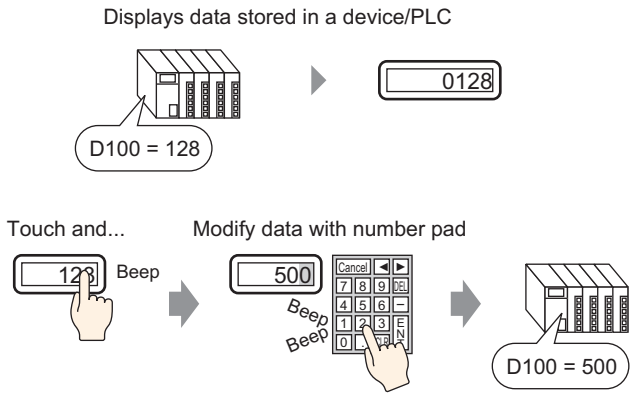
14 Data Display & Data Input

This chapter explains how to use "Data Display & Data input" to place data display parts. Please start by reading “14.1 Settings Menu” (page 14-2) and then turn to the corresponding page.

14.1 Settings Menu 14-2
14.2 Displaying/Inputting Numeric Data 14-5
14.3 Displaying/Inputting Text Data 14-8
14.4 Displaying Numerical Data as an Alarm 14-12
14.5 Color-coding and Displaying Multiple Ranges 14-17
14.6 Displaying the Date and Time 14-23
14.7 Preventing Operational Errors Interlock 14-25
14.8 Prevent Entering Data Outside the Allowed Range 14-29
14.9 8 x16 Dots Sequential Input 14-33
14.10 Changing Values by Adding/Subtracting 14-37
14.11 Data Display Settings Guide 14-42
14.12 Restrictions 14-110
14.13 How Data Input Order Works 14-113

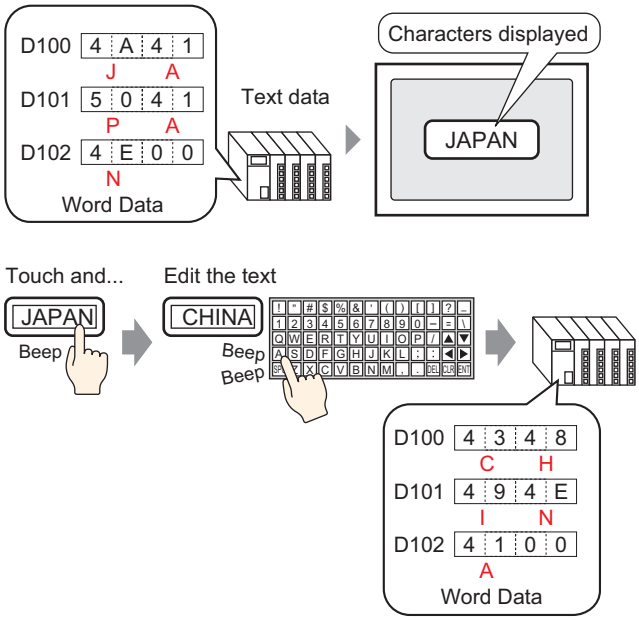
14.1 Settings Menu

Displaying/Inputting Numeric Data



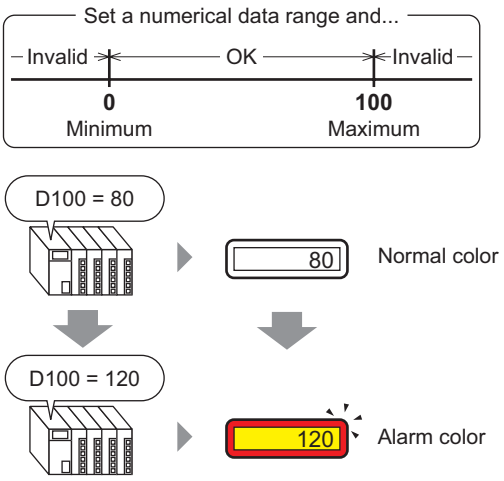
☞ Setup Procedure (page 14-6)
☞ Introduction (page 14-5)

Displaying/Inputting Text Data



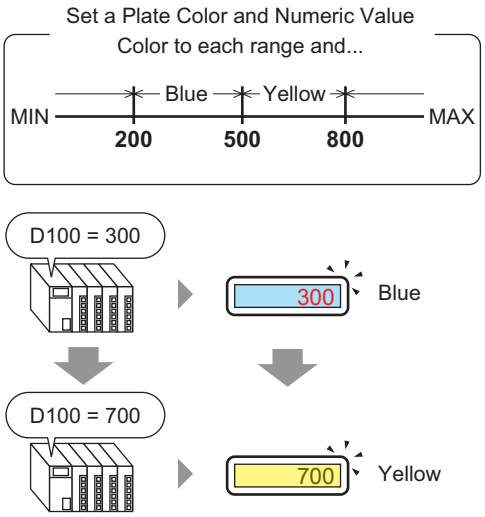
☞ Setup Procedure (page 14-9)
☞ Introduction (page 14-8)

Displaying Numerical Data as an Alarm



☞ Setup Procedure (page 14-13)
☞ Introduction (page 14-12)

Color-coding and Displaying Multiple Ranges

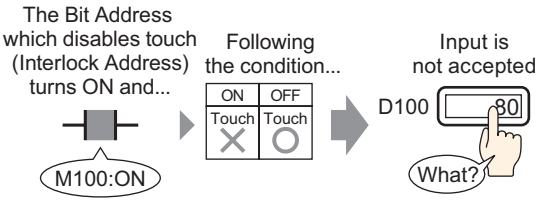


☞ Setup Procedure (page 14-18)
☞ Introduction (page 14-17)

Displaying the Date and Time

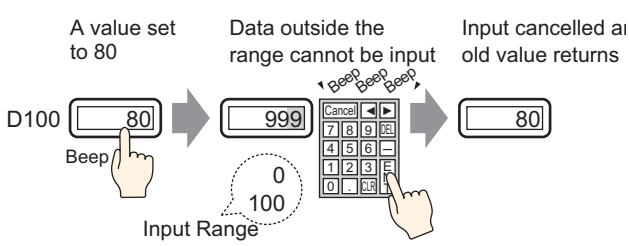
☞ Setup Procedure (page 14-23)
☞ Introduction (page 14-23)

Preventing Operational Errors Interlock



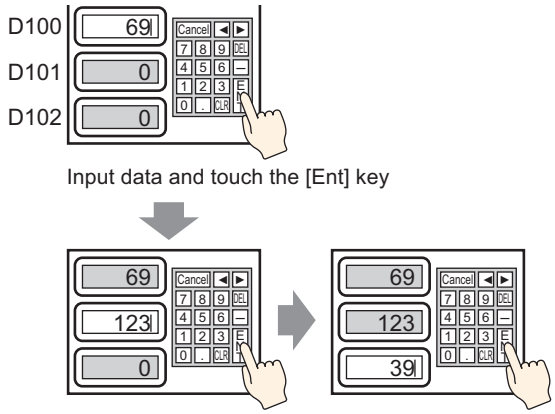
☞ Setup Procedure (page 14-26)
☞ Introduction (page 14-25)

Prevent Entering Data Outside the Allowed Range



☞ Setup Procedure (page 14-29)
☞ Introduction (page 14-29)

8 x16 Dots Sequential Input



The input is confirmed and the next Data Display part in the input order enters the Input Permit state. ? Input data and touch the [Ent] key

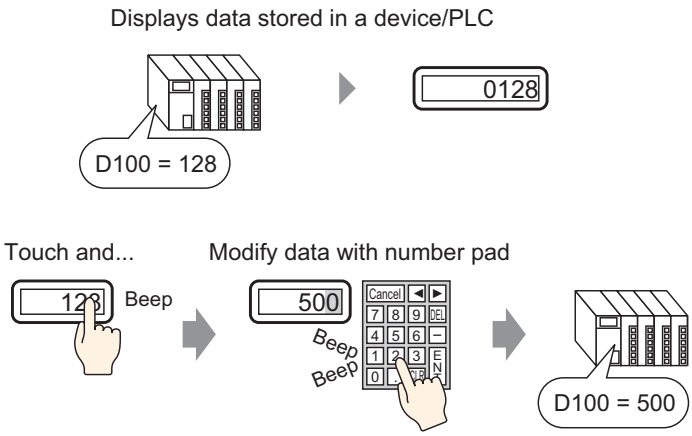
☞ Setup Procedure (page 14-34)
☞ Introduction (page 14-33)

Changing Values by Adding/Subtracting

☞ Setup Procedure (page 14-37)
☞ Introduction (page 14-37)

14.2 Displaying/Inputting Numeric Data

14.2.1 Introduction

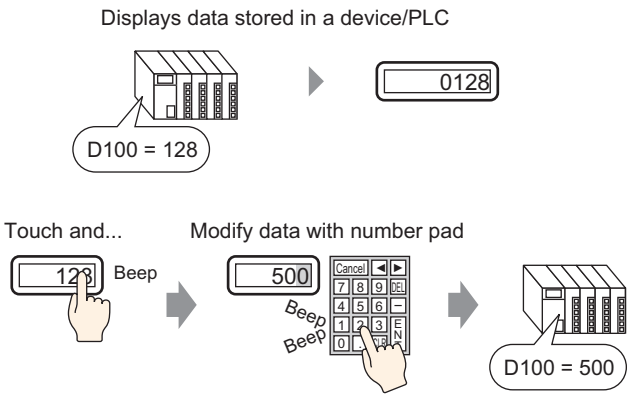


Display data stored in a designated Word Address in the device/PLC as a numeric value. Furthermore, by specifying Input Permission settings, you can display a number pad on the screen and input data to a designated Word Address.

14.2.2 Setup Procedure

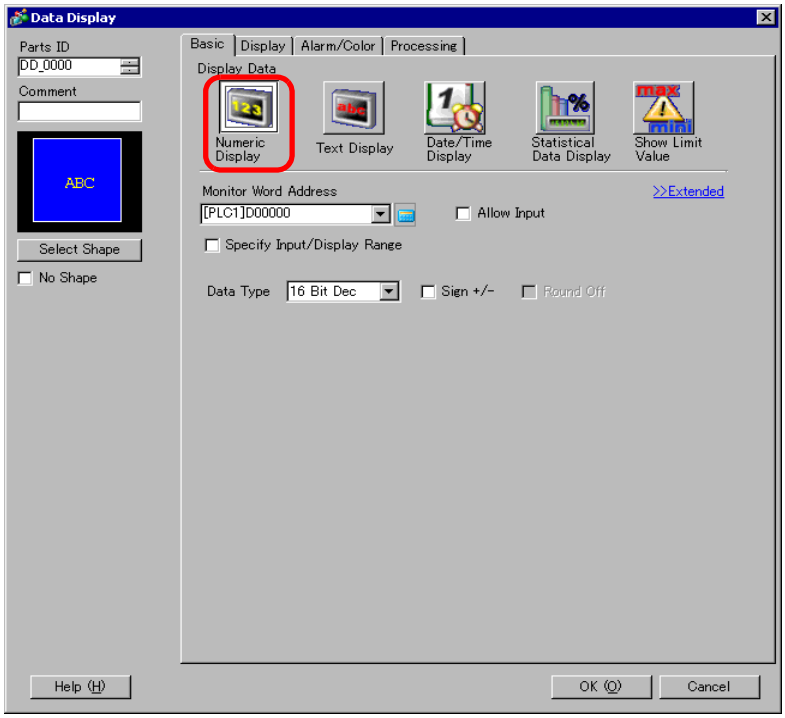
NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.1 Numeric Display" (page 14-44)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)



1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Numeric Display (N)], or click the icon, and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.

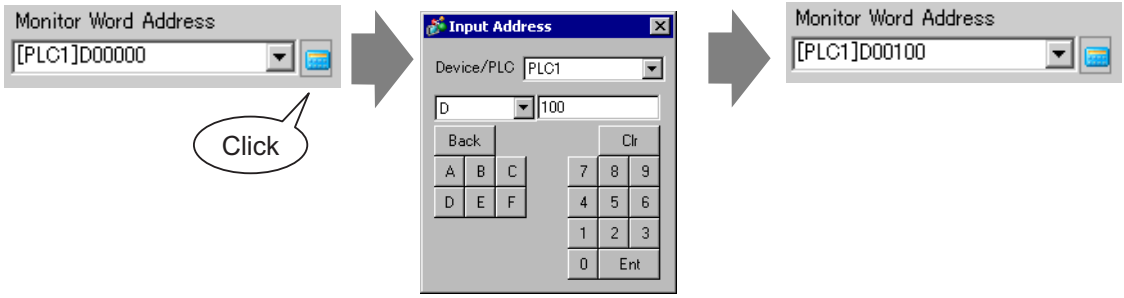


3 Select the Data Display shape from [Select Shape].

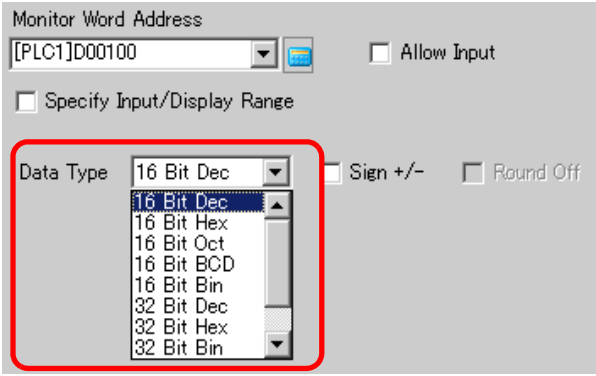
4 In [Monitor Word Address], set the address (D100) that will store the Value to display.

When the icon is clicked, an address input keypad will be displayed.

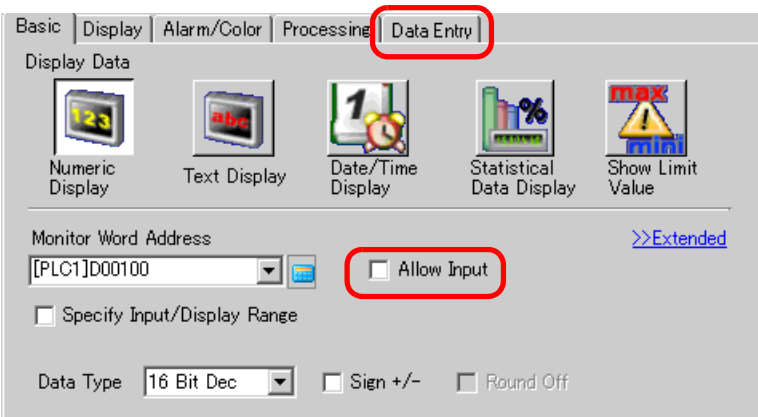
Select device "D", input "100" as the address, and press the "Ent" key.



5 Set the type of data that will be displayed (for example "16 Bit Dec") in [Data Type].



6 Select the [Allow Input] check box to display the [Data Entry] tab. Select the [Enable Popup Keypad] check box. You can enter numerical data from the popup keypad.



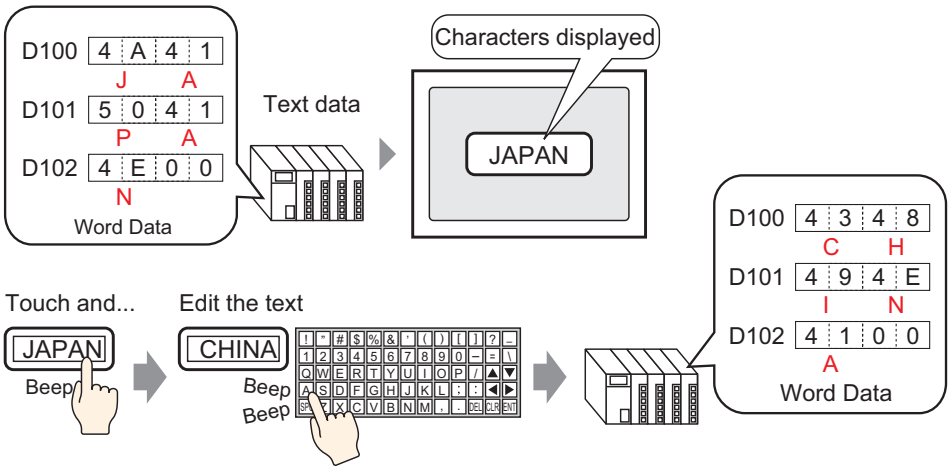
NOTE

- This cannot be set when only numeric data is displayed.

7 As needed, set the Data Display color and text on the [Alarm/Color] tab and [Display] tab, and click [OK].

14.3 Displaying/Inputting Text Data

14.3.1 Introduction



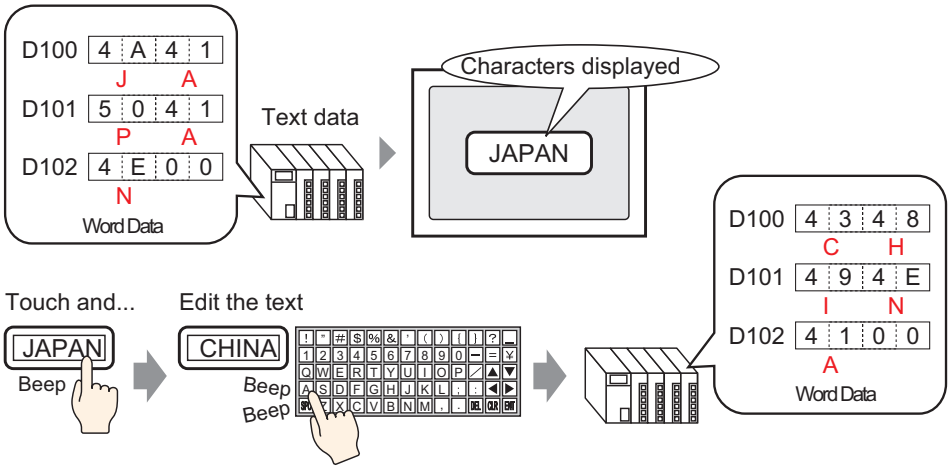
Display text data stored in a specified Word Address on the device (PLC).
There are two methods for changing Text Data: change the displayed screen, or use a trigger bit.

Furthermore, by specifying Input Permitted settings, you can display a keypad on the screen and input text data to a designated Word Address.

14.3.2 Setup Procedure

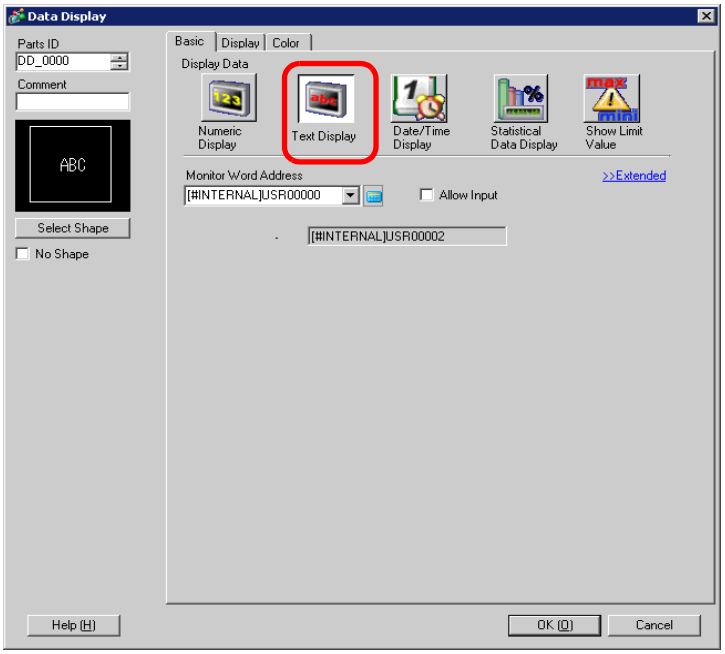
NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.2 Text Display" (page 14-84)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)



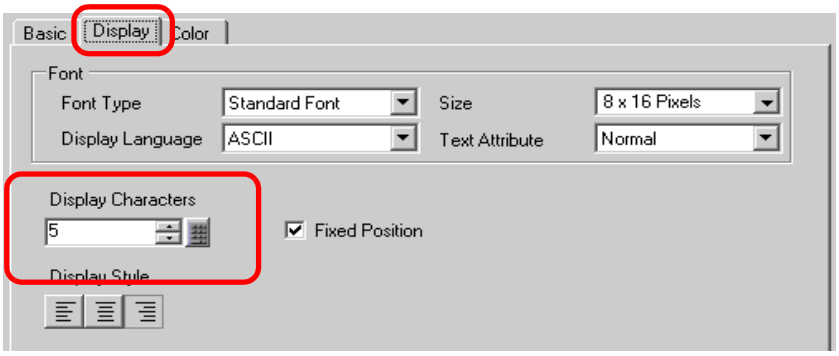
1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Text Display (S)], or click , and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.



3 Select the Data Display shape from [Select Shape].

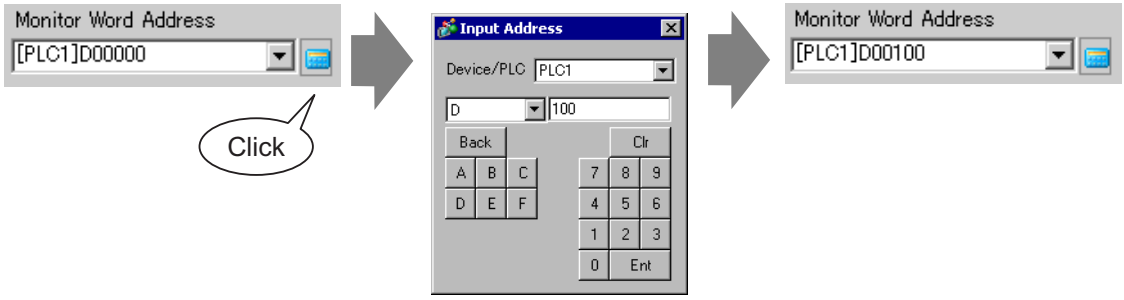
4 Click the [Display] tab, and enter the number of characters from 1 to 100 into the [Display Characters] field. When working with double-byte characters, each double-byte character counts as two characters.



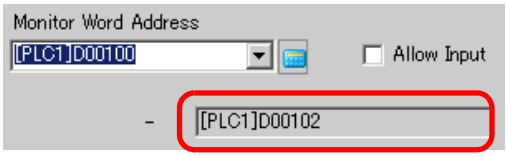
5 Click the [Basic Settings]tab, and in [Monitor Word Address], set the address (D100) that will store the Value to display.

When the icon is clicked, an address input keypad will be displayed.

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



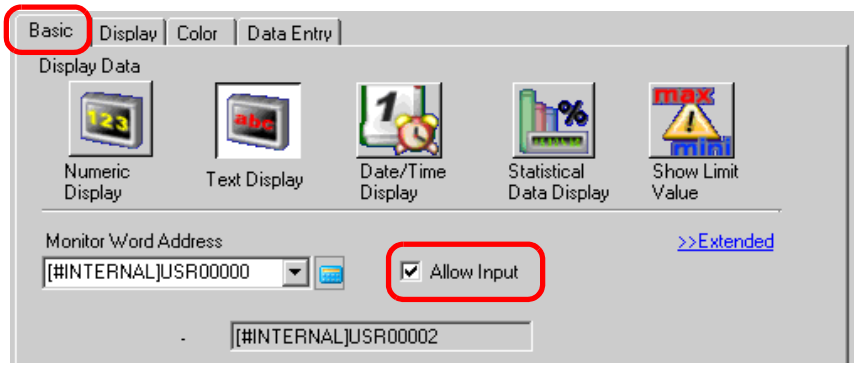
6 The last address of the Word Address (Monitor Word Address + Display characters) is displayed.



NOTE

- Use two characters for one word in English single-byte characters, and one character for one word in double-byte characters.

7 Select the [Allow Input] check box to display the [Data Entry] tab. Select the [Enable Popup Keypad] check box. You can enter text data from the popup keypad.



NOTE

- This cannot be set when displaying text data only.

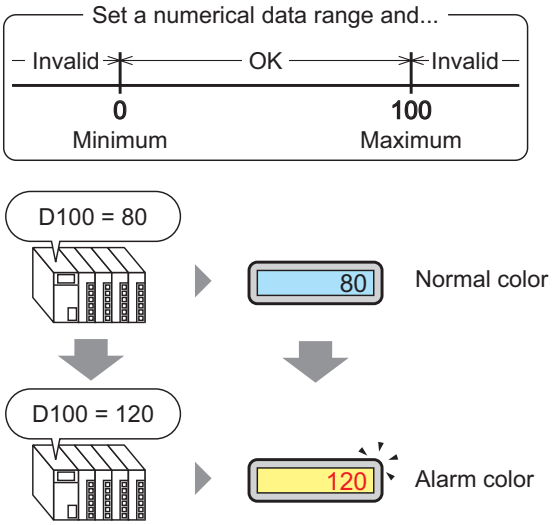
8 If necessary, set the Data Display color and text on the [Color] tab and [Display] tab, and click [OK].

NOTE

- For more information about Text Displays, refer to "14.12.1 Text Display Restrictions" (page 14-110) .

14.4 Displaying Numerical Data as an Alarm

14.4.1 Introduction

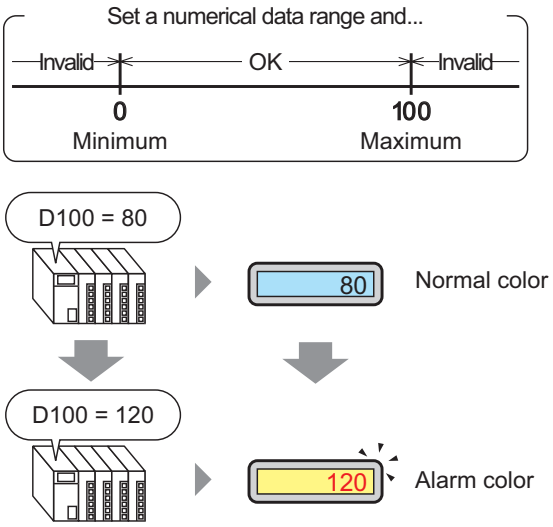


Set a range with preset numeric values.
If the numerical data is outside the range, the display color changes and the user is notified (for example, with an alarm).

14.4.2 Setup Procedure

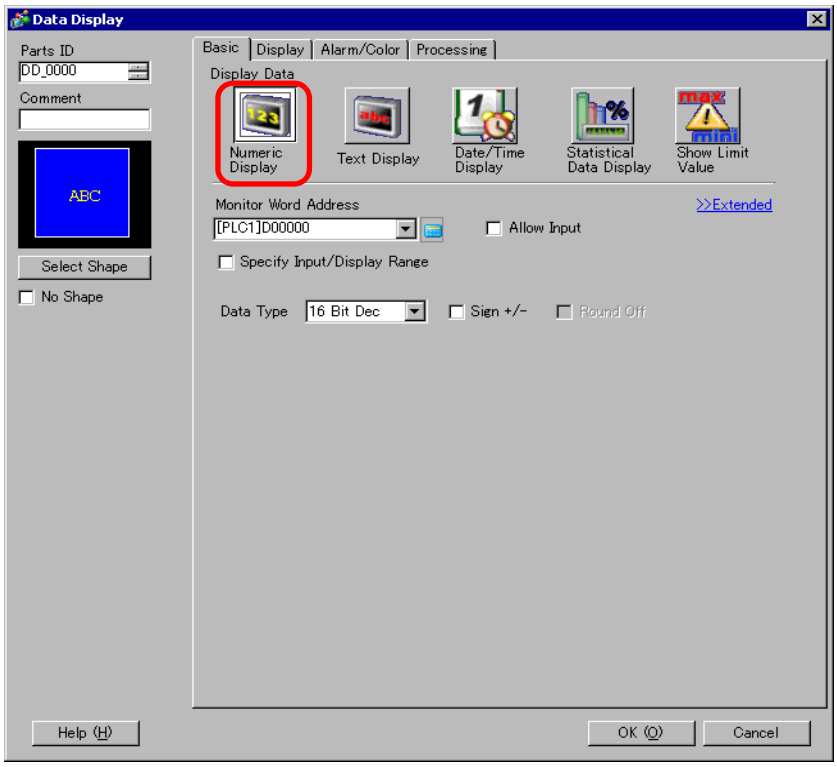
NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.1 Numeric Display ■ Alarm/Color/Basic" (page 14-75)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)



1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Numeric Display (N)], or click the icon, and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.

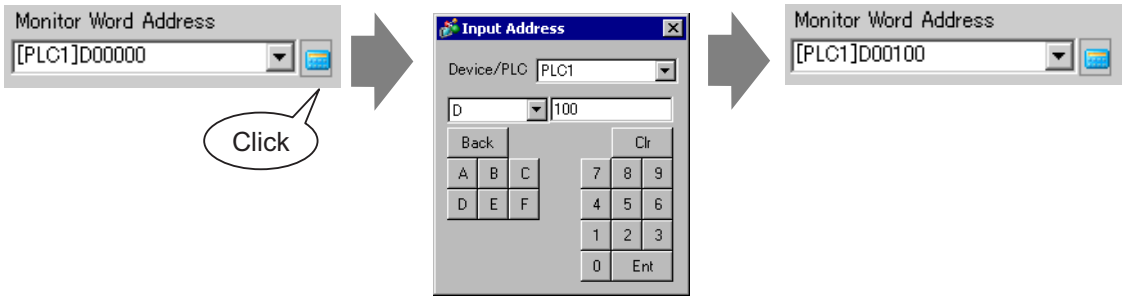


3 Select the Data Display shape from [Select Shape].

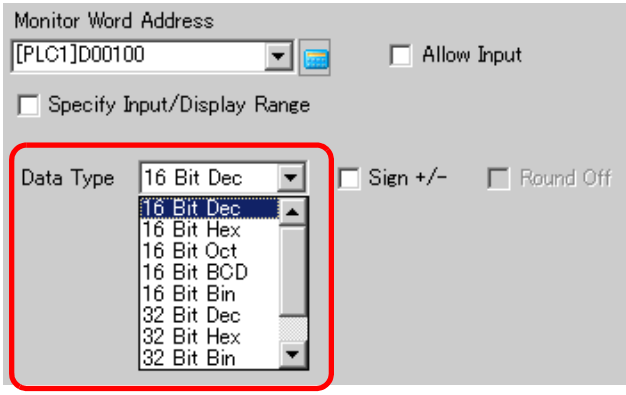
4 In [Monitor Word Address], set the address (D100) that will store the Value to display.

When the icon is clicked, an address input keypad will be displayed.

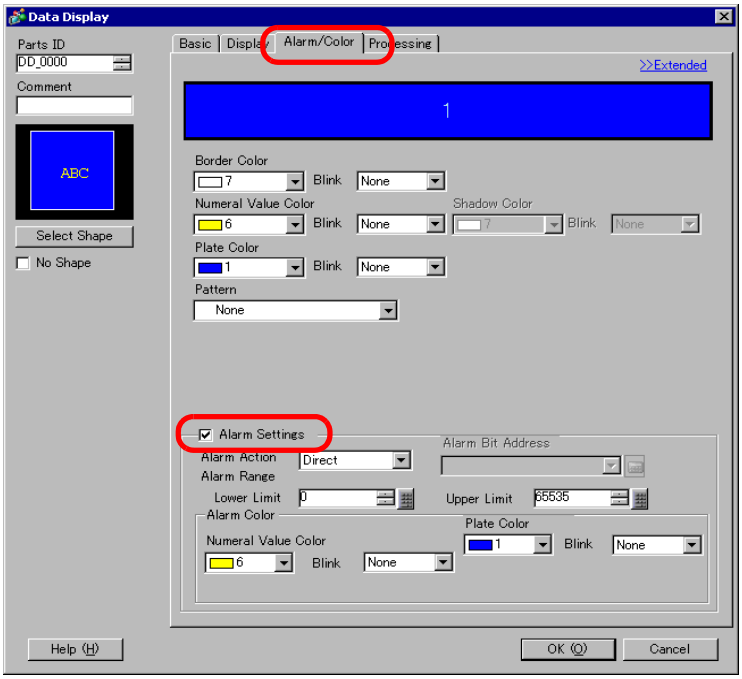
Select device "D", input "100" as the address, and press the "Ent" key.



5 Set the type of data that will be displayed (for example "16 Bit Dec") in [Data Type].

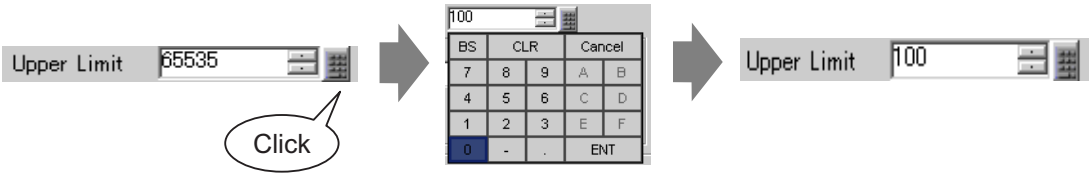


6 Click the [Alarm/Color] tab, and select the [Alarm Settings] check box.

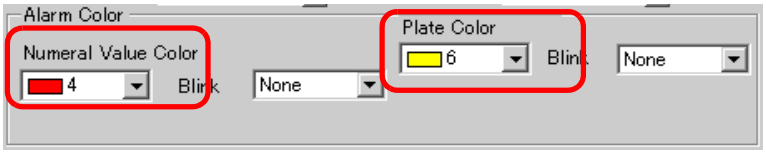


7 In [Alarm Action], select the Upper/Lower Limit Value specification method from [Direct] or [Address] (in this example, [Direct]).

8 In [Alarm Range], set the Upper Limit (for example, 100) and Lower Limit (for example, 0).



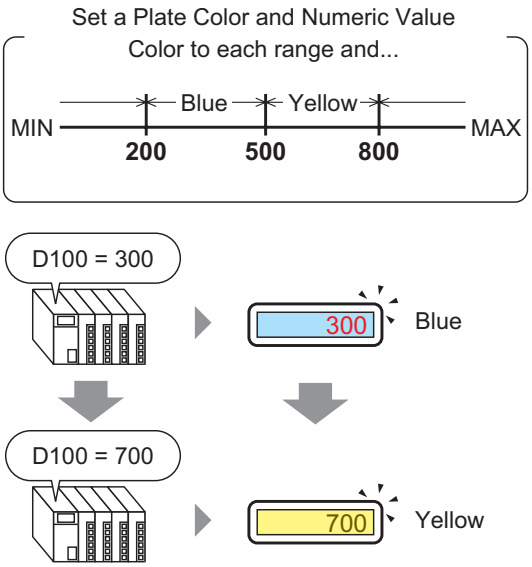
9 In [Alarm Color], set the [Numeral Value Color] (for example, Red) and the [Plate Color] (for example, Yellow).



10 If necessary, set the Data Display text on the [Display] tab, and click [OK (O)].

14.5 Color-coding and Displaying Multiple Ranges

14.5.1 Introduction

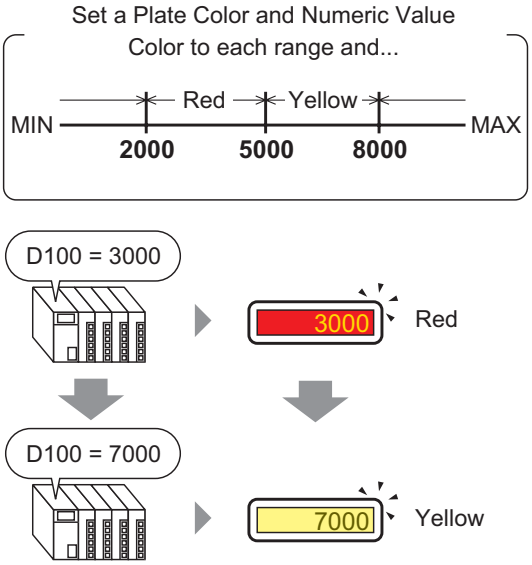


By setting colors for each range, values will change colors when they reach the set range. Plate/text color can be changed.

14.5.2 Setup Procedure

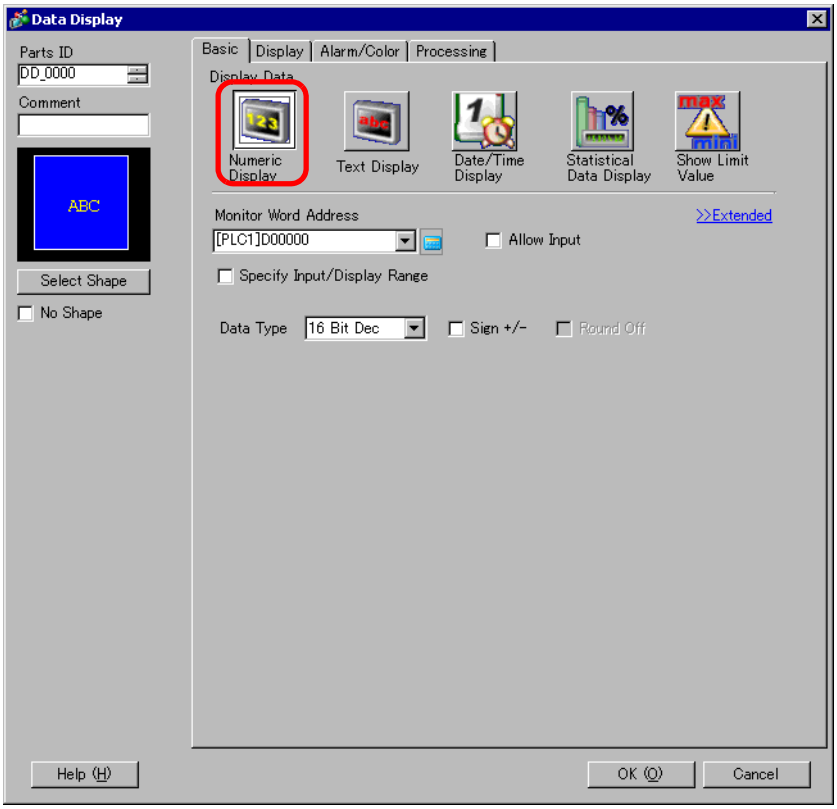
NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.1 Numeric Display" (page 14-44)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)



1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Numeric Display (N)], or click the icon, and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.

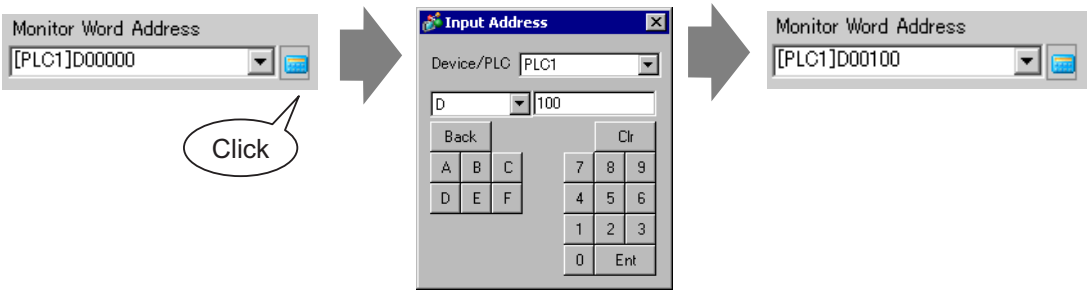


3 Select the Data Display shape from [Select Shape].

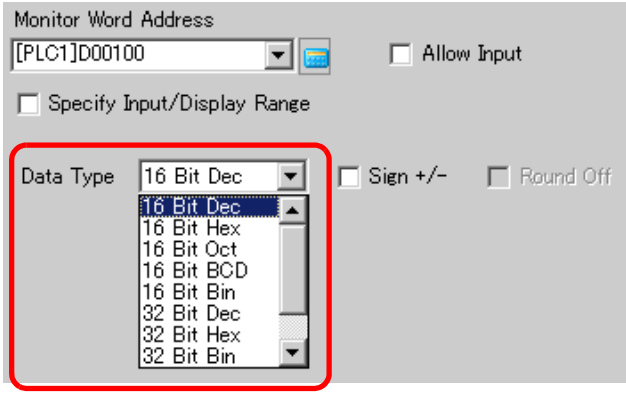
4 In [Monitor Word Address], set the address (D100) that will store the Value to display.

When the icon is clicked, an address input keypad will be displayed.

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



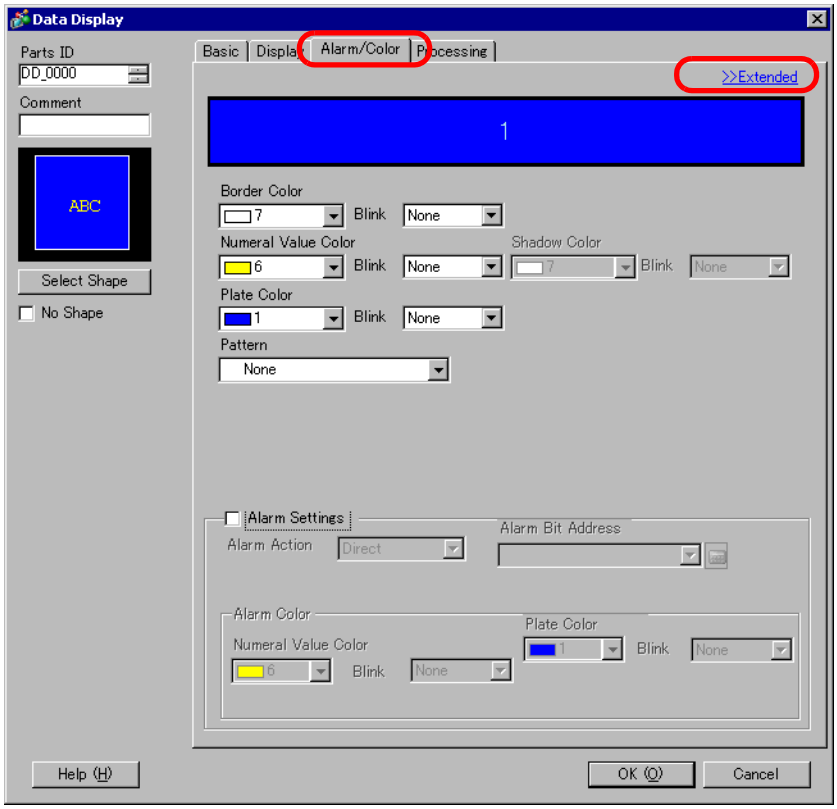
5 Set the type of data that will be displayed (for example "16 Bit Dec") in [Data Type].



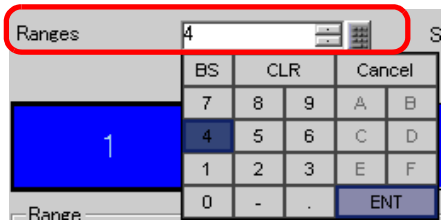
NOTE

- Set [Specify Input/Display Range] so the numeric data can be converted comparatively and displayed.

6 Click the [Alarm/Color] tab, and click [Extended].

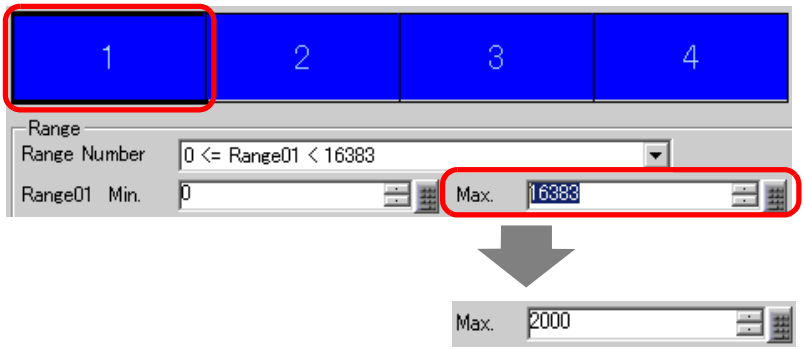


7 In [Ranges], set the number of ranges (for example, 4).



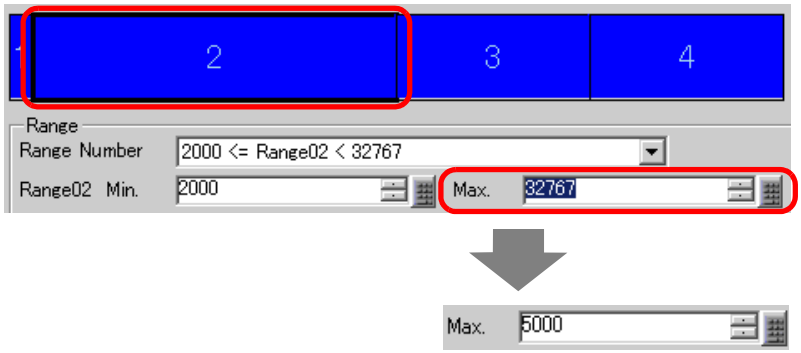
8 Select a method of specifying the range of minimum and maximum values in [Specify Range] from [Constant] or [Address].

9 Select 1 from the [Alarm Color Display Bar], set [Range 01]'s Max and Min. (for example, Min =0, Max =2000).



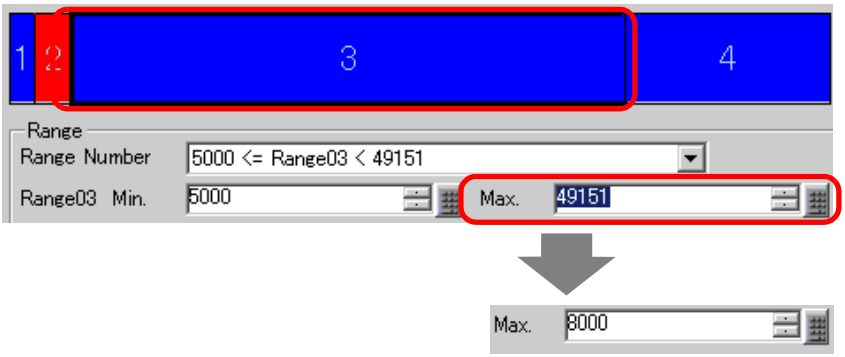
10 In [Alarm Color], set [Range 01]'s [Numeral Value Color] (for example, Yellow) and the [Plate Color] (for example, Blue).

11 Select 2 from [Alarm Color Display Bar] and set the [Range 02] Max and Min. (for example, Min = 2000, Max 5000).



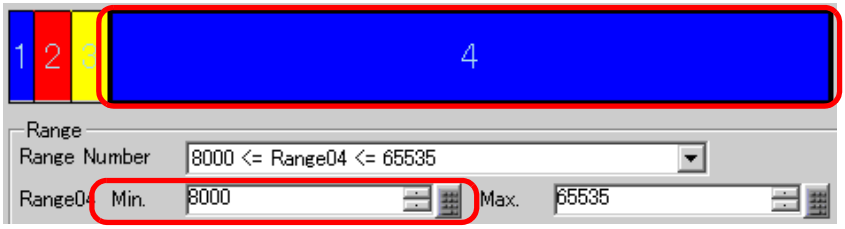
12 In [Alarm Color], set [Range 02]'s [Numeral Value Color] (for example, Yellow) and the [Plate Color] (for example, Red).

13 Select 3 from [Alarm Color Display Bar] and set the [Range 03] Min and Max. (for example, Min 000, Max 8000).



14 In [Alarm Color], set [Range 03]'s [Numeral Value Color] (for example, Black) and the [Plate Color] (for example, Yellow).

15 Select 4 from [Alarm Color Display Bar] and set the [Range 04] Min and Max. (for example, Min 8000).



16 In [Alarm Color], set [Range 04]'s [Numeral Value Color] (for example, Yellow) and the [Plate Color] (for example, Blue).

17 If necessary, set the Data Display text on the [Display] tab, and click [OK].

14.6 Displaying the Date and Time

14.6.1 Introduction

2005/01/20 (Thu) 09:32

The GP clock and calendar data are stored in a designated area of the System Data Area.

14.6.2 Setup Procedure

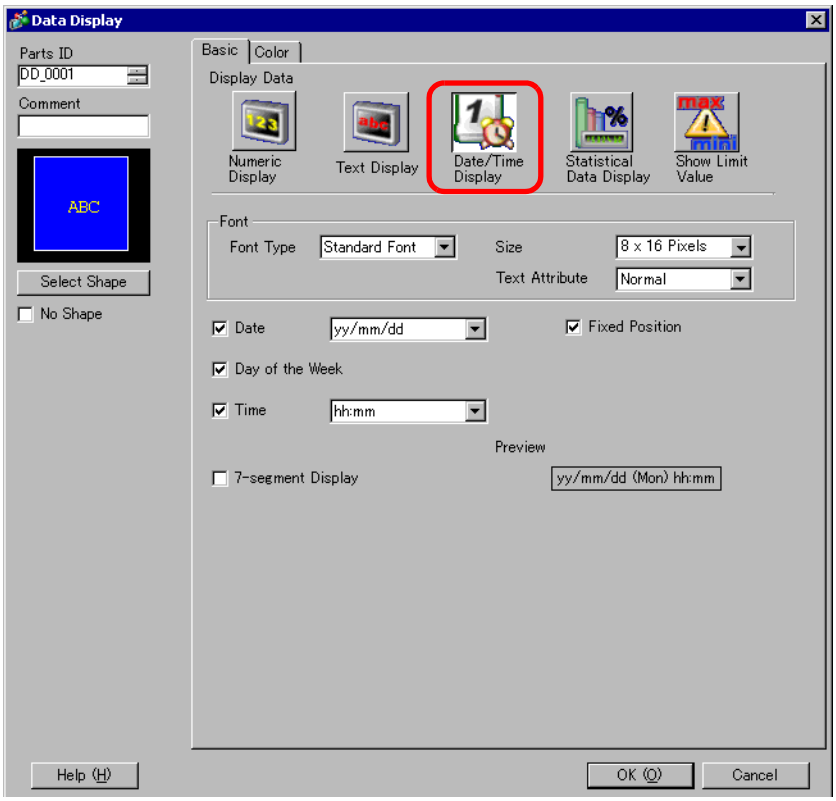
NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.3 Date/Time Display" (page 14-101)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

2005/01/20 (Thu) 09:32

1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Text Display (S)], or click , to place it on the screen.

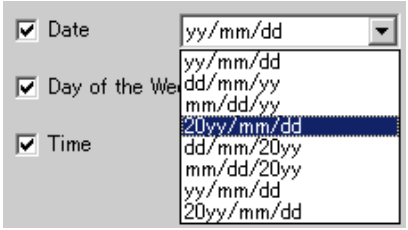
2 Double-click the placed Data Display. The following dialog box appears.



3 Select the Data Display shape from [Select Shape].

4 Choose a font for the date/time in [Font]. (For example, Standard Font, Size = 8X16 dots, Text Attribute = Standard)

5 Select a date format in [Date]. (For example, 20yy/mm/dd)



6 To display the day, select the [Day of the Week] check box. (For example, Display day)

7 Select a time format in [Time]. (For example, hh:mm)

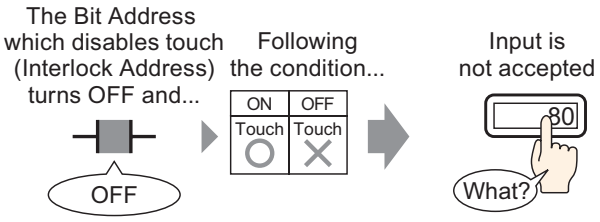
8 As needed, set the Data Display color on the [Color] tab, and click [OK].

14.7 Preventing Operational Errors Interlock

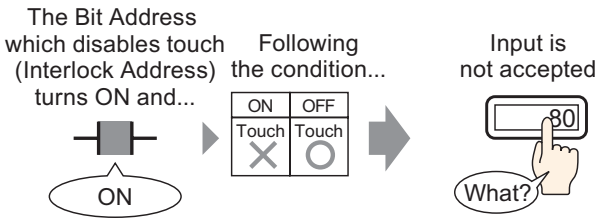
14.7.1 Introduction

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

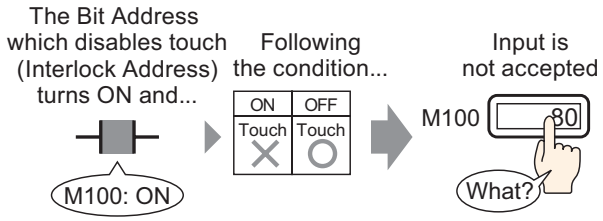
- When the Touch Enable Condition is "Bit ON".
  The touch action will only work when the set Interlock Address is ON.



- When the Touch Enable Condition is "Bit OFF".
  The touch action will only work when the set Interlock Address is OFF.



14.7.2 Setup Procedure

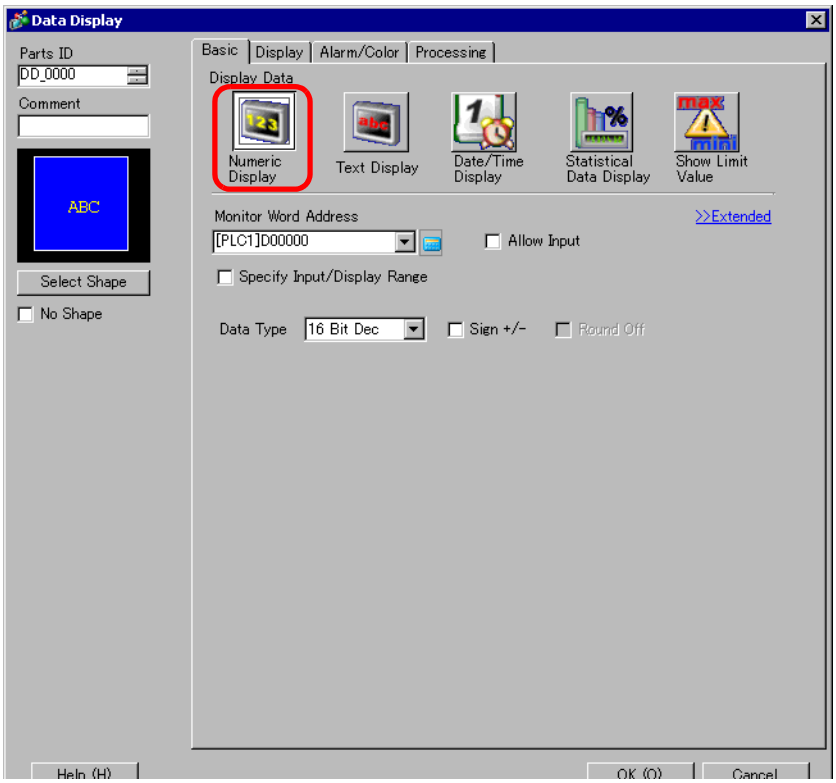


NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.1 Numeric Display" (page 14-44)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Numeric Display (N)], or click the icon, and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.

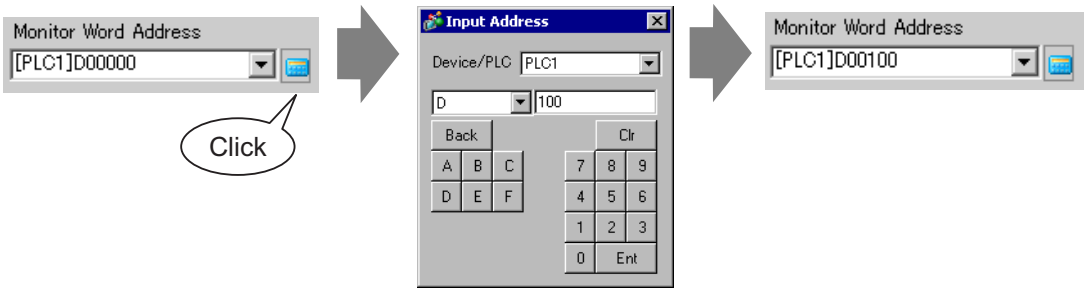


3 Select the Data Display shape from [Select Shape].

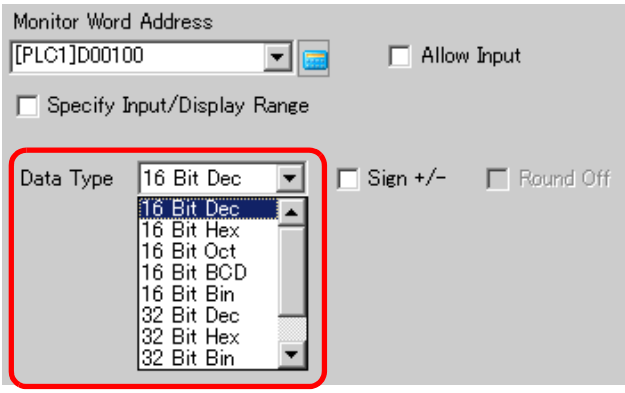
4 In [Monitor Word Address], set the address (D100) that will store the Value to display.

When the icon is clicked, an address input keypad will be displayed.

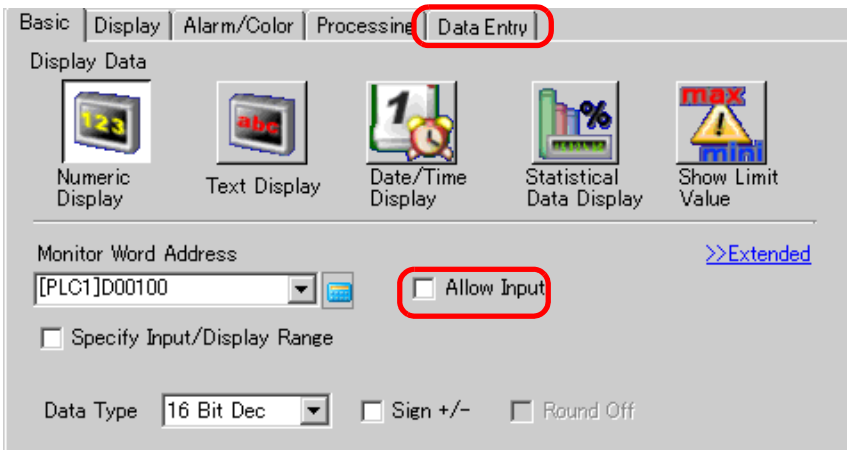
Select device "D", input "100" as the address, and press the "Ent" key.



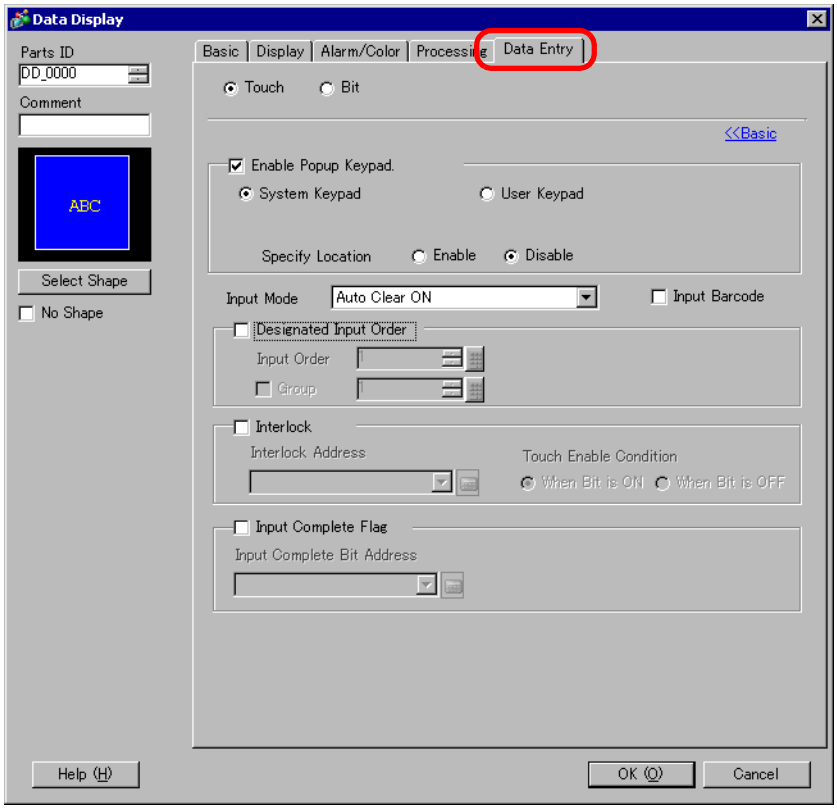
5 Set the type of data that will be displayed (for example "16 Bit Dec") in [Data Type].



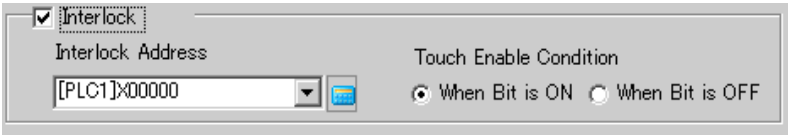
6 Select the [Allow Input] check box to display the [Data Entry] tab. Select the [Enable Popup Keypad] check box. You can enter numerical data from the popup keypad.



7 Click the [Data Entry] tab and click [Extended]. The following dialog box appears.



8 Select the [Interlock] check box, then in the [Interlock Address] field specify the bit address (M100) that will enable touch operations.

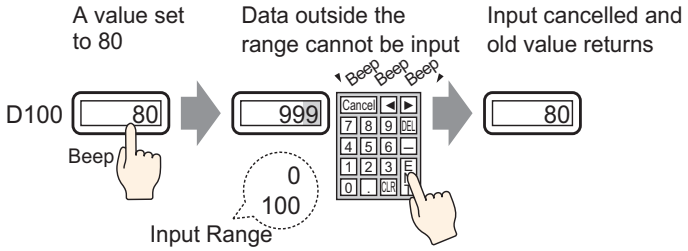


9 In the [Touch Enable Condition] field specify the condition that will enable touch operations (for example, "When bit OFF" for the touch operations are enabled when the bit is OFF).

10 As needed, set the Data Display color and text on the [Alarm/Color] tab and [Display] tab, and click [OK].

14.8 Prevent Entering Data Outside the Allowed Range

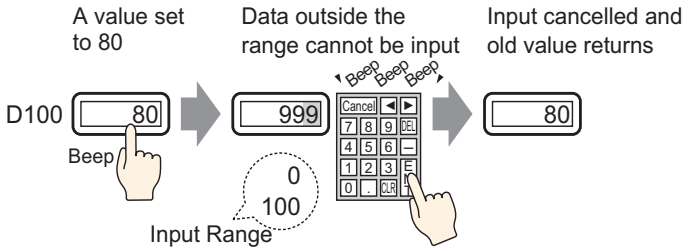
14.8.1 Introduction



14.8.2 Setup Procedure

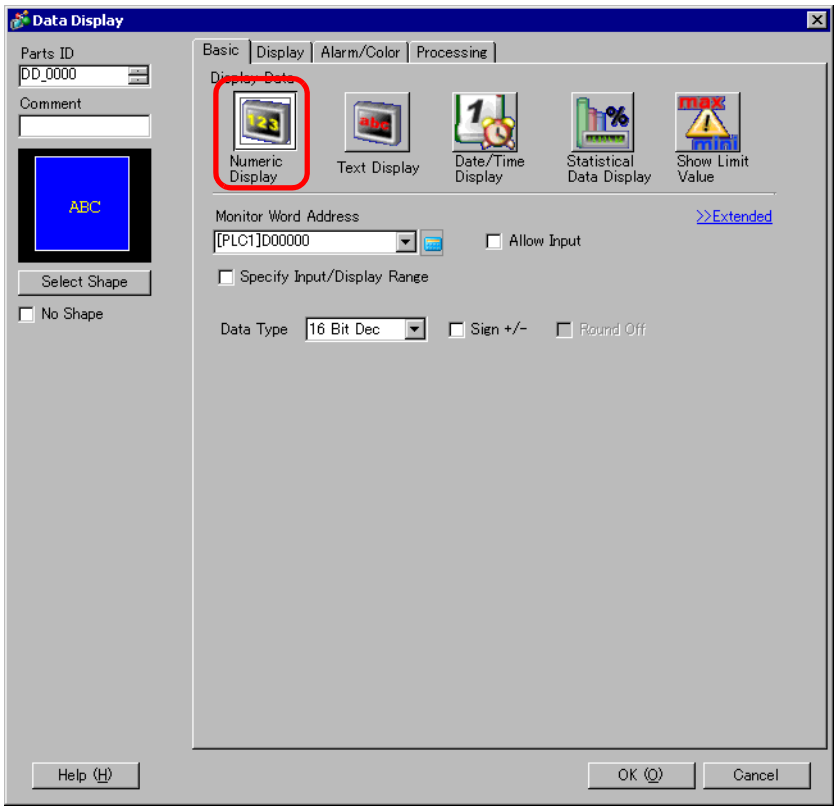
NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.1 Numeric Display" (page 14-44)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)



1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Numeric Display (N)], or click the icon, and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.

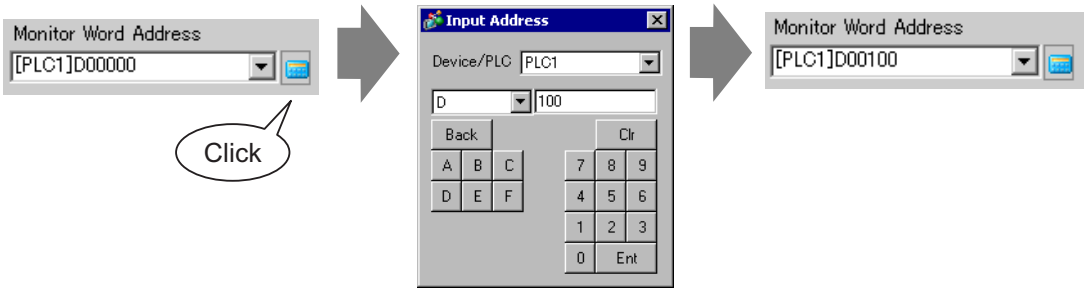


3 Select the Data Display shape from [Select Shape].

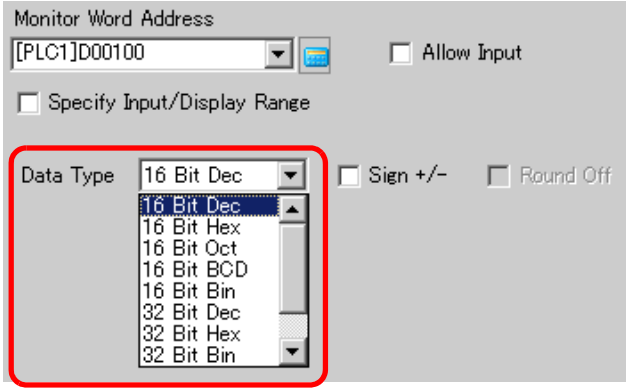
4 In [Monitor Word Address], set the address (D100) that will store the Value to display.

When the icon is clicked, an address input keypad will be displayed.

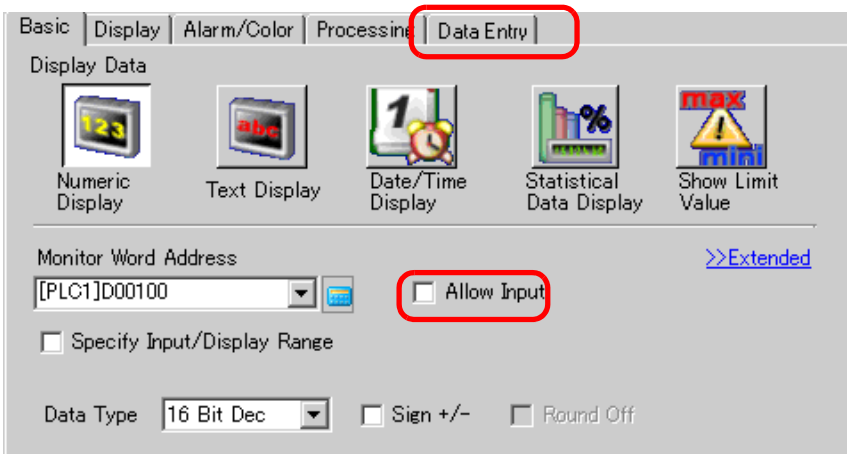
Select device "D", input "100" as the address, and press the "Ent" key.



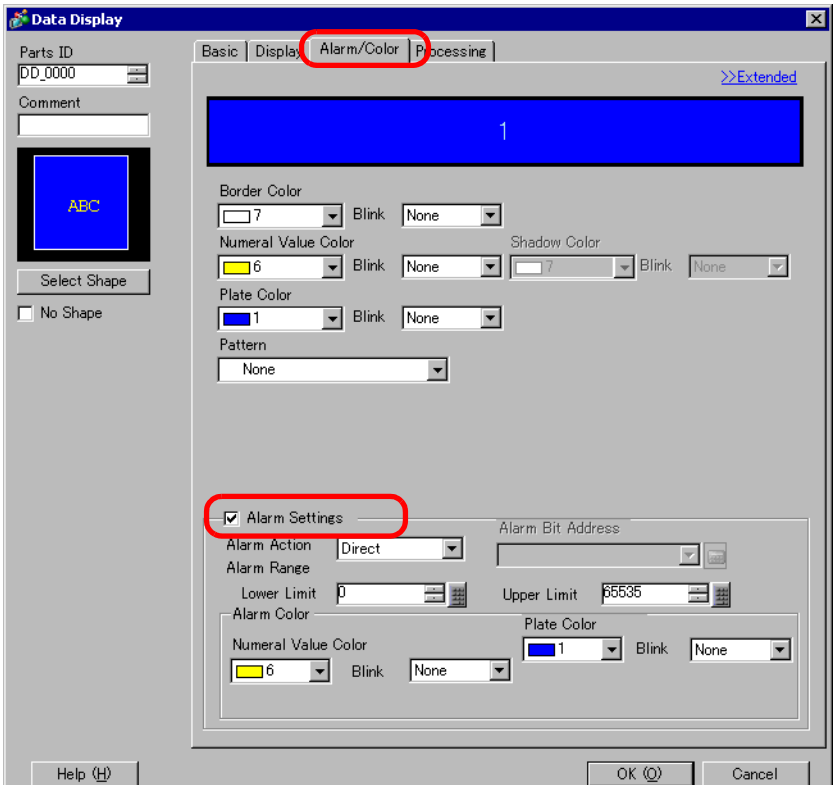
5 Set the type of data that will be displayed (for example "16 Bit Dec") in [Data Type].



6 Select the [Allow Input] check box to display the [Data Entry] tab. Select the [Enable Popup Keypad] check box. You can enter numerical data from the popup keypad.

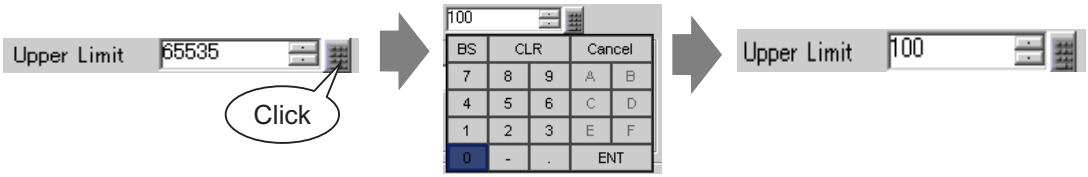


7 Click the [Alarm/Color] tab, and put a check mark in the [Alarm] box.



8 In [Alarm Action], select the Upper/Lower Limit Value specification method from [Direct] or [Address] (in this example, [Direct]).

9 In [Alarm Range], set the Upper Limit (for example, 100) and Lower Limit (for example, 0).



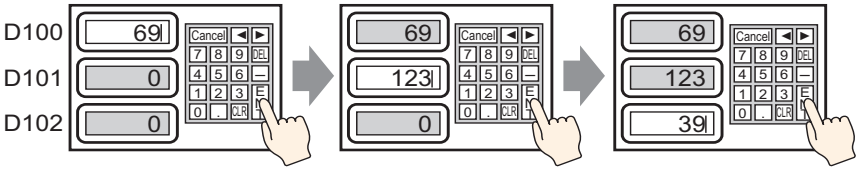
10 As needed, set the Data Display color and text on the [Alarm/Color] tab and [Display] tab, and click [OK].

NOTE

- There are no input restrictions on the values input from the PLC.

14.9 8 x16 Dots Sequential Input

14.9.1 Introduction



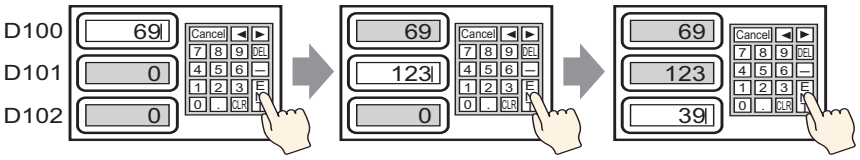
Input data and touch the [Ent] key

The input is confirmed and the next Data Display part in the input order enters the Input Permit state. ? Input data and touch the [Ent] key

14.9.2 Setup Procedure

NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.1 Numeric Display" (page 14-44)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

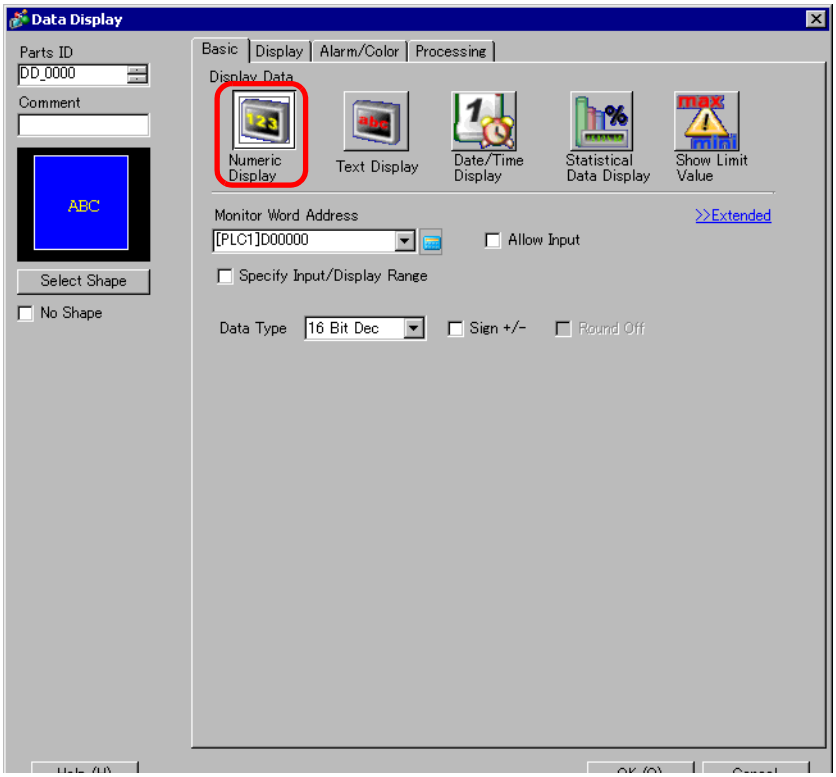


Input data and touch the [Ent] key.

The input is confirmed and the next Data Display part in the input order enters the Input Permit state. → Input data and touch the [Ent] key.

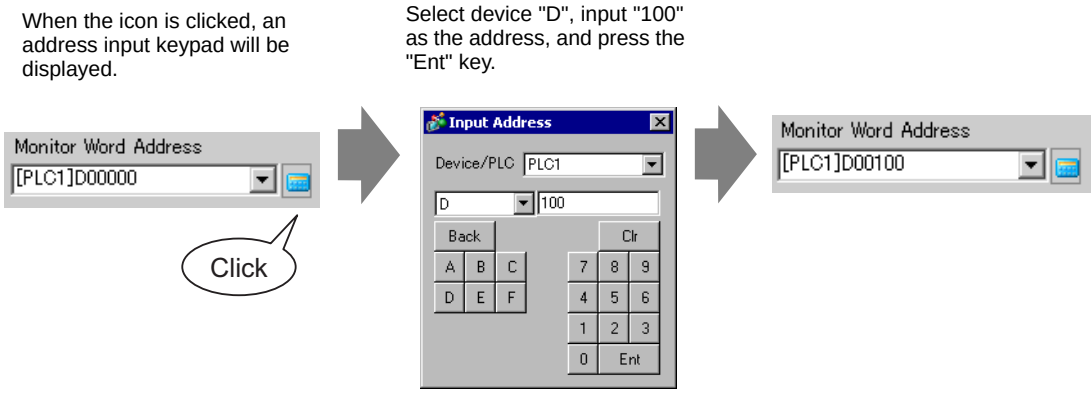
1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Numeric Display (N)], or click the icon, and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.

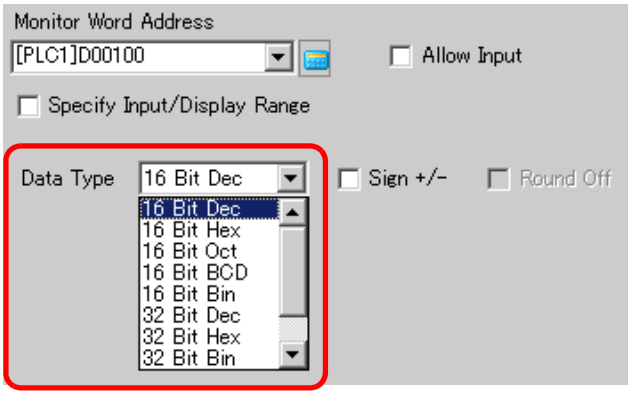


3 Select the Data Display shape from [Select Shape].

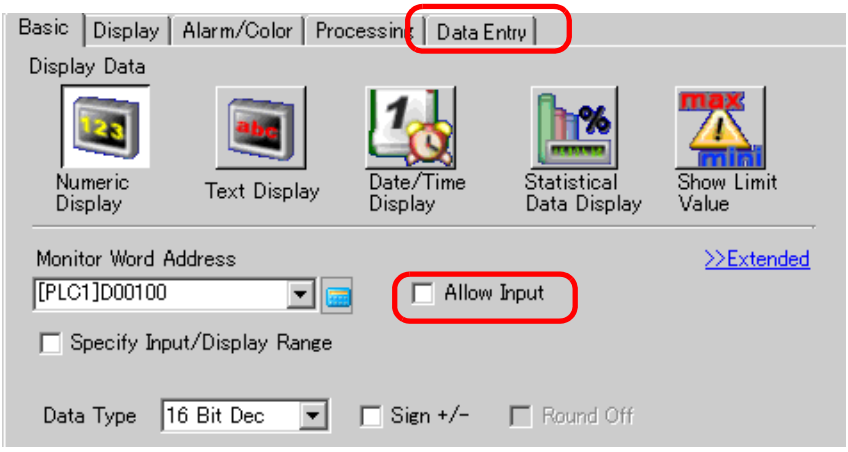
4 In [Monitor Word Address], set the address (D100) that will store the Value to display.



5 Set the type of data that will be displayed (for example "16 Bit Dec") in [Data Type].



6 Select the [Allow Input] check box to display the [Data Entry] tab. Select the [Enable Popup Keypad] check box. You can enter numerical data from the popup keypad.



7 Click the [Data Entry] tab, and select the [Designated Input Order] check box.

8 In [Input Order], set the order the part will enter input status (for example, 1).

9 As needed, set the Data Display color and text on the [Alarm/Color] tab and [Display] tab, and click [OK].

NOTE

- In the same way, to set the 2nd Data Display that will enter the Input Permitted state, set [Monitor Word Address] to "D101", and [Input Order] to "2". For the 3rd Data Display that will enter the Input Permitted state, set [Monitor Word Address] to "D102", and [Input Order] to "3".
- For information about the Input Order settings, refer to “14.13.1 Set Input Order” (page 14-113) .

14.10 Changing Values by Adding/Subtracting

14.10.1 Introduction

When you use a word switch's Add/Subtract Data function, the directly referenced data in a Data Display can be modified. This is useful for fine-tuning and small-scale adjustments. This setup is an option for increasing or decreasing values. When the value rolls over, it carries over changes to other digits.

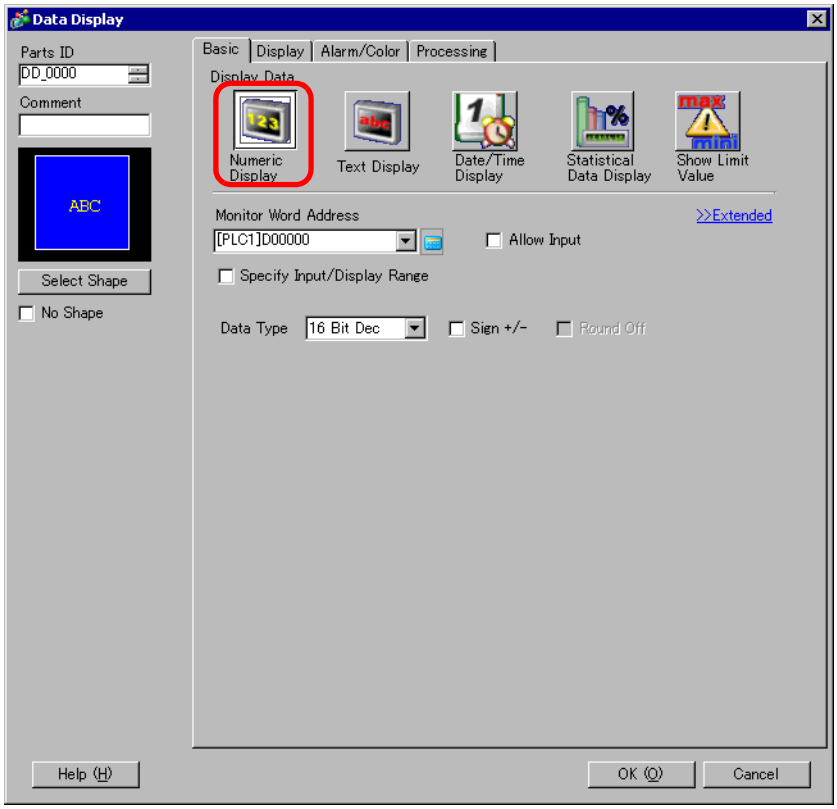
14.10.2 Setup Procedure

NOTE

- Please refer to the Setup Guide for details.
  ☞ "14.11.1 Numeric Display" (page 14-44)
- For details of the part placement method and the address, shape, color, and label setting method, refer to the "Part Editing Procedure".
  ☞ "9.6.1 Editing Parts" (page 9-38)

1 On the [Parts (P)] menu, select [Data Display (D)] and then click [Numeric Display (N)], or click the icon, and place it on the screen.

2 Double-click the placed Data Display. The following dialog box appears.

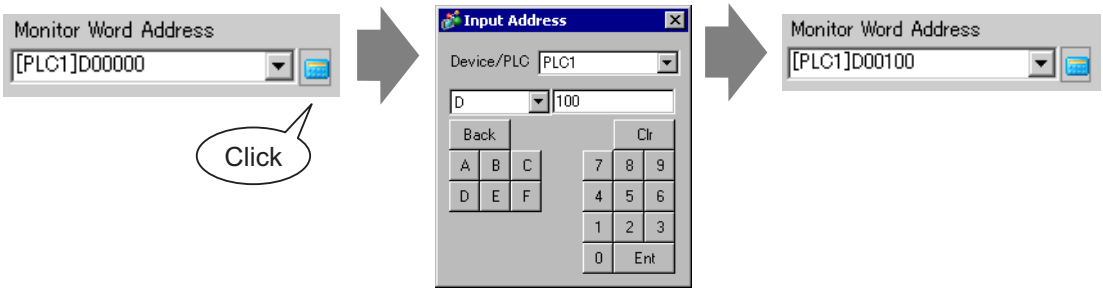


3 Select the Data Display shape from [Select Shape].

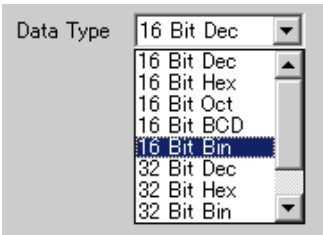
4 In [Monitor Word Address], set the address (D100) that will store the Value to display.

When the icon is clicked, an address input keypad will be displayed.

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



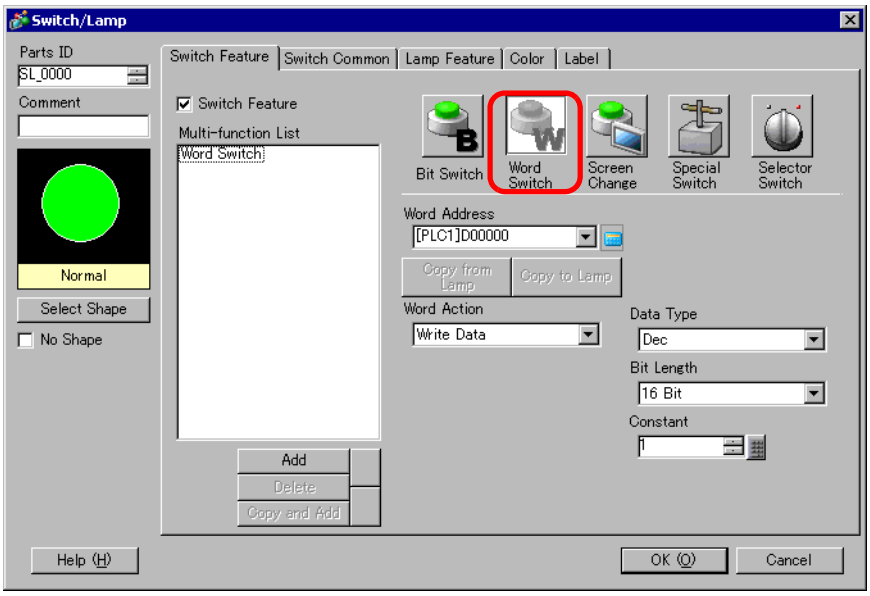
5 Set the type of data that will be displayed (for example, "16 Bit Bin") in [Data Type].



6 As needed, set the Data Display color and text on the [Alarm/Color] tab and [Display] tab, and click [OK].

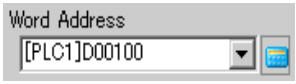
7 Next, set the switch which will operate the addition action. Select the [Parts (P)] menu - [Switch Lamp] option
- [Word Switch] command, or click , and place it on the screen.

8 When the placed Switch part is double-clicked, the settings dialog box will open.

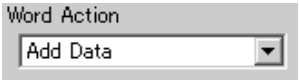


9 Select the Switch shape from [Select Shape].

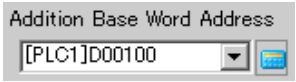
10 Set the address (D100) where you want to write data when you touch the switch in [Word Address].



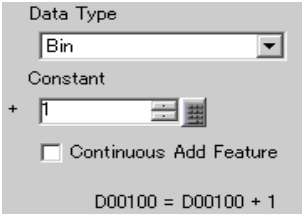
11 Choose [Add Data] from [Word Action].



12 Set the address (D100) which will add the data in [Addition Base Word Address].

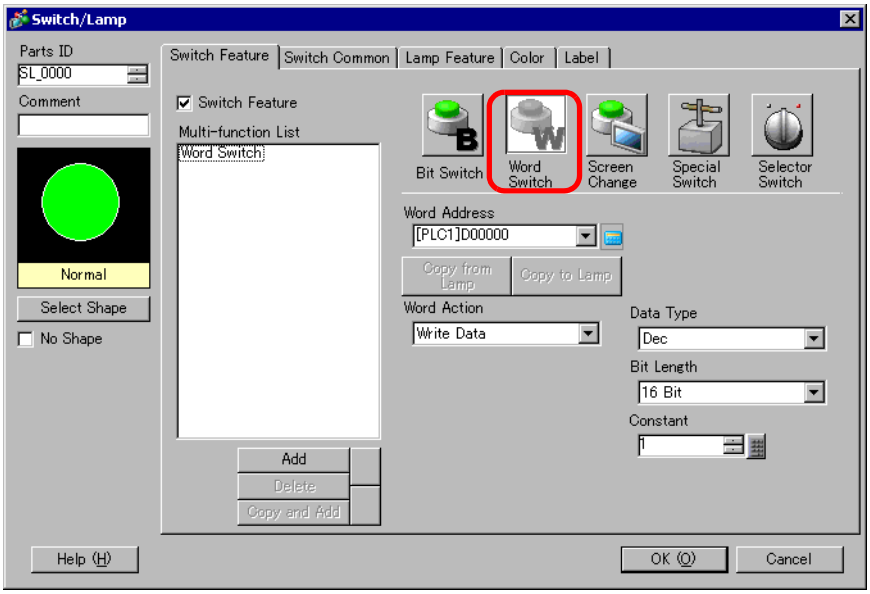


13 Set [Data Type] to [Bin] and [Constant] to "1" and click [OK]. The addition action's Word switch function is now set.



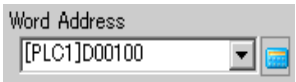
14 Next, set the switch which will operate the subtraction action. From the [Parts (P)] menu, point to [Switch Lamp] and select [Word Switch], or click and place it on the screen.

15 When the placed Switch part is double-clicked, the settings dialog box will open.

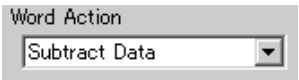


16 Select the Switch shape from [Select Shape].

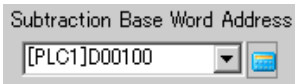
17 Set the address (D100) where you want to write data when you touch the switch in [Word Address].



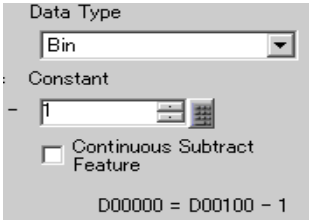
18 Choose [Subtract Data] from [Word Action].



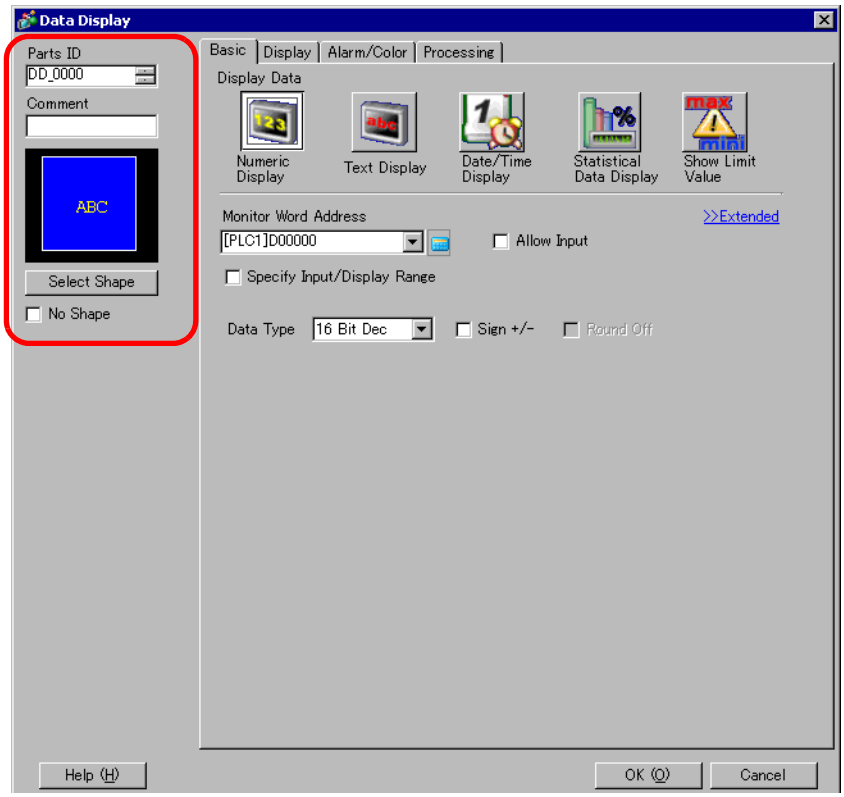
19 Set the address (D100) which will subtract the data in [Subtraction Base Word Address].



20 Set [Data Type] to [Bin] and [Constant] to "1" and click [OK]. The subtraction action's Word switch function is now set.

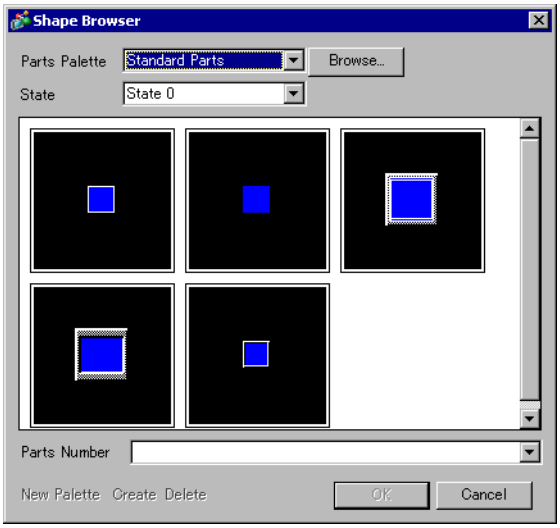


14.11 Data Display Settings Guide



Setting	Description
Part ID	Placed parts are automatically assigned an ID number. Data Display's ID: DD_ ****(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.
Shape Display	Displays the shape and status of the Part selected in [Select Shape].

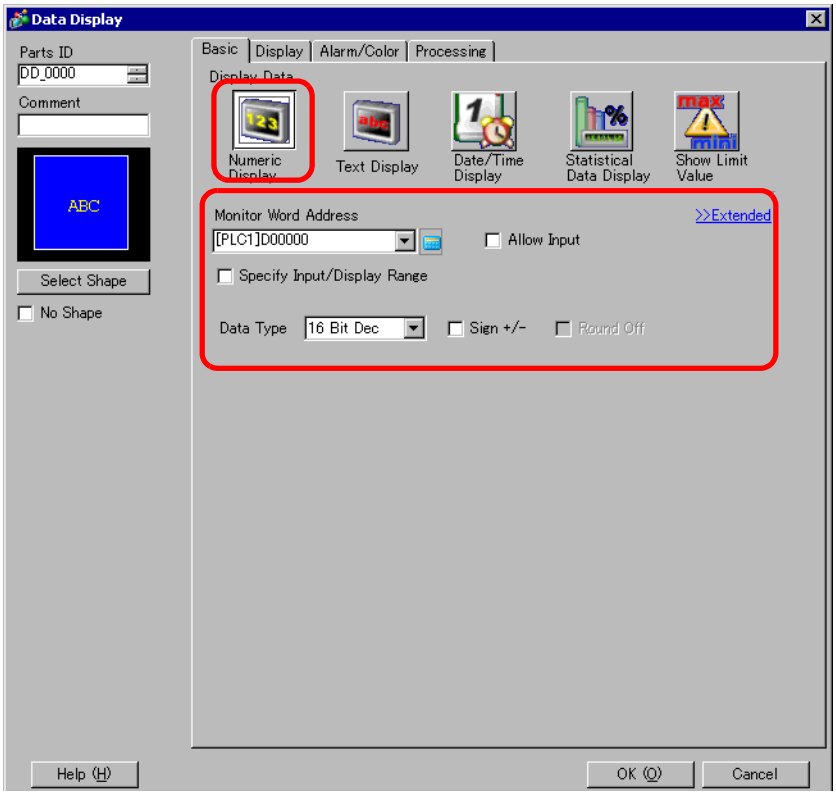
Continued

Setting	Description
Select Shape	Open the Select Shape dialog box to choose the Part shape. 
Display Data	Select the Data Display type. • Numeric Display Displays the numeric data stored in the Word Address. ☞ "14.11.1 Numeric Display" (page 14-44) • Text Display Displays the character string stored in the Word Address. ☞ "14.11.2 Text Display" (page 14-84) • Date/Time Display Refers to the GP clock data and displays the date/time. ☞ "14.11.3 Date/Time Display" (page 14-101) • Statistical Data Display Takes statistics from the successive values of multiple Word Addresses, and displays the numeric value. ☞ "14.11.4 Statistical Data Display" (page 14-104) • Show Limit Value Displays the set Alarm values (the displayed data's upper/lower limit values) on the same screen as a Numeric Display with [Alarm]. ☞ "14.11.5 Show Limit Value" (page 14-108)
No Shape	Select whether or not the part will be transparent with no shape.

14.11.1 Numeric Display

■ Basic Settings/Basic

Display numeric data stored in a specified Word Address in a device/PLC.

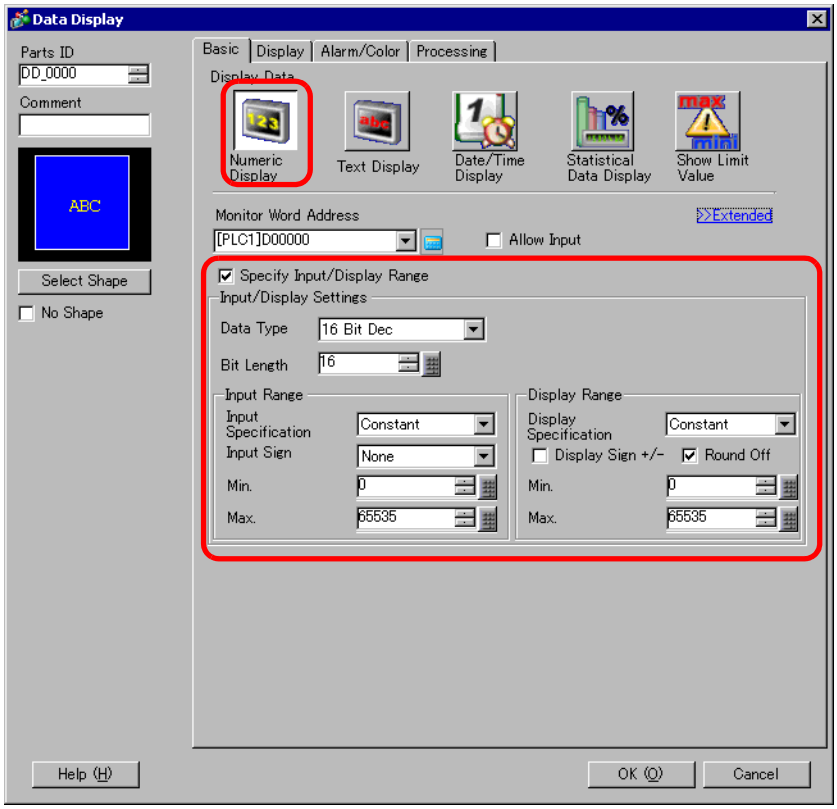


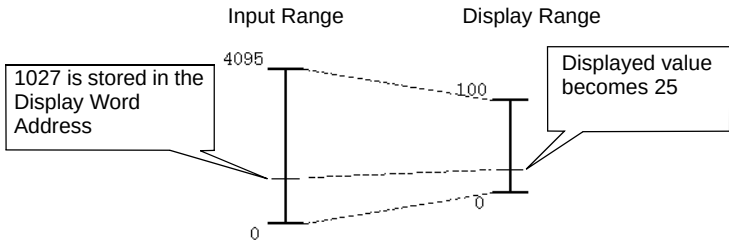
Setting	Description
Monitor Word Address	The data stored in this Word Address will be displayed in real-time as a numeric value. **NOTE** • Real variables cannot be displayed because they are 64 bits in length.
Input Permitted	Set whether keypad and barcode reader input will be accepted by the Data Display. **NOTE** • This cannot be set if the [Display Format] option is set on the [Display] tab's [Details] screen. ☞ " ■ Input Permitted/Basic" (page 14-57)
Specify Input/ Display Range	Specify an input/display range and [Monitor Word Address] data will automatically convert to correspond with the input and display range. The resulting numeric values can be displayed.

Continued

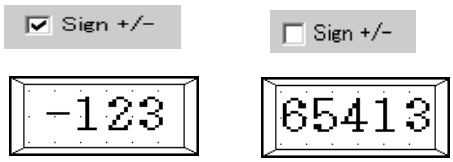
Setting	Description
Data Type	Select the type of data to be displayed. Bit Length: 16 Bit — Dec, Hex, Oct, Bin, BCD Bit Length: 32 bit — Dec, Hex, Bin, BCD, Float **NOTE** • When using 32-bit data, the relationship of high order and low order Word data will differ according to the device/PLC type. For more information, refer to your device/PLC manual.
Sign +/-	Select whether or not to attach a sign to displayed data. Select this if you will be using negative data. Negative numbers are handled with a complement of 2. This can only be set when the [Data Type] is [Dec].
Round Off	Select whether or not fractions will be rounded off when data is displayed. Fractions will be discarded if rounding off is not selected. This can only be set when the [Data Type] is [Float].

Set numeric data to be displayed as relative values.



Setting		Description
Specify Input/ Display Range		Specify an input/display range and [Monitor Word Address] data will automatically convert to correspond with the input and display range. The resulting numeric values can be displayed. (Display relative values) For example, 
Data Type		Select the type of data to be displayed. Bit Length: Data Type 16 Bit: Dec, Hex, Oct, Bin, BCD 32 bit: Dec, Hex, Bin, BCD, Float
Bit Length		Specify the address' valid bit length from 1 to 16. Selectable only when [Data Type] is specified as [16 Bits].
Input Range	Input Specification	Choose how the input range max and min values will be specified. • Constant Designate a set constant as the Min/Max value. (Direct Specification) • Address Designate the address where the Min/Max values are stored. (Indirect Specification)
	Input Sign	Specifies whether data that has been input will be able to handle negative numeric data. • None Only positive numeric data. • 2's Complement Negative numbers are handled with a complement of 2. • MSB Sign Negative numbers are handled with MSB sign.

Continued

Setting		Description
Display Range	Display Specification	Choose how the max and min values of the display range will be specified. • Constant Designate a set constant as the Min/Max value. (Direct Specification) • Address Designate the address where the Min/Max values are stored. (Indirect Specification)
	Round Off	Select whether or not fractions get rounded off when data is displayed.
	Display Sign +/-	Specify whether or not negative numbers will be displayed. This can be set when the [Data Type] is [Dec]. For example, When the data "–123" has been written  Negative numbers displayed Negative numbers not displayed
Input Range/ Display Range	Min. Value/ Max. Value	Select the input range and display range for the numeric display data. If [Input Specification] or [Display Specification] is [Constant], you can input a min/max value. If [Address] is set, specify the Word Address where the min/max value will be stored. Each [Data Type], [Input Sign], and [Display Sign +/-] has a different size range.

Continued

Setting		Description
Input Range/ Display Range	Min. Value/ Max. Value	

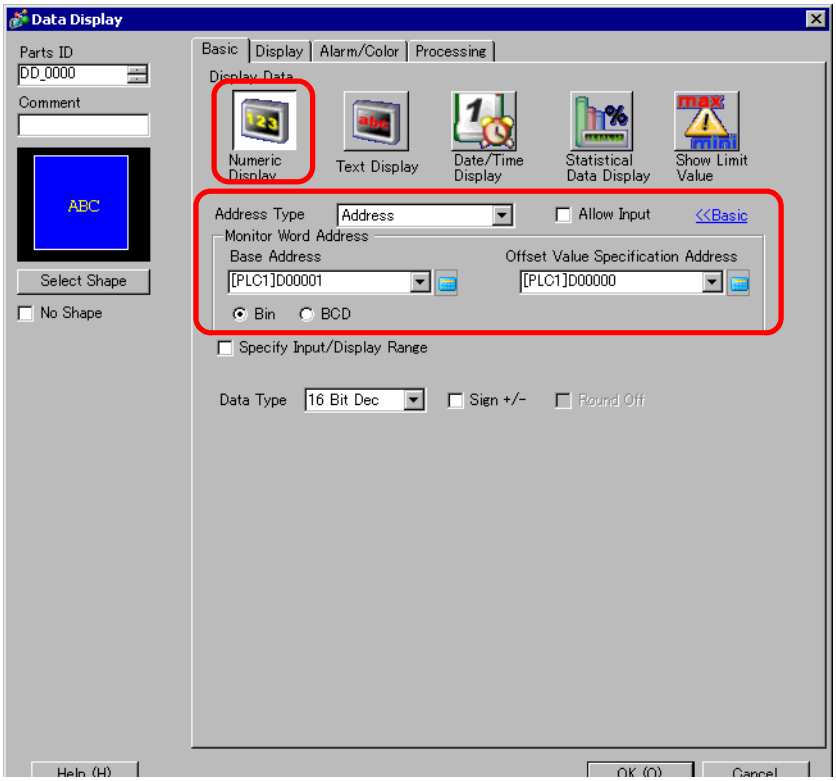
Bit Length	Data Type	Input Sign	Input Range	Display Sign +/–	Display Range
16 Bit	Dec	None	0 to 65535	Cleared	0 to 65535
				Selected	–32,768 to 32,767
		2's Complement	–32,768 to 32,767	Cleared	0 to 65535
				Selected	–32,768 to 32,767
		MSB Sign	– 32767 to 73276	Cleared	0 to 65535
				Selected	–32,768 to 32,767
	Hex	None	0 to 65535	-	0 to FFFF(h)
		2's Complement	–32,768 to 32,767	-	0 to FFFF(h)
		MSB Sign	–32767 to 32767	-	0 to FFFF(h)
	Oct	None	0 to 65535	-	0 to 177777(o)
		2's Complement	–32,768 to 32,767	-	0 to 177777(o)
		MSB Sign	–32767 to 32767	-	0 to 177777(o)
	BCD	-	0 to 9999	-	0 to 9999
	Bin	None	0 to 65535	-	0 to FFFF(h)
		2's Complement	–32,768 to 32,767	-	0 to FFFF(h)
		MSB Sign	–32767 to 32767	-	0 to FFFF(h)
32 bit	Dec	None	0 to 4294967295	Cleared	0 to 4294967295
				Selected	–2147483648 to 2147483647
		2's Complement	–2147483648 to 2147483647	Cleared	0 to 4294967295
				Selected	–2147483648 to 2147483647
		MSB Sign	–2147483647 to 2147483647	Cleared	0 to 4294967295
				Selected	–2147483648 to 2147483647
	Hex	None	0 to 4294967295	-	0 to FFFFFFFF(h)
		2's Complement	–2147483648 to 2147483647	-	0 to FFFFFFFF(h)
		MSB Sign	–2147483647 to 2147483647	-	0 to FFFFFFFF(h)
	BCD	-	0 to 99999999	-	0 to 99999999
	Bin	None	0 to 4294967295	-	0 to FFFFFFFF(h)
		2's Complement	–2147483648 to 2147483647	-	0 to FFFFFFFF(h)
		MSB Sign	–2147483647 to 2147483647	-	0 to FFFFFFFF(h)
	Float	-	$-9.9e^{16}$ to $9.9e^{16}$	-	$-9.9e^{16}$ to $9.9e^{16}$

NOTE

- Input range and display range determine how to display the input value with automatic conversion. If the value outside the input range is input, the value is converted and displayed.

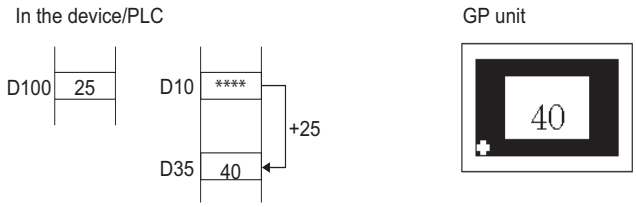
■ Basic Settings/Detail

You can indirectly specify the address for the numeric data display. There are two ways to do this.

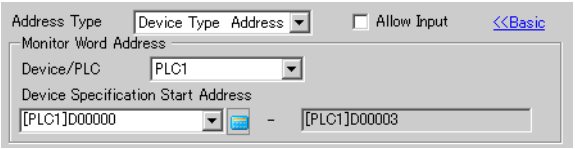
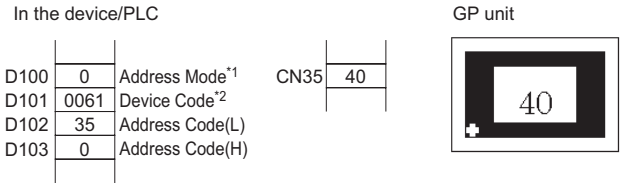


Setting	Description
Address Type	You can define the display address (Monitor Word Address) in the following ways: [Direct Specification], [Address], or [Device Type & Address].
Allow Input	You can accept input from a keypad, bar code reader, or a two-dimensional bar code reader. Select this check box to display the [Data Entry] tab. **NOTE** • This cannot be set if the [Display Format] option is set on the [Display] tab's [Details] screen. ☞ " ■ Display/Details" (page 14-69)
Monitor Word Address	You can have a real-time numeric display of data stored in the Word Address specified here. To indirectly specify the Monitor Word Address, in the [Address Type] list, select [Address] or [Device Type & Address].
Address	Indirectly designates to the device specified in [Base Address].

Continued

Setting			Description
Monitor Word Address	Address	Base Address	 The [Base Address] becomes the standard indirectly designated address. In [Offset Value Specification Address], set the address that stores the offset value from the [Base Address]. For example, [Monitor Word Address] is D35, Indirectly designated [Base Address] = D10 [Offset Value Specification Address] = D100 The data in [Offset Value Specification Address] is handled as the offset value from the [Base Address].  The [Base Address] (D10) is added to the [Offset Value Specification Address] (D100)'s data, which is "25", and the resulting address D35's data "40" is displayed.
		Offset Address	
		Bin, BCD	Choose the type of data stored in the [Offset Value Specification Address] from [Bin] or [BCD].
	Device Type & Address		Indirectly designates both the device and address.
		Device/PLC	When [Address Type] is [Device Type & Address], select which device/PLC's address to indirectly designate.

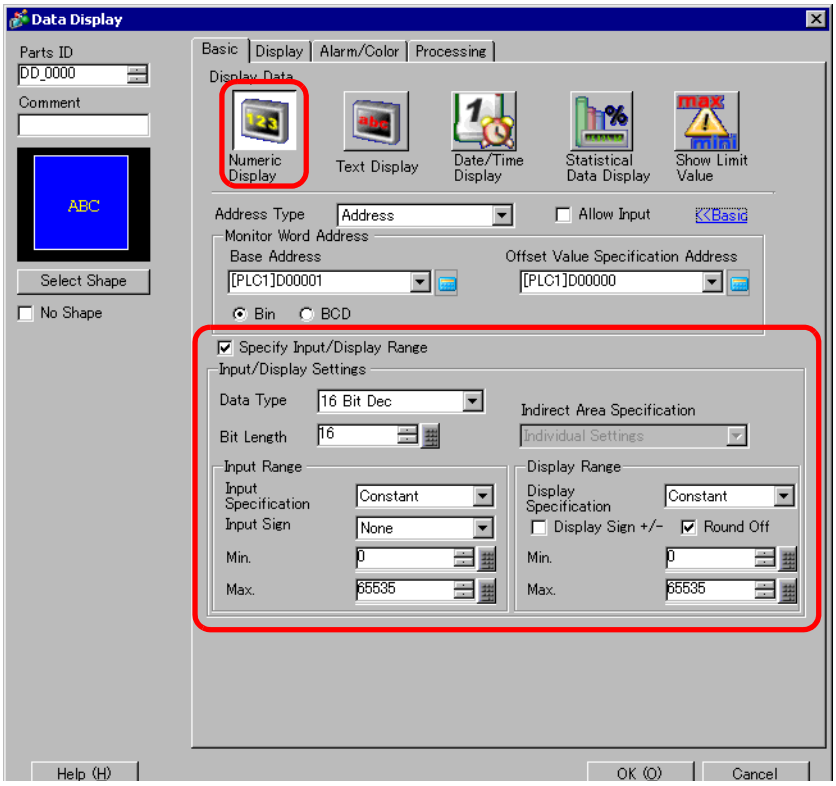
Continued

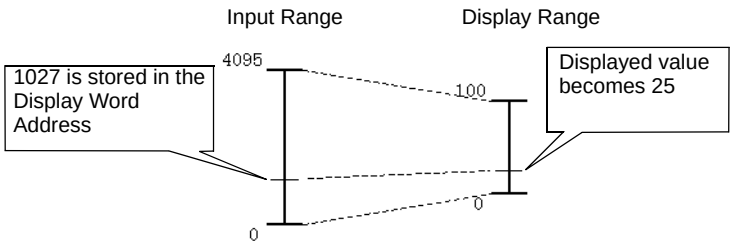
Setting			Description
Monitor Word Address	Device Type & Address	Device Specification Start Address	 Input the start address of the Word Address in order for the [Device Specification Start Address] to designate the display address. The [Device Specification Start Address] stores the address mode. The Address Mode is the mode that decides whether the device address is the internal device or outside (PLC) device. The [Device Specification Start Address] stores the device code and address code in three consecutive Words. It displays the Word Addresses that house the device code and address code. For example, [Monitor Word Address] is CN35, Indirectly designated [Device Specification Start Address] = D100 [Address Mode] = External (PLC) Device [Device Code] = CN: 0061  *1 Address Mode 0: External (PLC) Device 1: Internal Device In the above case, 0 is stored. *2 Please see the "GP-Pro EX Device/PLC Connection Manual" for device codes. If you select an internal device, the device codes are LS area: 0000 and USR area: 0001. The address designated by D100, D101, D102, and D103 is CN35. Its data, "40" is displayed.

NOTE

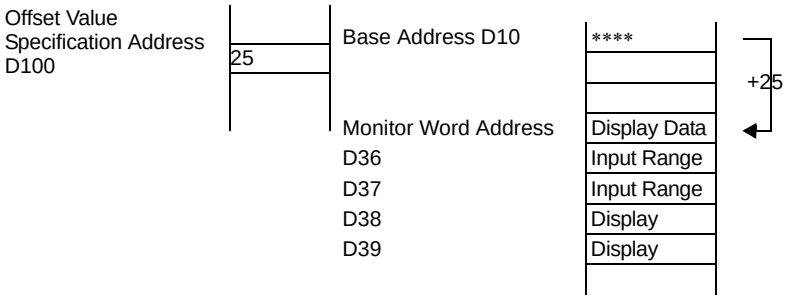
- If the indirectly-designated address is out of range or does not exist, a communication error will occur. An error can affect the screen update. When an error occurs, check the indirectly-designated data and write the correct value to the device/PLC address to restore the screen update.

On the [Basic] tab's Detail screen, when you set [Address Type] to [Address] or [Device Type & Address], and set the [Input Display]'s [Input Specification] and [Display Specification] to [Address], the address that stores the max/min values for the Input Range/Display Range will be automatically allotted to the addresses following the Monitor Word Address.

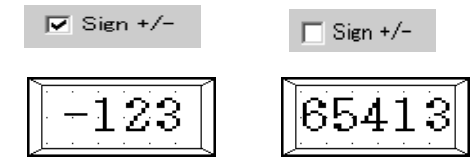


Setting	Description
Specify Input/ Display Range	Specify an input/display range and [Monitor Word Address] data will automatically convert to correspond with the input and display range. The resulting numeric values can be displayed. (Display relative values) For example, 
Data Type	Select the type of data to be displayed. Bit Length / Data Type 16 Bit / Dec, Hex, Oct, Bin, BCD 32 bit / Dec, Hex, Bin, BCD, Float

Continued

Setting	Description
Bit Length	Specify the address' valid bit length from 1 to 16. Selectable only when [Data Type] is specified as [16 Bits].
Indirect Area Specification	If [Input Specification] and [Display Specification] are both [Address], choose the indirect designation method from [Individual Settings] or [Area After Display Address] for the Word Addresses that will store the Input Range and Display Range's upper/lower limit value. If either [Input Specification] or [Display Specification] is set to [Constant], the setting will be fixed as [Individual Settings]. • Individual Settings Specify the value or Word Address for [Min.] and [Max.] individually. • Area After Display Address The input and display ranges are automatically allocated according to the indirectly specified display data address. The allocated addresses follow consecutively after the [Monitor Word Address]: (Input Range - Max.) →(Input Range - Min.) → (Display Range - Max.) → (Display Range - Min.) For example, When [Indirect Area Specification] is set to [Area After Display Address], the min/max values for the input/display range will be as follows: [Base Address] = D10, [Offset Value Specification Address] = D100 [Monitor Word Address] = D35 [Input Specification] = [Address], [Display Specification] = [Address] 

Continued

Setting		Description
Input Range	Input Specification	Choose how the input range max and min values will be specified. • Constant Designate a set constant as the Min/Max value. (Direct Specification) • Address Designate the address where the Min/Max values are stored. (Indirect Specification)
	Input Sign	Specifies whether data that has been input will be able to handle negative numeric data. • None Only positive numeric data. • 2's Complement Negative numbers are handled with a complement of 2. • MSB Sign Negative numbers are handled with MSB sign.
Display Range	Display Specification	Choose how the max and min values of the display range will be specified. • Constant Designate a set constant as the Min/Max value. (Direct Specification) • Address Designate the address where the Min/Max values are stored. (Indirect Specification)
	Round Off	Select whether or not fractions get rounded off when data is displayed.
	Display Sign +/-	Specify whether or not negative numbers will be displayed. This can be set when the [Data Type] is [Dec]. For example, When the data "−123" has been written  Negative numbers displayed Negative numbers not displayed

Continued

Setting		Description
Input Range/ Display Range	Min. Value/ Max. Value	Select the input range and display range for the numeric display data. If [Input Specification] or [Display Specification] is [Constant], you can input a min/max value. If [Address] is set, specify the Word Address where the min/max value will be stored. Each [Data Type], [Input Sign], and [Display Sign +/-] has a different size range.

Bit Length	Data Type	Input Sign	Input Range	Display Sign +/–	Display Range
16 Bit	Dec	None	0 to 65535	Cleared	0 to 65535
				Selected	–32,768 to 32,767
		2's Complement	–32,768 to 32,767	Cleared	0 to 65535
				Selected	–32,768 to 32,767
		MSB Sign	– 32767 to 73276	Cleared	0 to 65535
				Selected	–32,768 to 32,767
	Hex	None	0 to 65535	-	0 to FFFF(h)
		Complement of 2	–32,768 to 32,767	-	0 to FFFF(h)
		MSB Sign	–32767 to 32767	-	0 to FFFF(h)
	Oct	None	0 to 65535	-	0 to 177777(o)
		2's Complement	–32,768 to 32,767	-	0 to 177777(o)
		MSB Sign	–32767 to 32767	-	0 to 177777(o)
	BCD	-	0 to 9999	-	0 to 9999
	Bin	None	0 to 65535	-	0 to FFFF(h)
		2's Complement	–32,768 to 32,767	-	0 to FFFF(h)
		MSB Sign	–32767 to 32767	-	0 to FFFF(h)

Continued

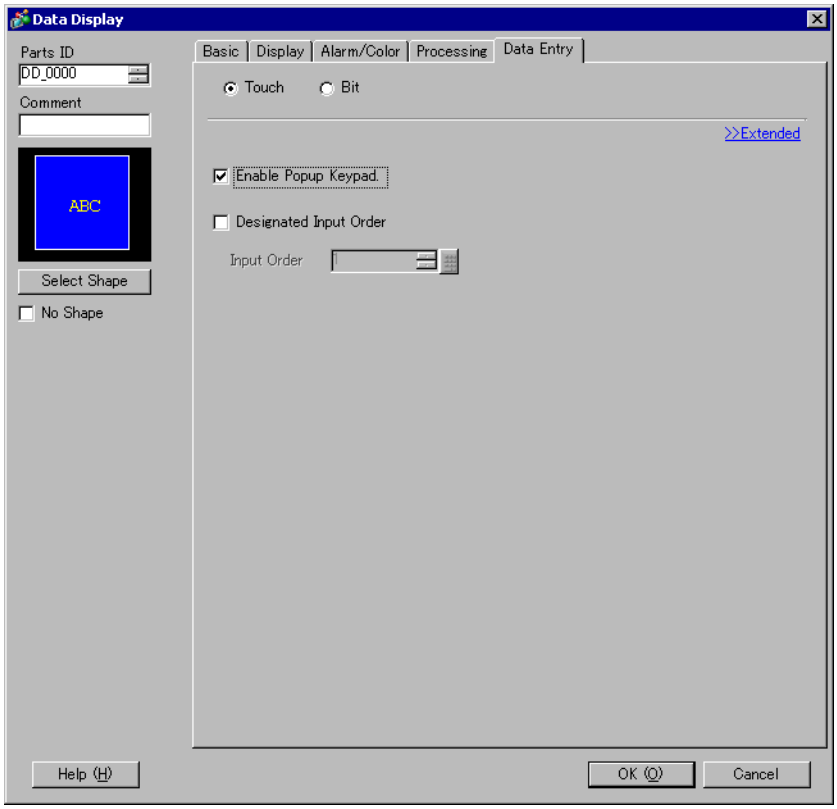
Setting		Description
Input Range/ Display Range	Min. Value/ Max. Value	

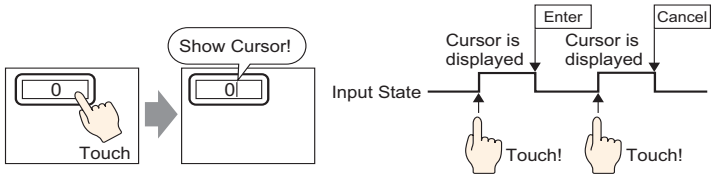
Bit Length	Data Type	Input Sign	Input Range	Display Sign +/–	Display Range
32 bit	Dec	None	0 to 4294967295	Cleared	0 to 4294967295
				Selected	–2147483648 to 2147483647
		2's Complement	–2147483648 to 2147483647	Cleared	0 to 4294967295
				Selected	–2147483648 to 2147483647
		MSB Sign	–2147483647 to 2147483647	Cleared	0 to 4294967295
				Selected	–2147483648 to 2147483647
	Hex	None	0 to 4294967295	-	0 to FFFFFFFF(h)
		2's Complement	–2147483648 to 2147483647	-	0 to FFFFFFFF(h)
		MSB Sign	–2147483647 to 2147483647	-	0 to FFFFFFFF(h)
	BCD	-	0 to 99999999	-	0 to 99999999
	Bin	None	0 to 4294967295	-	0 to FFFFFFFF(h)
		2's Complement	–2147483648 to 2147483647	-	0 to FFFFFFFF(h)
		MSB Sign	–2147483647 to 2147483647	-	0 to FFFFFFFF(h)
	Float	-	$-9.9e^{16}$ to $9.9e^{16}$	-	$-9.9e^{16}$ to $9.9e^{16}$

NOTE

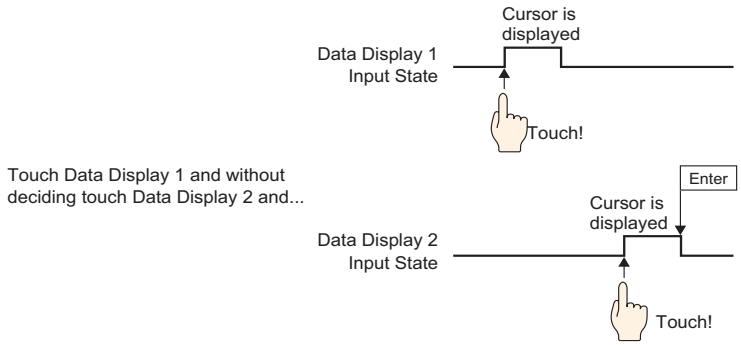
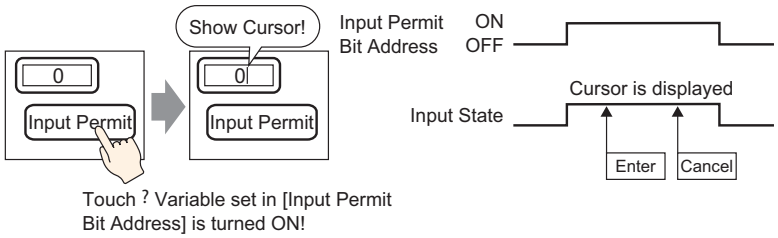
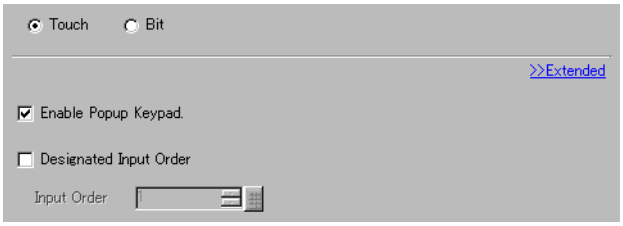
- Input range and display range determine how to display the input value with automatic conversion. If the value outside the input range is input, the value is converted and displayed.

■ Input Permitted/Basic

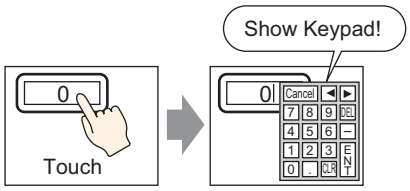
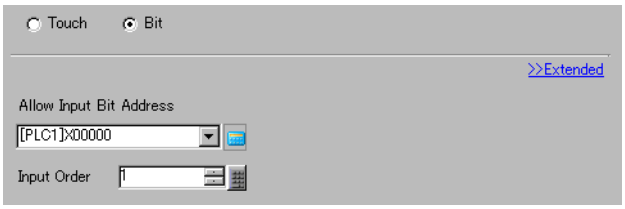


Setting	Description
Input Permitted Methods	Select the method that will change the Data Display to input state (cursor display state). • Touch When the Data Display is touched, it will change to the Input Permitted state. 

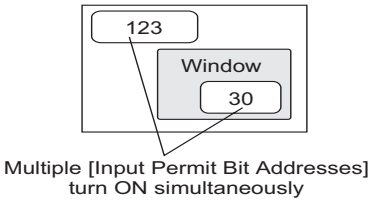
Continued

Setting	Description
Input Permitted Methods	**NOTE** • If you touch a Data Display while inputting data into another Data Display, the data that has been input will revert to its previous data, and the most recently touched part will enter the Input Permitted state.  • Bit When the Allow Input Bit Address is ON, the Data Display is in the Input Permitted state.  **NOTE** • If the [Allow Input Bit Address] is turned OFF while inputting data in a Data Display, the Input Permitted state is canceled, and the input data is erased.
Touch	

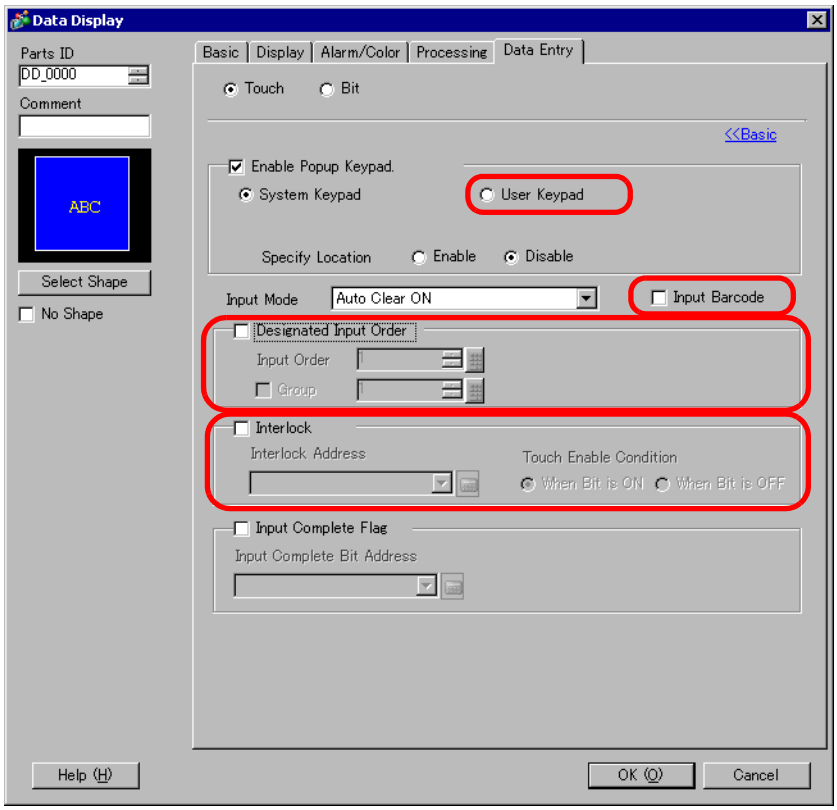
Continued

Setting		Description
Touch	Enable Popup Keypad	Select whether or not a popup keypad will display when you touch the Data Display part.  **NOTE** • A popup keypad cannot be used when the Data Display is placed on a Window screen.
	Designated Input Order	When you will be inputting into multiple Data Displays in sequence, select the order in which they will enter the input state. ☞ "14.13 How Data Input Order Works" (page 14-113)
	Input Order	Select the order, from 1 to 384, in which the Part will enter the input state.
Bit		
	Allow Input Bit Address	When the bit address set here turns ON, the Data Display enters the input state.

Continued

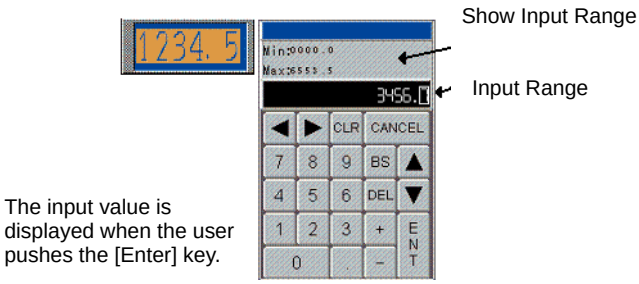
Setting		Description
Bit	Input Order	Select the order from 1 to 384 that the Part will enter the Input Permitted state if multiple [Input Permitted Bit Addresses] turn ON at the same time (when a bit address has been registered to multiple Data Display parts, or when different bit addresses turn ON at the same time). **NOTE** • If more than one [Allow Input Bit Address] is turned ON at the same time, the Data Displays will enter the input state according to their [Input Order] settings. If the [Input Order] settings are the same, the input state order will be determined by the order the parts were placed. • If the [Allow Input Bit Address] of Data Displays placed on the Base Screen and Window Screen turn ON at the same time, the Base Screen will have a higher priority for the input state than the Window Screen. When placing Data Displays on both the Base and Window screen, make sure to set a different [Allow Input Bit Address]. 

■ Input Permitted/Details

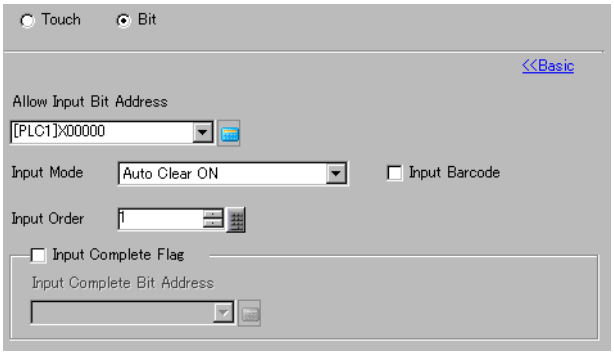


Setting		Description
Touch	Enable Popup Keypad	Select whether or not a popup keypad will display when you touch the Data Display part. **NOTE** • A popup keypad cannot be used when the Data Display is placed on a Window screen.
	Keypad Type	• System Keypad Use the standard keypad registration for GP-Pro EX. Use this in normal cases. • User Keypad Create a user-defined keypad with the Keypad part. This keypad allows for customized input. ☞ "16.4.2 Setup Procedure ■ Displaying the Customized Keypad as Popup" (page 16-15)

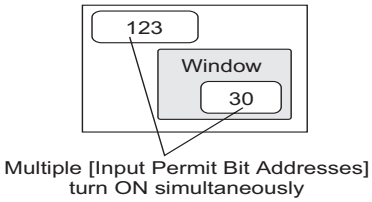
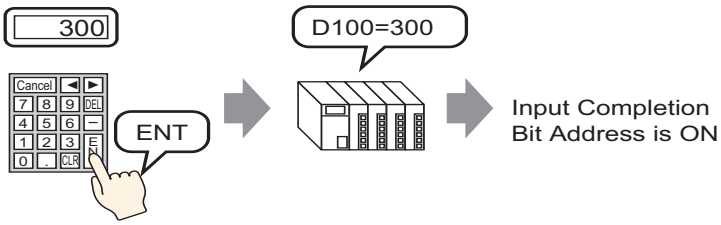
Continued

Setting			Description
Touch	System Keypad		Display the prepared standard keypad registration in GP-Pro EX. 
	User Keypad	Keypad	Set the number of the custom-made keypad.
	Specify Location		Select whether or not to set the popup keypad display position. If [Do] is selected, the popup keypad Display Area can be selected and moved after the Data Display part is positioned. **NOTE** • You cannot select or move the popup keyboard display area when you group the data display parts and other objects.
	Designated Input Order		When you will be inputting into multiple Data Displays in sequence, select the order in which they will enter the input state. ☞ "14.13 How Data Input Order Works" (page 14-113)
		Input Order	Select the order, from 1 to 384, in which the Part will enter the input state.
		Group Number	Divide the Data Displays into groups for continuous data input. The cursor will move in turn to each successive Data Display registered in the same group, according to the input order, setting them into the Input Permitted state. The Group Number can be from 1 to 10. ☞ "14.13.2 Set Input Order by Group" (page 14-114)
	Interlock		This function only allows input when a bit designated via [Interlock Address] is in a state that has been selected via [Touch Enable Condition]. Select whether or not to use the Interlock function. ☞ "14.7 Preventing Operational Errors Interlock" (page 14-25)
	Interlock Address		Select the bit address that will designate the enable condition, to allow input to be entered. This address state will determine if touch is enabled or disabled.

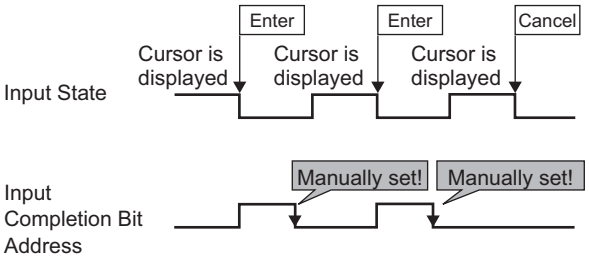
Continued

<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td>Touch</td><td>Touch Enable Condition</td><td>Select the condition that will enable the part to be touched, to allow input to be entered.
<table>
<tr><th>Touch Enable Condition</th><th>Interlock Address Status</th><th>Touch Enabled/ Disabled</th></tr>
<tr><td rowspan="2">When Bit is ON</td><td>ON</td><td>Touch enabled</td></tr>
<tr><td>OFF</td><td>Touch disabled</td></tr>
<tr><td rowspan="2">When Bit is OFF</td><td>ON</td><td>Touch disabled</td></tr>
<tr><td>OFF</td><td>Touch enabled</td></tr>
</table>
NOTE
• When the Interlock [Touch Enable Condition] is disabled during input, the Data Display will remain in the Input Permitted state. Interlock will not work until the input is completed.</td></tr>
<tr><td colspan="2">Bit</td><td> 
</td></tr>
<tr><td></td><td>Allow Input Bit Address</td><td>When the bit address set here turns ON, the Data Display enters the input state.</td></tr>
</table>

Continued

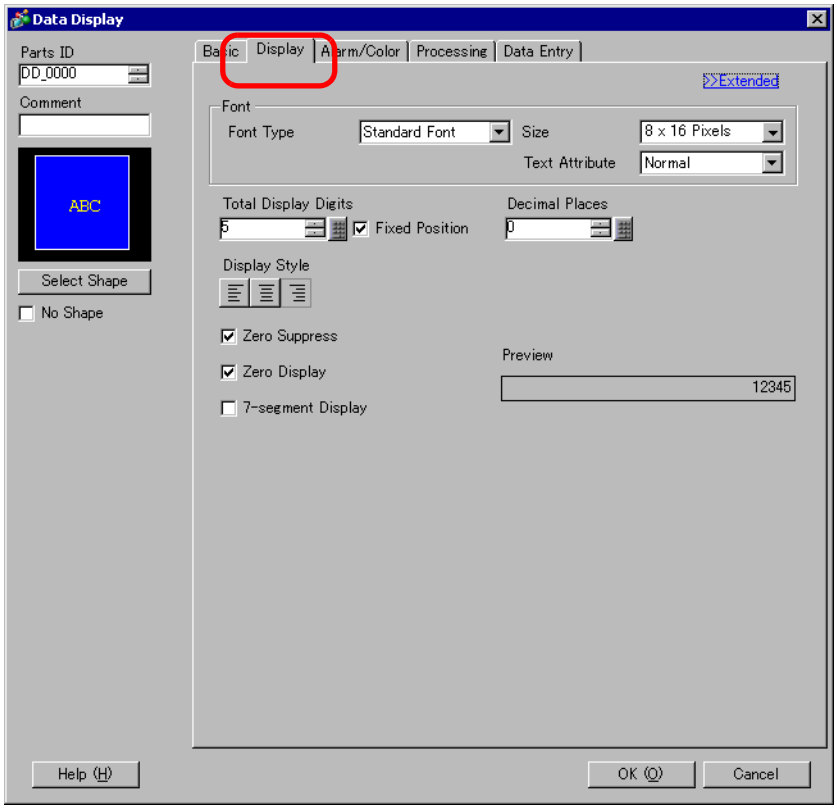
Setting		Description
Bit	Input Order	Select the order from 1 to 384 that the Part will enter the Input Permitted state if multiple [Input Permitted Bit Addresses] turn ON at the same time (when a bit address has been registered to multiple Data Display parts, or when different bit addresses turn ON at the same time). **NOTE** • If more than one [Allow Input Bit Address] is turned ON at the same time, the Data Displays will enter the input state according to their [Input Order] settings. If the [Input Order] settings are the same, the input state order will be determined by the order the parts were placed. • If the [Allow Input Bit Address] of Data Displays placed on the Base Screen and Window Screen turn ON at the same time, the Base Screen will have a higher priority for the input state than the Window Screen. When placing Data Displays on both the Base and Window screen, make sure to set a different [Allow Input Bit Address]. 
Input Mode		• Auto Clear OFF New data will build on previously data that has been input. Pressing [CLR] on the keypad clears the value. • Auto Clear ON The first key pressed (except [ENT], [DEL], or [BS]) will clear the previously data that has been input. • Auto Clear ON + Input Check When using barcode input, checks whether the number of input digits coincides with the [Total Display Digits] when an automatic clear occurs. If they do not coincide, the data will not be written to the Word Address.
Input Barcode		A setting that allows input from a barcode reader. ☞ "8.2.2 Setup Procedure" (page 8-5)
Input Complete Flag		Detects and notifies you when input has been completed. 

Continued

Setting	Description
Input Complete Flag Bit Address	Sets the bit address that will turn ON when input has been completed.  **NOTE** • Please return this bit to OFF after input has been completed.

■ Display/Basic

Sets the font and attributes of the Numeric Display.



Setting		Description
Font		Sets a font for the numeric values.
	Font Type	Select a font type for the numeric values from [Standard Font] or [Stroke Font].
	Character Size	Chooses a font size for the numeric values. Standard Font: (8 to 64) x (8 to 128) Standard Font (Fixed Size): [6x10], [8x13], [13x23] Stroke Font: Select from 6 to 127.
	Text Attribute	Select the font text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] Standard Font (Fixed Size): Choose from [Standard], [Shadow] Stroke Font: Choose from [Standard], [Bold], [Outline] **NOTE** • If [7-s7-segment Display] is set, [Text Attribute] cannot be set.

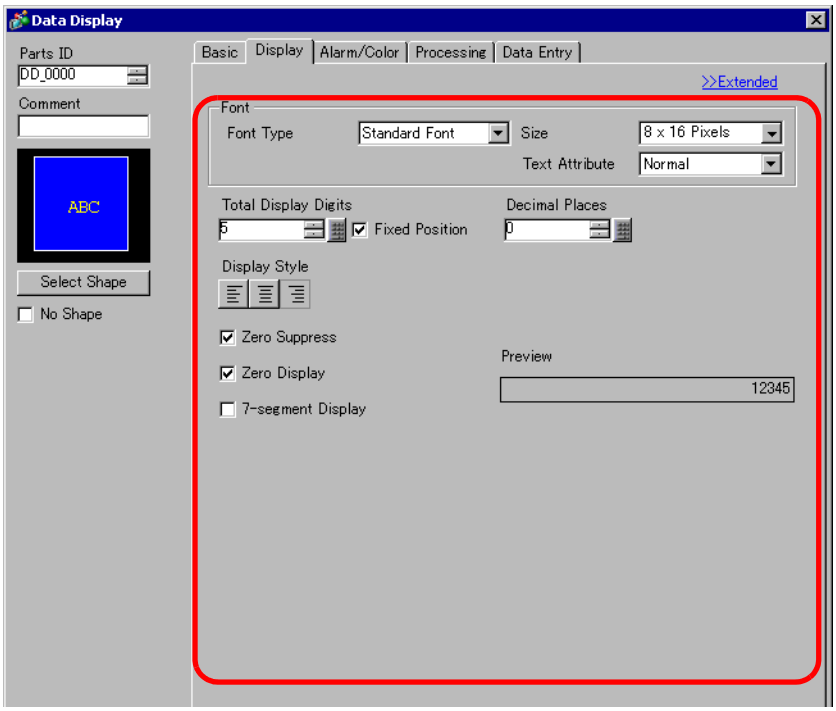
Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Total Display Digits
Decimal Places</td><td>Select the number of digits to display in the numeric display with [Total Display Digits]. Numbers after the decimal point are included in the display digits. However, the decimal point is not included in the display digits.
Select the number of digits after the decimal point with [Decimal Places]. This can only be set when the [Data Type] is [Dec], [BCD], or [Float].
For example,
When the Total Display Digits is 5, and the Number of Decimal Places is 2, it will look as follows:
123.45
Each digit number range is different, depending on the [Data Type].
<table>
<tr><th rowspan="2">Data Length</th><th rowspan="2">Data Type</th><th>Total Display Digits</th><th>Decimal Places</th></tr>
<tr><th colspan="2">Setting Range</th></tr>
<tr><td rowspan="5">16 Bit</td><td>Dec</td><td>1 to 11</td><td>0 to 10</td></tr>
<tr><td>Hex</td><td>1 to 11</td><td>—</td></tr>
<tr><td>BCD</td><td>1 to 11</td><td>0 to 10</td></tr>
<tr><td>Oct</td><td>1 to 11</td><td>—</td></tr>
<tr><td>Bin</td><td>1 to 16</td><td>—</td></tr>
<tr><td rowspan="5">32 bit</td><td>Dec</td><td>1 to 11</td><td>0 to 10</td></tr>
<tr><td>Hex</td><td>1 to 11</td><td>—</td></tr>
<tr><td>BCD</td><td>1 to 11</td><td>0 to 10</td></tr>
<tr><td>Bin</td><td>1 to 32</td><td>—</td></tr>
<tr><td>Float</td><td>1 to 17</td><td>0 to 16</td></tr>
</table></td></tr>
<tr><td>Fixed Position</td><td>Set whether or not the Numeric Value will be fixed in the center of the Part.</td></tr>
<tr><td>Display Style</td><td>Select the alignment of the numeric display area's numeric value: [Align Right], [Align Left], or [Align Center].</td></tr>
</table>

Continued

Setting	Description
Zero Suppress	If this option is selected, leading zeros are not displayed. For example, When Total Display Digits = 4 ☑ Zero Suppress 25 Leading zeroes are not displayed ☐ Zero Suppress 0025 Zeroes are added to correspond to the length of Display Digits
Zero Display	Displays "0" when the data is zero.
7-segment Display	Data will be displayed using the 7-segment display setting. **NOTE** • This cannot be set if the [Display Format] option is set on the [Basic] tab's [Details] screen.
Preview	Displays the data image according to the settings.

■ Display/Details



Setting		Description
Font		Sets a font for the numeric values.
	Font Type	Select a font type for the numeric values from [Standard Font] or [Stroke Font].
	Character Size	Chooses a font size for the numeric values. Standard Font: (8 to 64) x (8 to 128) Standard Font (Fixed Size): [6 x 10], [8 x 13], [13 x 23] Stroke Font: 6 to 127
	Text Attribute	Select the font text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] Standard Font (Fixed Size):Choose from [Standard], [Shadow] Stroke Font: Choose from [Standard], [Bold], [Outline] **NOTE** • If [7-segment Display] is set, [Text Attribute] cannot be set.

Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Total Display Digits
Decimal Places</td><td>Select the number of digits to display in the numeric display with [Total Display Digits]. Numbers after the decimal point are included in the display digits. However, the decimal point is not included in the display digits.
Select the number of digits after the decimal point with [Decimal Places]. This can only be set when the [Data Type] is [Dec], [BCD], or [Float].
For example,
When the Total Display Digits is 5, and the Number of Decimal Places is 2, it will look as follows:
123.45
Each digit number range is different, depending on the [Data Type].
<table>
<tr><th rowspan="2">Data Length</th><th rowspan="2">Data Type</th><th>Total Display Digits</th><th>Decimal Places</th></tr>
<tr><th colspan="2">Setting Range</th></tr>
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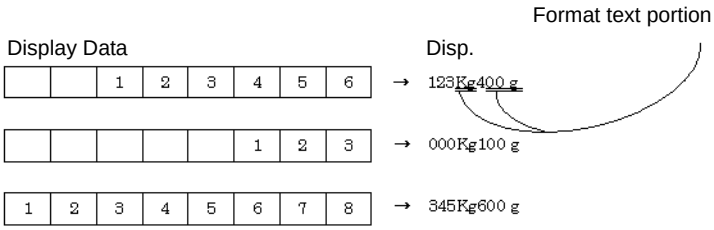
<tr><td>Hex</td><td>1 to 11</td><td>—</td></tr>
<tr><td>BCD</td><td>1 to 11</td><td>0 to 10</td></tr>
<tr><td>Oct</td><td>1 to 11</td><td>—</td></tr>
<tr><td>Bin</td><td>1 to 16</td><td>—</td></tr>
<tr><td rowspan="5">32 bit</td><td>Dec</td><td>1 to 11</td><td>0 to 10</td></tr>
<tr><td>Hex</td><td>1 to 11</td><td>—</td></tr>
<tr><td>BCD</td><td>1 to 11</td><td>0 to 10</td></tr>
<tr><td>Bin</td><td>1 to 32</td><td>—</td></tr>
<tr><td>Float</td><td>1 to 17</td><td>0 to 16</td></tr>
</table></td></tr>
<tr><td>Fixed Position</td><td>Set whether or not the Numeric Value will be fixed in the center of the Part.</td></tr>
<tr><td>Display Style</td><td>Select the alignment of the numeric display area's numeric value: [Align Right], [Align Left], or [Align Center].</td></tr>
<tr><td>Zero Suppress</td><td>If this option is selected, leading zeros are not displayed.
For example, When Total Display Digits = 4
☑ Zero Suppress 25
Leading zeroes are not displayed
☐ Zero Suppress 0025
Zeroes are added to correspond to the length of Display Digits</td></tr>
</table>

Continued

Setting	Description
Zero Display	Displays "0" when the data is zero.
7-segment Display	Data will be displayed using the 7-segment display setting. **NOTE** • This cannot be set if the [Display Format] option is set on the [Basic] tab's [Details] screen. • This cannot be set when [Size] is [Fixed Size].
Preview	Displays the data image according to the settings.
Display Format	Select whether or not to use a Display Format. **NOTE** • This option cannot be selected when, in the [Basic] tab, [Allow Input] is selected. • This option cannot be set when [Data Type] is [Bin] on the [Basic] tab.
Truncated Digits	Designate how many numeric data digits to truncate (0 to 10). This can only be set when the [Data Type] is [Dec] or [BCD] on the [Basic] tab. When there are no digits to truncate, a value of zero is set.
Format	Set the Display Format. The portion which will display data is input with an asterisk "∗". Together with the format character portion, it must not exceed 80 characters. The numeric value displays in the asterisks "∗" from the lowest position. Select the settings so that the Total Display Digits - Truncated digits = No of "*". For example, [Total Display Digits] = 6, [Truncated Digits] = 2, [Display Style] = Align Right [Zero Suppress] = OFF, [Format] = ∗∗∗Kg ∗00g  Data is entered starting from the lowest asterisk [∗] field position. However, [Truncated Digits] is set to [2], so data is entered starting from the 3rd right-side digit.
Digits - Truncated digits = Data Display Length	Displays the calculation method which computes the number of asterisks "*" in the Display Format.

Continued

Setting	Description
Time-Base	Defines whether or not to use the Time-Base Function. This works only when the following devices are selected: • Siemens AG: SIMATIC S7 3964(R)/RK512 • Siemens AG: SIMATIC S7 MPI direct • Siemens AG: SIMATIC S7 Ethernet • PROFIBUS International: PROFIBUS DP slave If the [Time-Base] check box is selected, data is displayed in the following formats. Word Address 15 12 11 0 MODE | Value | Value | Value s Using the defined Word Address, the four most-significant bits specify the decimal point. Each four bit that follows specifies a number for up to three positions to the right of the decimal point. Displays the 4-digit value (including decimal points, spaces, and 0s) + "s" (5th digit). Mode / Disp. 0020h / 0.01s 0011h / 0.1s 0012h / 1s 3h / 10s Other than 0-3h / 10s When entering values other than 0h to 09h, displays as follows. 0Ah / Space 0Bh / : 0Ch / e 0Dh / . 0Eh / + 0Fh / - Example: When Value 1=1, Value 2=2, and Value 3=3 1 2 . 3 s (Mode:1) 1 2 3 . s (Mode:2)

Continued

Setting		Description
Time-Base	Fixed Input	Specify if the decimal position is fixed when inputting values. • When Enabled Decimal point is fixed. When you input a decimal point, you can move the cursor before or after the decimal point. You can also move the cursor by pressing the "←" or "→" keys. For example: Input "2" Input . Input "3" Input "2" Input . 1. 23s → 2. 23s → 2. 23s → 2. 33s → 2. 32s → 2. 32s ↑ Cursor

Input Value	Value displayed in the Data Display			
	Mode0 (0.01s)	Mode1 (0.1s)	Mode2 (1s) *1	Mode3 (10s) *1
0	0.00s	_0.0s	__0_s	___0s
2	2.00s	_2.0s	__2_s	__20s
1.2	1.20s	_1.2s	Input Not Possible	Input Not Possible
1.23	1.23s	_1.3s *2	Input Not Possible	Input Not Possible
12	2.00s *3	12.0s	_12_s	_120s
12.3	2.30s *4	12.3s	Input Not Possible	Input Not Possible
123	3.00s *5	23.0s *4	123_s	1230s

*1 Mode 2 and 3 do not allow decimal input.

*2 Because the number of decimal digits is 1, the first decimal value entered (2) is overwritten.

*3 Because the number of integral digits is 1, the first entered value (1) is overwritten.

*4 Because the cursor does not move to a decimal position until a decimal point is input, the input (1) is ignored.

*5 Because the cursor does not move to a decimal position until a decimal point is input, the inputs ("1" and "2") are ignored.

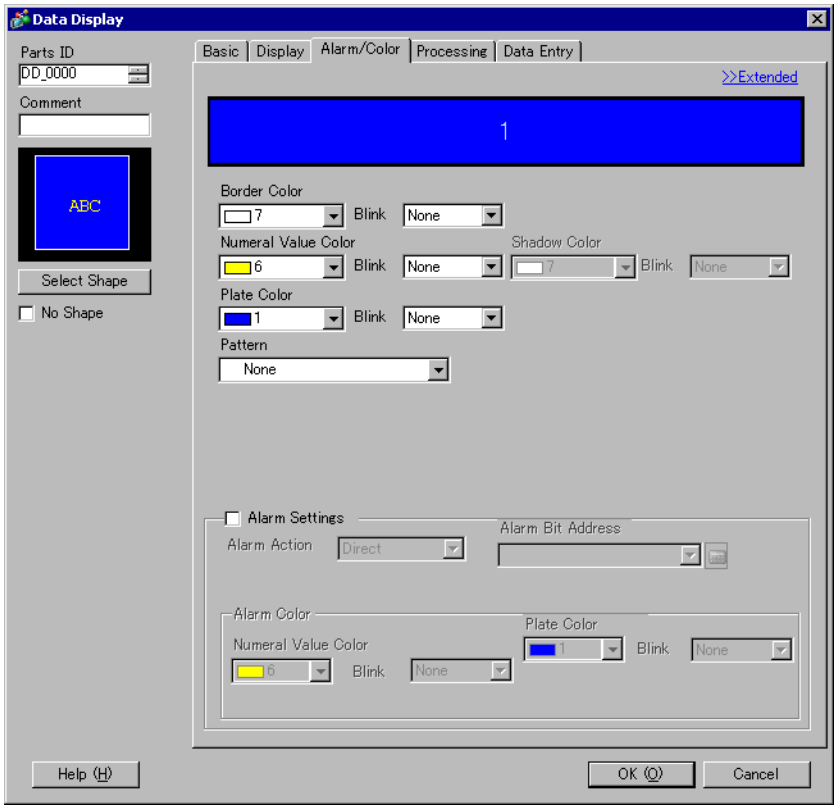
Continued

Setting		Description
Time-Base	Fixed Input	• When Disabled Inputs a 4-digit value, which includes the decimal point. This type of input enables higher precision of display values. The cursor position starts at far right when Data Display accepts inputs.

Input Value	Value to display	Mode
0	0.00s	0
0.0	0.00s	0
1	1.00s	0
1.2	1.20s	0
1.23	1.23s	0
12	12.0s	1
12.3	12.3s	1
123	123_s	2
1230	1230s	3
1234	Input Not Possible	-

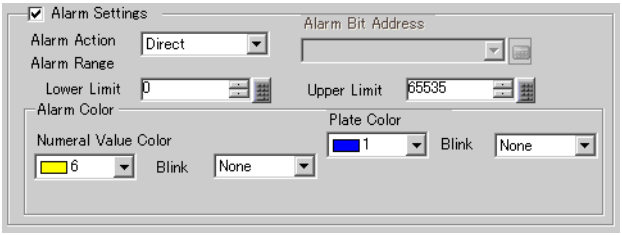
■ Alarm/Color/Basic

Settings for the Numeric Display's color and numeric data.



Setting	Description
Border Color	Select the border color for the Numeric Display.
Numeral Value Color	Set the color for the Numeric Display's numeric data.
Shadow Color	Set the background color for the Numeric Display's numeric value. **NOTE** • This can only be set when [Shadow] is set on the [Text Attribute] in the [Display] tab's [Font].
Plate Color	Set a background color for the Numeric Display part.
Pattern	Set a background pattern for the Numeric Display.
Pattern Color	Set a pattern color for the Numeric Display.
Blink	You can choose different blink settings for the [Border Color], [Numeral Value Color], [Shadow Color], [Plate Color], and [Pattern Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

Continued

Setting	Description
Indirect Area Specification	If the [Alarm]'s [Alarm Action] is [Address], choose the designation method for the Word Addresses which will store the alarm's upper/lower limit value. • Area After Display Address The lower→upper limit values are automatically allocated to consecutive addresses in order starting from the [Monitor Word Address] designated in the [Basic] tab. Monitor Word Address — Display Data +1 — Lower Limit +2 — Upper Limit : For example, When [Monitor Word Address] is "D100" The Lower Limit will be "D101", and the Upper Limit will be "D102". • Individual Settings The [Lower Limit] and [Lower Limit] will be separately set to a Word Address.
Alarm	The color can be set to change when the value goes outside of a specified range. Select whether or not to designate [Alarm].  **NOTE** • The alarm settings can only be set when the number of ranges is one. When the number of ranges is one, the contents of the Basic screen will also be displayed on the Detail screen. • On the [Basic] tab, when you select [Allow Input], you cannot input a value outside the warning range.
Alarm Action	Choose the Alarm Action. • Direct Write a set constant as the Alarm' upper/lower limit value. • Address Designate the address where the Upper/Lower Limit values are stored. • Change Color When the [Alarm Bit Address] turns ON, the color changes and an alarm displays.

Continued

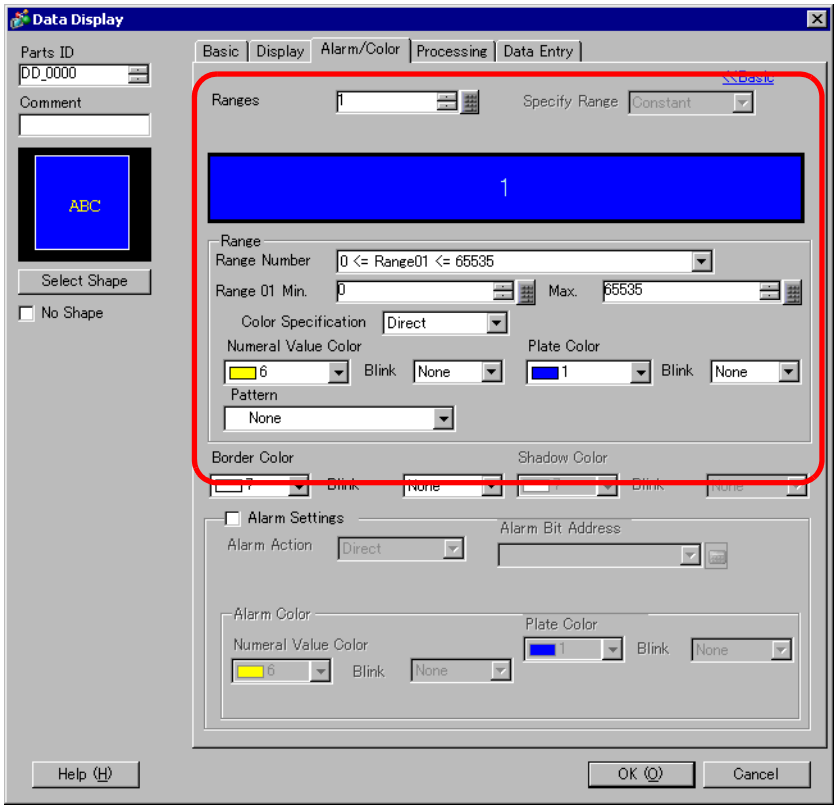
Setting			Description
Alarm	Alarm Bit Address		When the [Alarm Action] is [Change Color], input the bit address which will act as a trigger for the color change. When this bit turns ON, the color change will occur.
	Alarm Range Upper Limit/ Lower Limit		If [Alarm Action] is [Direct], you can set an upper/lower limit value for the alarm range. If [Alarm Action] is [Address] and [Individual Settings] is selected, specify the Word Address where the upper/lower limit value will be stored. Each [Data Type] and [Sign +/–] has a different size range.

Data Type	Data Length	Sign +/-:	Alarm Range Settings
Dec	16 Bit	Cleared	0 to 65535
		Selected	–32,768 to 32,767
	32 bit	Cleared	0 to 4294967295
		Selected	–2147483648 to 2147483647
Bin	16 Bit	0000..0000(16 bit) to 1111..1111(16 bit)	
	32 bit		
BCD	16 Bit	0 to 9999	
	32 bit	0 to 99999999	
Hex	16 Bit	0 to FFFF(h)	
	32 bit	0 to FFFFFFFF(h)	
Oct	16 bit only	0 to 177777(o)	
Float	32 bit only	$-9.9e^{16}$ to $9.9e^{16}$	

	Alarm Color		Sets the alarm color.
		Numeral Value Color	Select an alarm display color for numeric values from among 256 colors.
		Plate Color	Select an alarm display background color for numeric values from among 256 colors.
		Pattern Color	Select an alarm display pattern color for numeric values from among 256 colors.
		Blink	Select whether or not the Part blinks and the blink speed. You can choose different blink settings in [Numeral Value Color], [Plate Color] and [Pattern Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

■ Alarm/Color/Detail

The displayed color will change depending on the numeric data range.



Setting	Description
Ranges	Set the number of ranges to be color-coded for the numeric display 1 to 16.
Specify Range	If [Ranges] is more than "2", select the method to specify the minimum and maximum for each range. If [Ranges] is "1", [Constant] is fixed. • Constant Designate a set constant as the Min/Max value. (Direct Specification) • Address Designate the address where the Min/Max values are stored. (Indirect Specification)

Continued

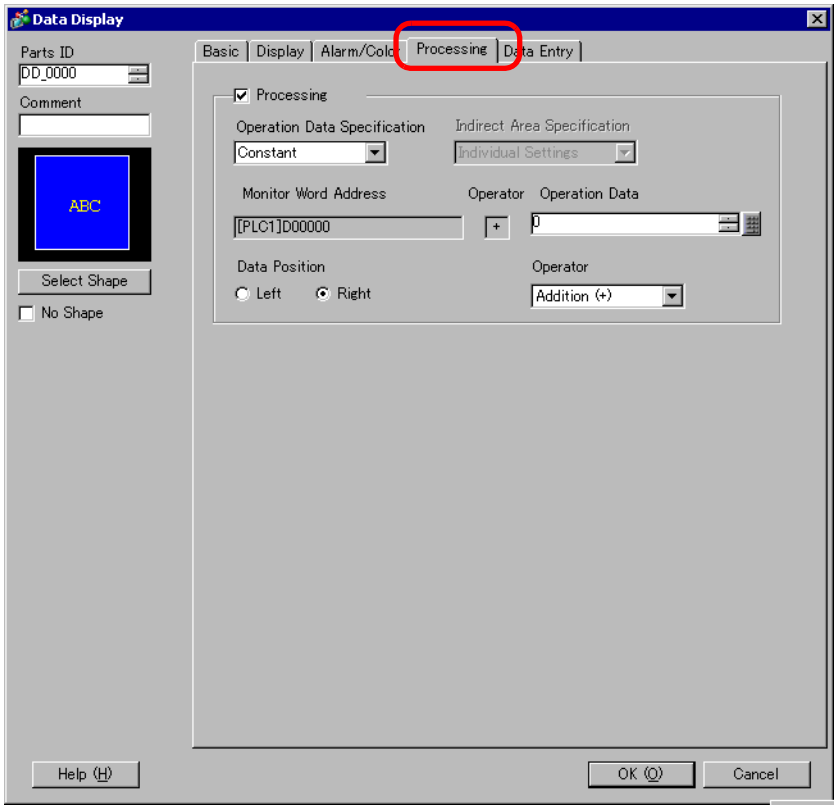
<table>
<tr><th colspan="2">Setting</th><th>Description</th></tr>
<tr><td colspan="2">Indirect Area Specification</td><td>If [Specify Range] is [Address], select the method to specify the address for storing the minimum and maximum numeric values.
• Area After Display Address
Allocated in order from Min. → Max. from the specified address in [Monitor Word Address] on the [Basic] tab.
<table><tr><td>Monitor Word Address</td><td>Display Data</td></tr><tr><td>+1</td><td>Min</td></tr><tr><td>+2</td><td>Max</td></tr><tr><td></td><td>:</td></tr></table>For example,
If [Monitor Word Address] is "D100", Min. is "D101", Max. is "D102".
• Individual Settings
Specify a Word Address for [Min.] and [Max.] individually.</td></tr>
<tr><td rowspan="2">Range</td><td>Range Number</td><td>Select the range for setting minimum and maximum and color within the range of 1 to 16 in [Ranges]. The value set for [Min.] and [Max.] is displayed.
For example,
Min. < = Range∗∗ < Max.</td></tr>
<tr><td>Min. Value/Max. Value</td><td>Set the minumum and maximum values for the range selected in [Range Number]. If [Specify Range] is [Address], specify the address stored in the minimum and maximum value. The setting range varies according to [Data Type] on the [Basic] tab and the presence or absence of a sign.
<table><tr><td colspan="2">Data Type</td><td>Sign +/-</td><td>Range</td></tr><tr><td rowspan="6">16 Bit</td><td rowspan="2">Dec</td><td>Cleared</td><td>0 to 65535</td></tr><tr><td>Selected</td><td>–32,768 to 32,767</td></tr><tr><td>Hex</td><td>—</td><td>0 to FFFF(h)</td></tr><tr><td>Oct</td><td>—</td><td>0 to 177777(o)</td></tr><tr><td>Bin</td><td>—</td><td>0 to FFFF(h)</td></tr><tr><td>BCD</td><td>—</td><td>0 to 9999</td></tr><tr><td rowspan="6">32 bit</td><td rowspan="2">Dec</td><td>Cleared</td><td>0 to 4294967295</td></tr><tr><td>Selected</td><td>–2147483648 to 2147483647</td></tr><tr><td>Hex</td><td>—</td><td>0 to FFFFFFFF(h)</td></tr><tr><td>Bin</td><td>—</td><td>0 to FFFFFFFF(h)</td></tr><tr><td>BCD</td><td>—</td><td>0 to 99999999</td></tr><tr><td>Float</td><td>—</td><td>– 9.9e ^{16} to 9.9e ^{16}</td></tr></table></td></tr>
</table>

Continued

Setting		Description
Range	Color Specification	Select the set range's color and pattern designation method. If the [Ranges] is 2 or greater or [Color Stack] is set, this will be fixed as [Direct]. • Direct The [Display Color], [Pattern], and [Pattern Color] of the range specified in [Range Number] will be directly chosen and set. (Direct Specification) • Address Specify the address where the color code will be stored. (Indirect Specification)
	Numeral Value Color	Set the color for the Numeric Display's numeric data.
	Plate Color	Set a background color for the Numeric Display part.
	Pattern	Set a background pattern for the Numeric Display.
	Pattern Color	Set a pattern color for the Numeric Display.
Border Color		Select the border color for the Numeric Display.
Shadow Color		Set a shadow color for the Numeric Display text.
Blink		Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for the [Numeral Value Color], [Plate Color], [Pattern Color], [Border Color], and [Shadow Color]. NOTE • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

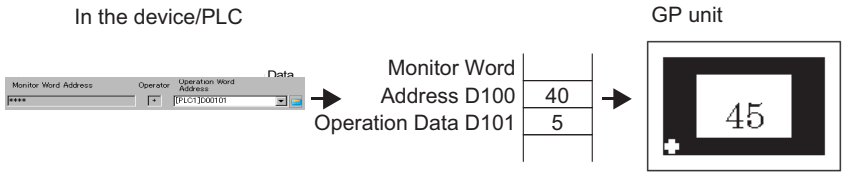
■ Processing

You can perform an arithmetic operation on the data read from the device/PLC, and display the resulting data.



Setting		Description
Processing		Set whether or not to perform an arithmetic operation on the data stored in [Monitor Word Address] and display the result. **NOTE** • In the following cases, [Processing] cannot be set: - When [Specify Input/Display Range] is set. - When [Alarm] are set.
	Operation Data Specification	Select the method to set the data to operate. • Constant Write a set constant as the data to operate. (Direct Specification) • Address Designate the address which stores the data to operate. (Indirect Specification)

Continued

Setting		Description
Processing	Indirect Area Specification	If the [Operation Data Specification] is [Address], choose the designation method for the address which will store the data to operate. • Area After Display Address Arithmetic operations take place using the values stored in the [Monitor Word Address], and the address that follows. For example, When [Operation Data Specification] is [Address], [Indirect Area Specification] is [Area After Display Address], [Operator] is "+".  • Individual Settings Select a separate Word Address for the operation data.
	Monitor Word Address	The [Monitor Word Address] specified on the [Basic] tab is displayed.
	Operation Data	For [Word Address] data, set the other data. If the [Operation Data Specification] is set to [Constant], enter the operation data here. Each [Data Type] on the [Basic] tab has a different size range. If [Address] is set, specify the address where the operation data will be stored.

Data Type		Sign +/- :	Range
16 Bit	Dec	Cleared	0 to 65535
		Selected	–32,768 to 32,767
	Hex	—	0 to FFFF(h)
	Oct	—	0 to 177777(o)
	Bin	—	0 to FFFF(h)
	BCD	—	0 to 9999
32 bit	Dec	Cleared	0 to 4294967295
		Selected	–2147483648 to 2147483647
	Hex	—	0 to FFFFFFFF(h)
	Bin	—	0 to FFFFFFFF(h)
	BCD	—	0 to 99999999
	Float	—	$-9.9e^{16}$ to $9.9e^{16}$

Continued

Setting		Description
Processing	Data Position	Select the Operation Data or Destination Word Address display position from [Right] or [Left]. Right: The Monitor Word Address is left, the Operation Data or Destination Word Address is right Word Address Left: The Operation Data or Destination Word Address is left, the Monitor Word Address is right
	Operator	Choose an operator from [Addition (+)], [Subtraction (–), [Mult. (*)], [Division (/)], [Logical (AND)], [Logical OR (|)], or [Exclusive OR (^)]. **NOTE** • When the data format for a calculation is 32 bit Float, only addition, subtraction, multiplication and division can be performed.

NOTE

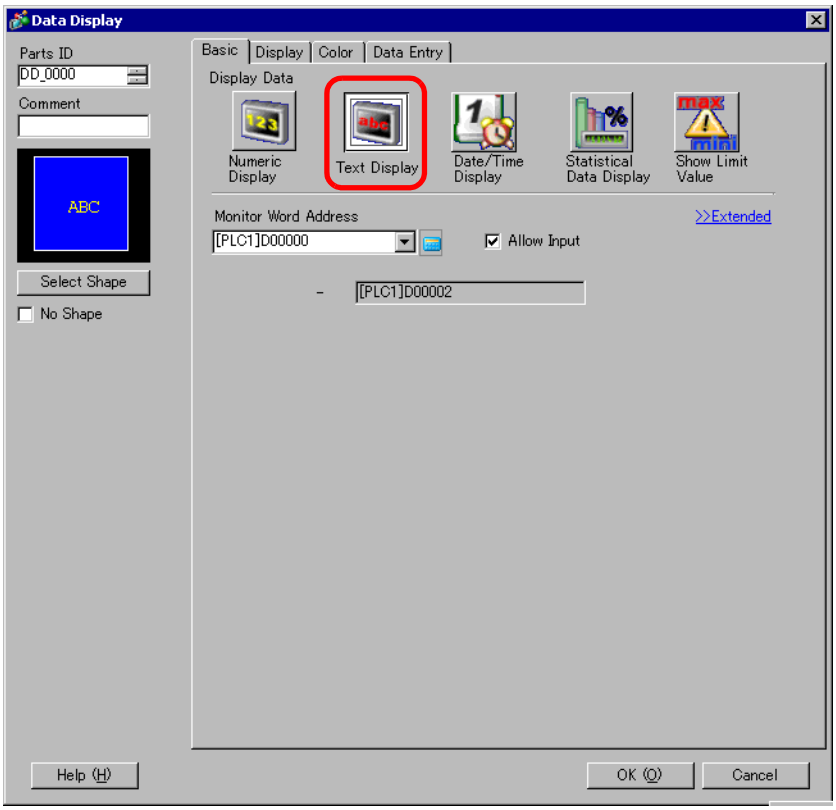
- Any overflowing digits resulting from an arithmetic operation will be ignored. For example, When [16 Bit Hex] is set, the result of "FFFF(h) + 1(h)" would be "0000(h)".
- If division produces a remainder, an error may occur as a result of rounding the decimal.
- Results of base address + offset value calculations are always handled as 16 bit Bin values, regardless of the data length and data format settings. If a calculation result exceeds 16 bits (exceeds 65,535), bit 0 to bit 15 are handled as the valid bits, and higher-order bits are discarded.

14.11.2 Text Display

■ Basic Settings/Basic

Display string data stored in a specified Word Address in a device/PLC.

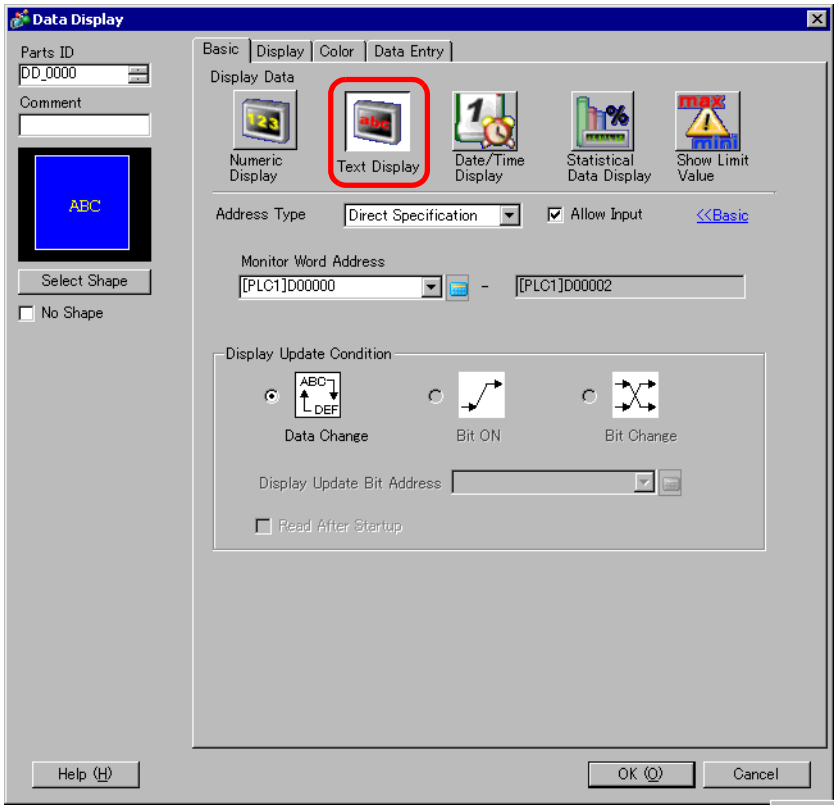
☞ "14.3 Displaying/Inputting Text Data" (page 14-8)



Setting	Description
Monitor Word Address	The data stored in this Word Address will be displayed in real-time as text. **NOTE** • The relationship of high order and low order Word data will differ according to the device/PLC type.
Input Permitted	Set whether keypad and barcode reader input will be accepted by the Text Display.
Monitor Word Address' Last Address Display	Displays the address of Monitor Word Address + Number of Used Word Addresses (changes by the Display Characters). For example, When the [Display] tab's [Display characters] is "5" and the [Monitor Word Address] is "D100", the last address will become "D102".

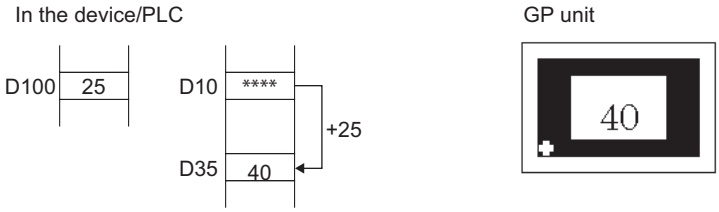
■ Basic Settings/Detail

You can indirectly specify an address for the Text Display, or set up an update condition for displayed text.

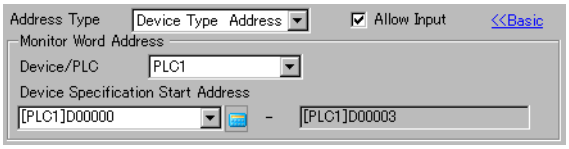
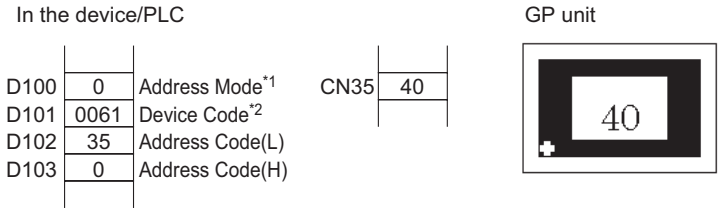


Setting	Description
Address Type	Select how you want to define the display address (Monitor Address): [Direct Specification], [Address], or [Device Type Address].
Input Permitted	You can accept input from a keypad, bar code reader, or a two-dimensional bar code reader. Select this check box to display the [Allow Input] tab.
Monitor Word Address	You can have a real-time numeric display of data stored in the Word Address specified here. To indirectly specify the Monitor Word Address, in the [Address Type] list select [Address] or [Device Type Address].
Address	Indirectly designates to the device specified in [Base Address].

Continued

Setting			Description
Monitor Word Address	Address	Base Address	 The [Base Address] becomes the standard indirectly designated address. In [Offset Value Specification Address], set the address that stores the offset value from the [Base Address]. Example: When you indirectly specify [Monitor Word Address] D35 [Base Address] = D10 [Offset Value Specification Address] = D100 The data in [Offset Value Specification Address] is handled as the offset value from the [Base Address].  The [Base Address] (D10) is added to the [Offset Value
		Offset Value Specification Address	
		Bin, BCD	Choose the type of data stored in the [Offset Value Specification Address] from [Bin] or [BCD].
	Device Type & Address		Indirectly designates both the device and address.
		Device/PLC	When [Address Type] is [Device Type & Address], select which device/PLC's address to indirectly designate.

Continued

Setting			Description
Monitor Word Address	Device Type Address	Device Specification Start Address	 Input the start address of the Word Address to specify the Display Address in [Device Specification Start Address]. Store the Address Mode in [Device Specification Start Address]. Address Mode is the mode to determine if the Device Address is for Internal or External (PLC) Device. Store the Device Code and the Address Code in the three Words following [Device Specification Start Address]. The Word Address specified with the Device Code and the Address Code will be displayed. Example: When you indirectly specify [Monitor Word Address] CN35 [Device Specification Start Address] = D100 [Address Mode] = External (PLC) Device [Device Code] = CN: 0061  *1 Address Mode 0: External (PLC) Device 1: Internal Device In the above case, 0 is stored. *2 Please see the "GP-Pro EX Device/PLC Connection Manual" for device codes. If you select an internal device, the device codes are LS area: 0000 and USR area: 0001. The address designated by D100, D101, D102, and D10 3 is CN35. Its data, "40", is displayed. **NOTE** • If the indirectly-designated address is out of range or does not exist, a communication error will occur. An error can affect the screen update. When an error occurs, check the indirectly-designated data and write the correct value to the device/PLC address to restore the screen update.

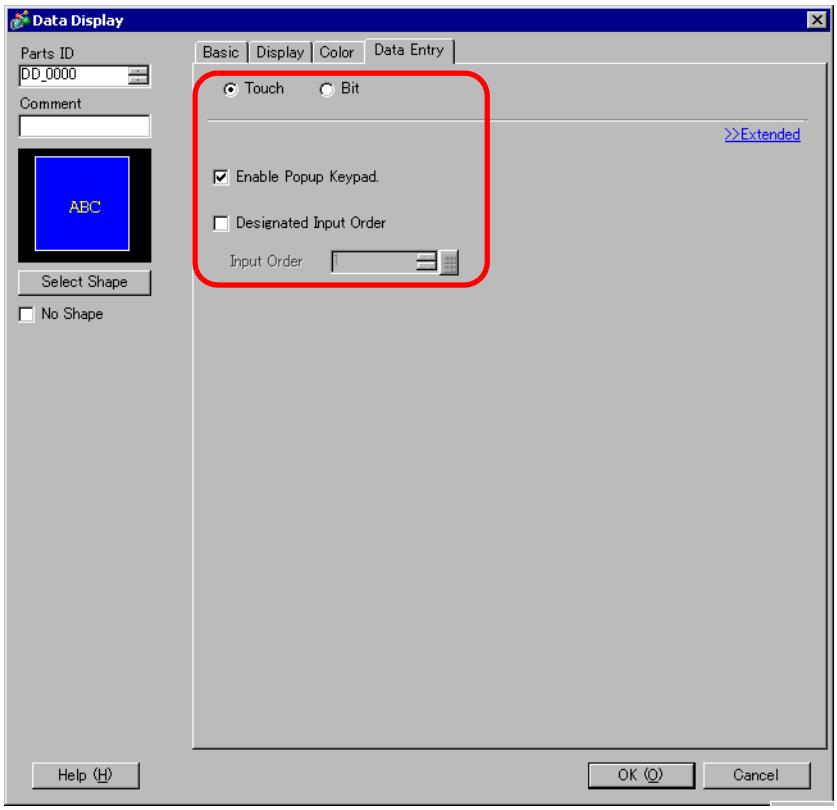
Continued

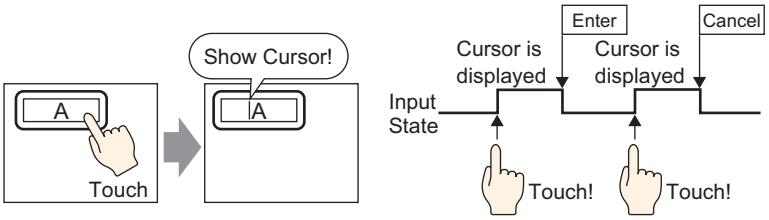
Setting		Description
Display Update Condition		Designate the condition which will update the display. This can only be set on the Detail screen. • Data Change The display is updated when a change occurs in the data stored in the [Monitor Word Address] on the [Basic] tab. • Bit ON The display is updated when a bit stored in the [Monitor Word Address] on the [Basic] tab turns ON. • Bit Change The display is updated when a bit stored in the [Monitor Word Address] on the [Basic] tab changes state from ON to OFF or from OFF to ON.
	Display Update Bit Address	Defines the ON/OFF trigger bit address for when [Display Update Condition] is set to [Bit ON] or [Bit Change].
	Read After Startup	When the text data has a large volume or many Text Display parts are set on the single screen, select this check box for each Text Display to increase other tags' display speeds. However, when this is checked, Text Display speeds will decrease.

NOTE

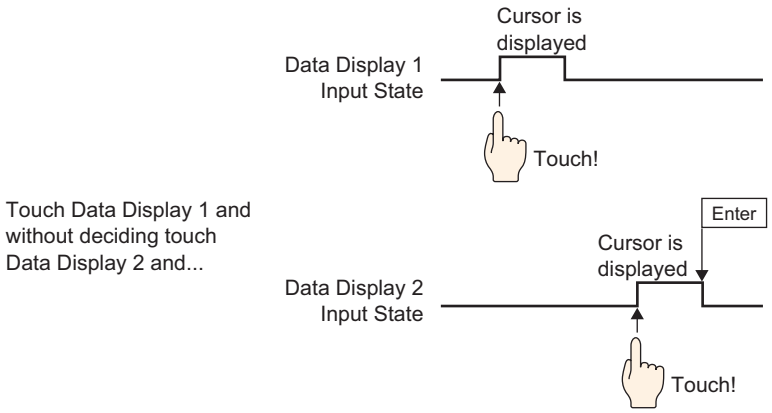
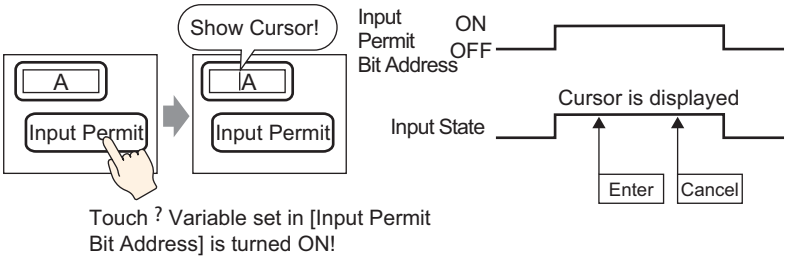
- After the data has been changed in the monitor address, please change the [Display Update Bit Address] so the text displays. If the changing order is reversed, the text may not display properly.
- If the [Display Update Bit Address] changes immediately after the text data changes in the device/PLC, there may be instances where the text does not display correctly. In this case, program the device/PLC to use the send wait to slightly delay the trigger bit change.
  The send wait period depends on the amount of placed parts, scan time, baud rate, and the number of characters used.

■ Data Entry/Basic

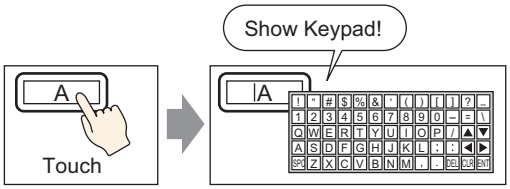
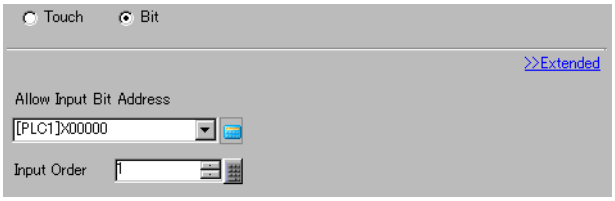


Setting	Description
Data Entry Methods	Select the method that will change the Data Display to input state (cursor display state). • Touch When the Data Display is touched, it will change to the Allow Input state. 

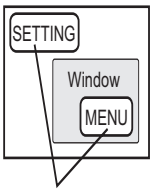
Continued

Setting	Description
Data Entry Methods	**NOTE** • If you touch a Data Display while inputting data into another Data Display, the data that has been input will revert to its previous data, and the most recently touched part will enter the Allow Input state.  • Bit When the Allow Input Bit Address is ON, the Data Display is in the Allow Input state.  **NOTE** • If the [Allow Input Bit Address] is turned OFF while inputting data in a Data Display, the Allow Input state is canceled, and the input data is erased.
Touch	

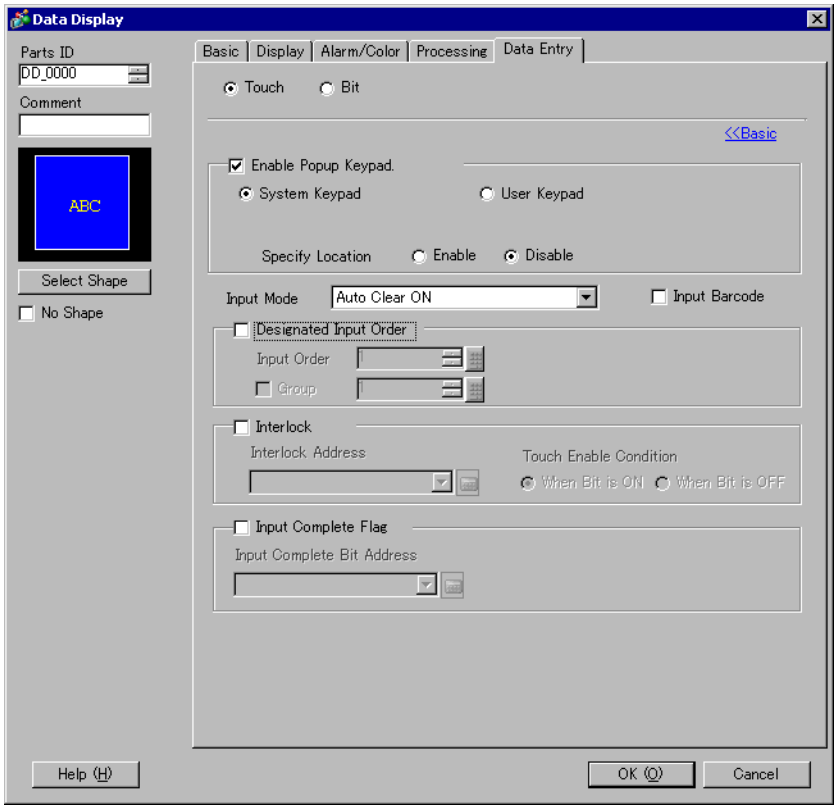
Continued

Setting		Description
Touch	Enable Popup Keypad	Select whether or not a popup keypad will display when you touch the Data Display part.  **NOTE** • A popup keypad cannot be used when the Data Display is placed on a Window screen.
	Designated Input Order	When you will be inputting into multiple Data Displays in sequence, select the order in which they will enter the input state.
	Input Order	Select the order, from 1 to 384, in which the Part will enter the input state.
Bit		
	Allow Input Bit Address	When the bit address set here turns ON, the Data Display enters the input state.

Continued

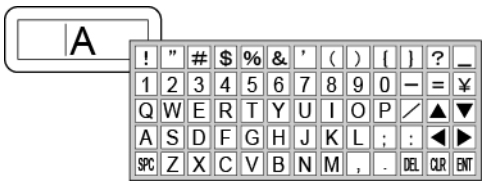
Setting		Description
Bit	Input Order	Select the order from 1 to 384 that the Part will enter the Input Permitted state if multiple [Input Permitted Bit Addresses] turn ON at the same time (when a bit address has been registered to multiple Data Display parts, or when different bit addresses turn ON at the same time). **NOTE** • If more than one [Allow Input Bit Address] is turned ON at the same time, the Data Displays will enter the input state according to their [Input Order] settings. If the [Input Order] settings are the same, the input state order will be determined by the order the parts were placed. • If the [Allow Input Bit Address] of Data Displays placed on the Base Screen and Window Screen turn ON at the same time, the Base Screen will have a higher priority for the input state than the Window Screen. When placing Data Displays on both the Base and Window screen, make sure to set a different [Allow Input Bit Address].  Multiple [Input Permit Bit Addresses] turn ON simultaneously

■ Data Entry/Details

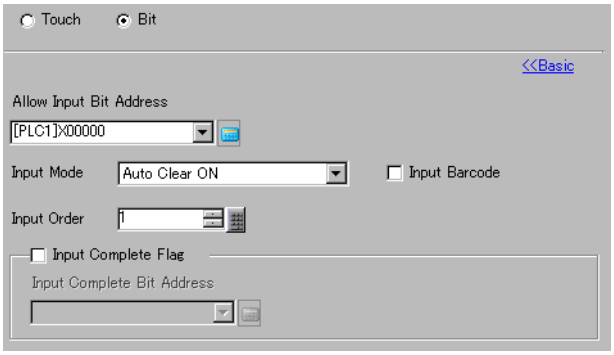


Setting		Description
Touch	Enable Popup Keypad	Select whether or not a popup keypad will display when you touch the Data Display part. **NOTE** • A popup keypad cannot be used when the Data Display is placed on a Window screen.
	Keypad Type	• System Keypad Use the standard keypad registration for GP-Pro EX. Use this in normal cases. • User Keypad Create a user-defined keypad with the Keypad part. This keypad allows for customized input. ☞ "16.5.1 Keypad Settings Guide ■ User Keypad" (page 16-22)

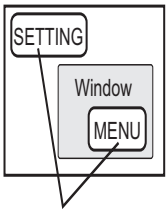
Continued

Setting			Description
Touch	System Keypad		Display the prepared standard keypad registration in GP-Pro EX. 
	User Keypad	Keypad	Set the number of the custom-made keypad. ☞ "16.5.1 Keypad Settings Guide ■ User Keypad" (page 16-22)
	Specify Location		Select whether or not to set the popup keypad display position. If [Do] is selected, the popup keypad Display Area can be selected and moved after the Data Display part is positioned. **NOTE** • You cannot select or move the popup keyboard display area when you group the data display parts and other objects.
	Designated Input Order		When you will be inputting into multiple Data Displays in sequence, select the order in which they will enter the input state.
		Input Order	Select the order, from 1 to 384, in which the Part will enter the input state.
		Group Number	Divide the Data Displays into groups for continuous data input. The cursor will move in turn to each successive Data Display registered in the same group, according to the input order, setting them into the Input Permitted state. The Group Number can be from 1 to 10. ☞ "14.13.2 Set Input Order by Group" (page 14-114)
		Interlock	This function only allows input when a bit designated via [Interlock Address] is in a state that has been selected via [Touch Enable Condition]. Select whether or not to use the Interlock function. ☞ "14.7 Preventing Operational Errors Interlock" (page 14-25)
		Interlock Address	Select the bit address that will designate the enable condition, to allow input to be entered. This address state will determine if touch is enabled or disabled.

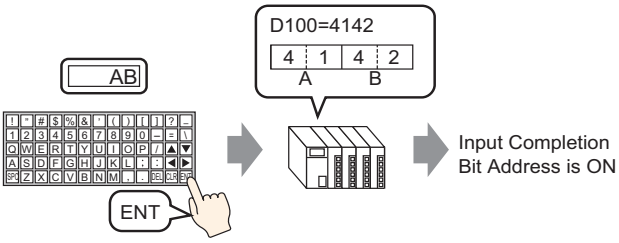
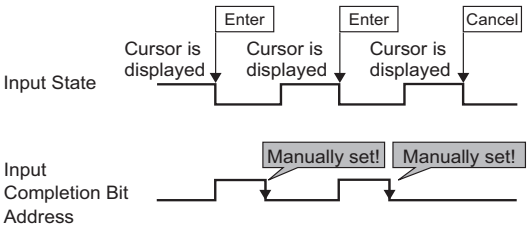
Continued

<table>
<tr><th colspan="3">Setting</th><th>Description</th></tr>
<tr><td>Touch</td><td rowspan="2">Designated Input Order</td><td>Touch Enable Condition</td><td>Select the condition that will enable the part to be touched, to allow input to be entered.
<table>
<tr><th>Touch Enable Condition</th><th>Interlock Address Status</th><th>Touch Enabled/ Disabled</th></tr>
<tr><td rowspan="2">When Bit is ON</td><td>ON</td><td>Touch enabled</td></tr>
<tr><td>OFF</td><td>Touch disabled</td></tr>
<tr><td rowspan="2">When Bit is OFF</td><td>ON</td><td>Touch disabled</td></tr>
<tr><td>OFF</td><td>Touch enabled</td></tr>
</table>
NOTE
• When the Interlock [Touch Enable Condition] is disabled during input, the Data Display will remain in the Input Permitted state. Interlock will not work until the input is completed.</td></tr>
<tr><td colspan="2" rowspan="2">Bit</td><td> 
</td></tr>
<tr><td>Allow Input Bit Address</td><td>When the bit address set here turns ON, the Data Display enters the input state.</td></tr>
</table>

Continued

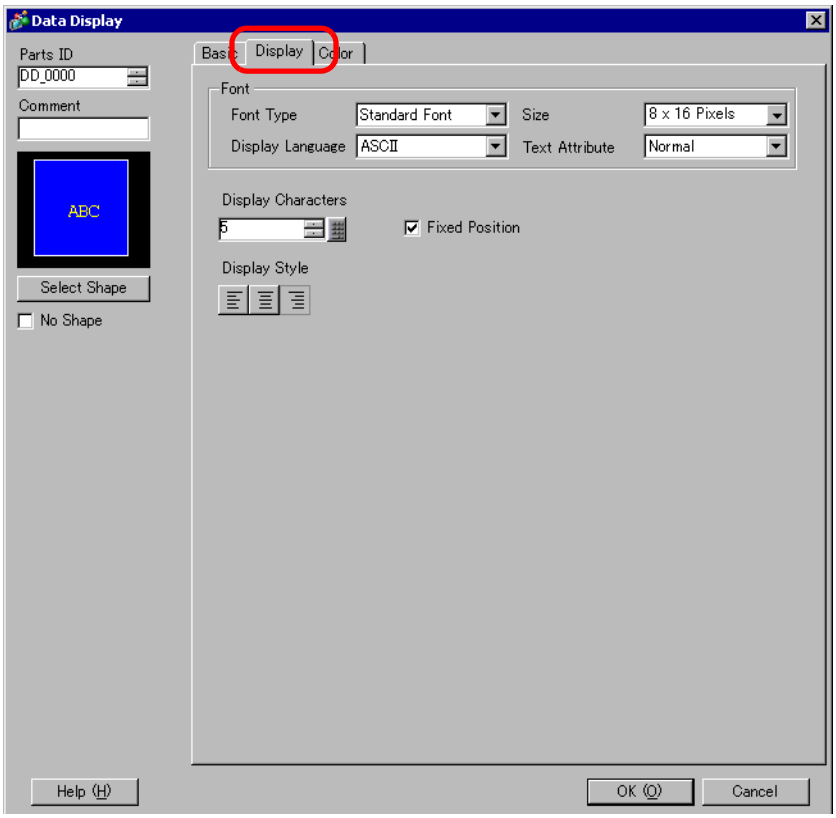
Setting		Description
Bit	Input Order	Select the order from 1 to 384 that the Part will enter the Input Permitted state if multiple [Input Permitted Bit Addresses] turn ON at the same time (when a bit address has been registered to multiple Data Display parts, or when different bit addresses turn ON at the same time). **NOTE** • If more than one [Allow Input Bit Address] is turned ON at the same time, the Data Displays will enter the input state according to their [Input Order] settings. If the [Input Order] settings are the same, the input state order will be determined by the order the parts were placed. • If the [Allow Input Bit Address] of Data Displays placed on the Base Screen and Window Screen turn ON at the same time, the Base Screen will have a higher priority for the input state than the Window Screen. When placing Data Displays on both the Base and Window screen, make sure to set a different [Allow Input Bit Address].  Multiple [Input Permit Bit Addresses] turn ON simultaneously
Input Mode		• Auto Clear OFF New text data will build on previously data that has been input. Pressing [CLR] on the keypad clears the value. • Auto Clear ON The first key pressed (except move cursor, [ENT], [DEL], or [BS]) will clear the previously input text data. • Auto Clear ON + Input Check When using barcode input, check whether the number of input digits coincide with the [Display characters]. If they do not coincide, the data will not be written to the Word Address.
Input Barcode		A setting that allows input from a barcode reader. ☞ "8.2.2 Setup Procedure" (page 8-5)

Continued

Setting	Description
Input Complete Flag	Detects and notifies you when input has been completed. 
Input Complete Flag Bit Address	Sets the bit address that will turn ON when input has been completed.  **NOTE** • Please return this bit to OFF after input has been completed.

■ Display

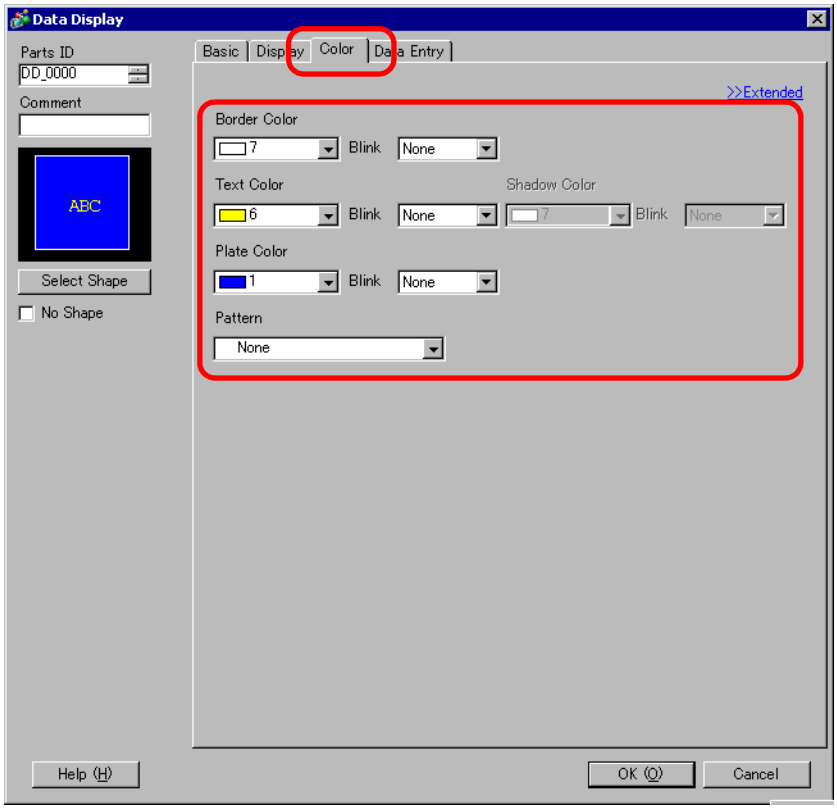
Set the Text Display's font and attributes.



Setting		Description
Font		Set a font for the text.
	Font Type	Choose a font type for the text from [Standard Font] or [Stroke Font].
	Character Size	Choose a font size for the text. Standard Font: (8 to 64) x (8 to 128) Standard Font (Fixed Size): [6x10], [8x13], [13x23] Stroke Font: Select from 6 to 127.
	Display Language	Select the display language: [Japanese], [ASCII], [Chinese (Simplified)], [Chinese (Traditional)], [Korean], [Cyrillic], or [Thai].
	Text Attribute	Select the font text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] Standard Font (Fixed Size): Choose from [Standard], [Shadow] Stroke Font: Choose from [Standard], [Bold], [Outline]
Display characters		Set the number of characters to be displayed from 1 to 100.
Fixed Position		Set whether or not the text will be fixed in the center of the Part.
Display Style		Select the alignment of the text display area's text: [Align Right], [Align Left], or [Align Center].

■ Color/Basic

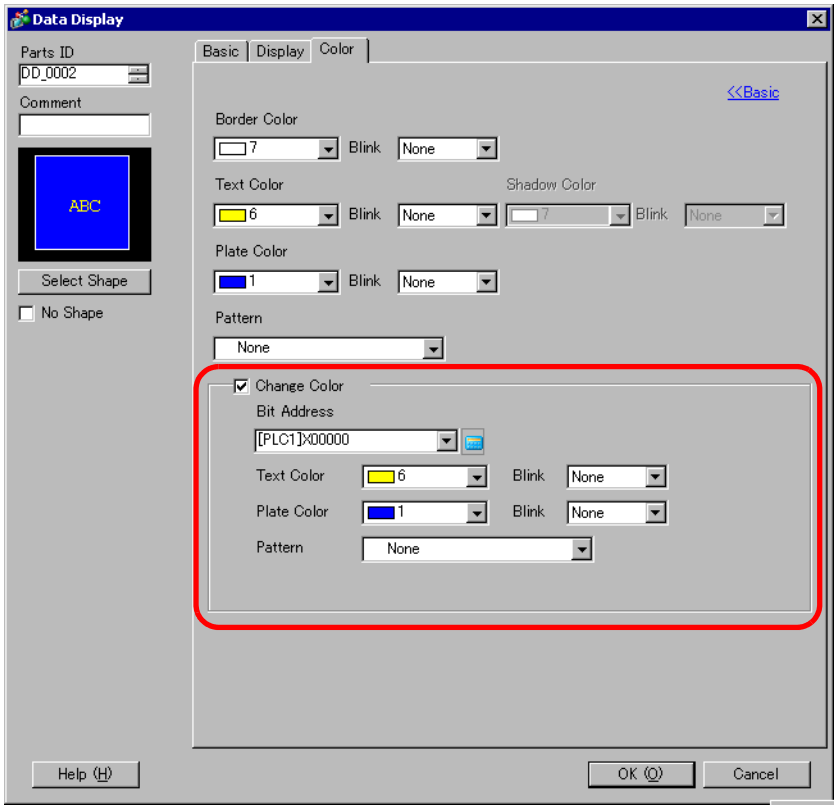
Select the Text Display's color.



Setting	Description
Border Color	Select a border color.
Text Color	Select a text color.
Shadow Color	Select a text background color.
Plate Color	Select a background color.
Pattern	Select a background pattern.
Pattern Color	Select a background pattern color.
Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for the [Border Color], [Text Color], [Shadow Color], [Plate Color], and [Pattern Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

■ Color/Details

Select how the text color changes when the bit turns ON.

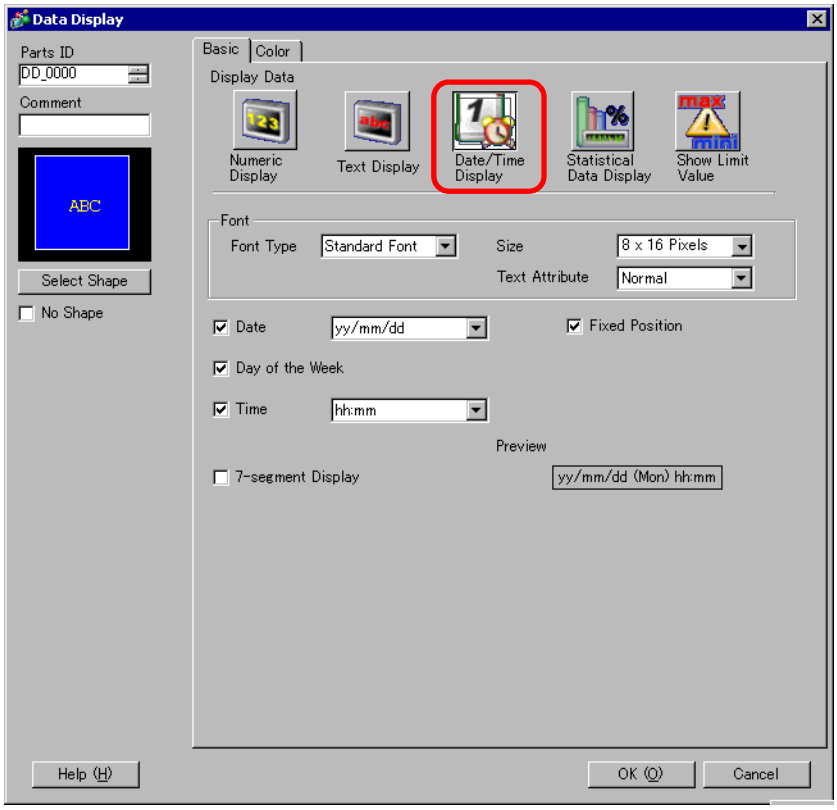


Setting		Description
Change Color		Select whether or not a different color will be displayed when the designated [Bit Address] turns ON.
	Bit Address	When the address set here turns ON, the color change will occur.
	Text Color	When the [Bit Address] turns ON, this text color will be displayed.
	Plate Color	When the [Bit Address] turns ON, this background color will be displayed.
	Pattern	Select a background pattern.
	Pattern Color	Select a background pattern color.
	Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for the [Text Color], [Plate Color], and [Pattern Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

14.11.3 Date/Time Display

■ Basic Settings

Displays the current date and time.



Setting		Description
Font		Set a font for the date/time.
	Font Type	Choose a font type for the date/time from [Standard Font] or [Stroke Font].
	Character Size	Choose a font size for the date/time. Standard Font: (8 to 64) x (8 to 128) Standard Font (Fixed Size): [6x10], [8x13], [13x23] Stroke Font: Select from 6 to 127.
	Text Attribute	Select the font text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] Standard Font (Fixed Size): Choose from [Standard], [Shadow] Stroke Font: Choose from [Standard], [Bold], [Outline] **NOTE** • If [7-segment Display] is set, [Text Attribute] cannot be set.

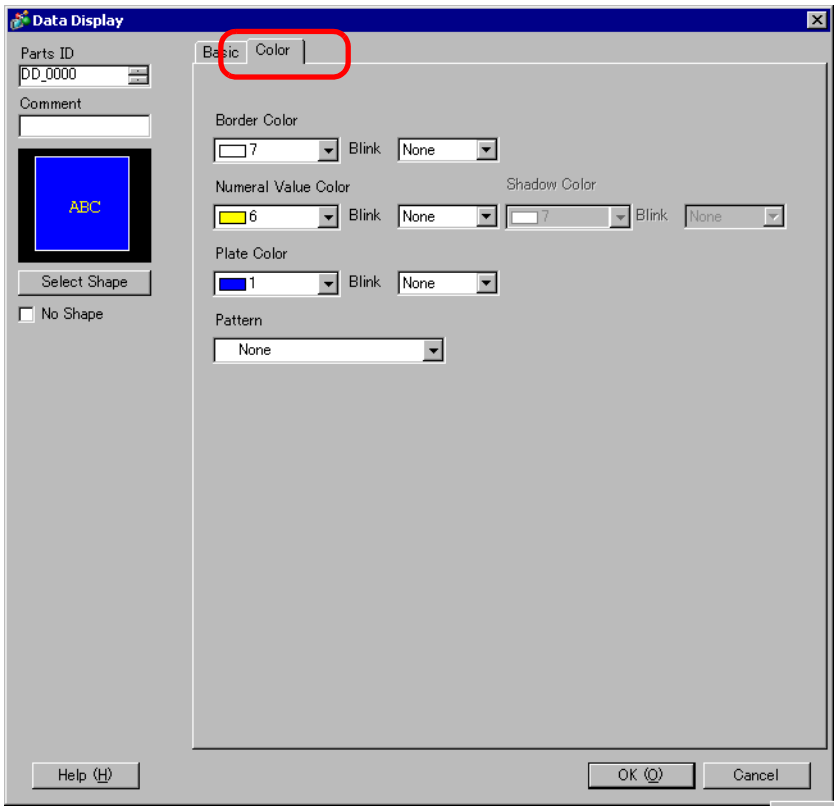
Continued

Setting	Description
Date	Set whether or not to display the date, and select the display format from [yy/mm/dd], [dd/mm/yy], [mm/dd/yy], [20yy/mm/dd], [dd/mm/20yy], or [mm/dd/20yy]. NOTE • When working with a double-byte character language and you select a format that includes the year, month or date, numerals use double-byte characters. However, if you select [7-segment Display], numerals use single-byte characters.
Day of the Week	Select whether or not to display the day.
Time	Specify whether or not to display the time and select the time format from [hh:mm] or [hh:mm:ss]. NOTE • When working with a double-byte character language and you select a format that includes the hours, minutes, or seconds, such numerals will be displayed as double-byte characters. However, if you select [7-segment Display], the numerals will be displayed as single-byte characters.
Fixed Position	Set whether or not the Date/Time Display Area will be fixed in the center of the Part.
7-segment Display	Data will be displayed using the 7-segment display setting. NOTE • This cannot be set when [Size] is [Fixed Size]. • This can be set only when [Text Attribute] is selected as [Standard].
Preview	Displays the data image according to the settings.

■ Color

Select the colors for the Date/Time Display on this screen.

☞ "14.6 Displaying the Date and Time" (page 14-23)

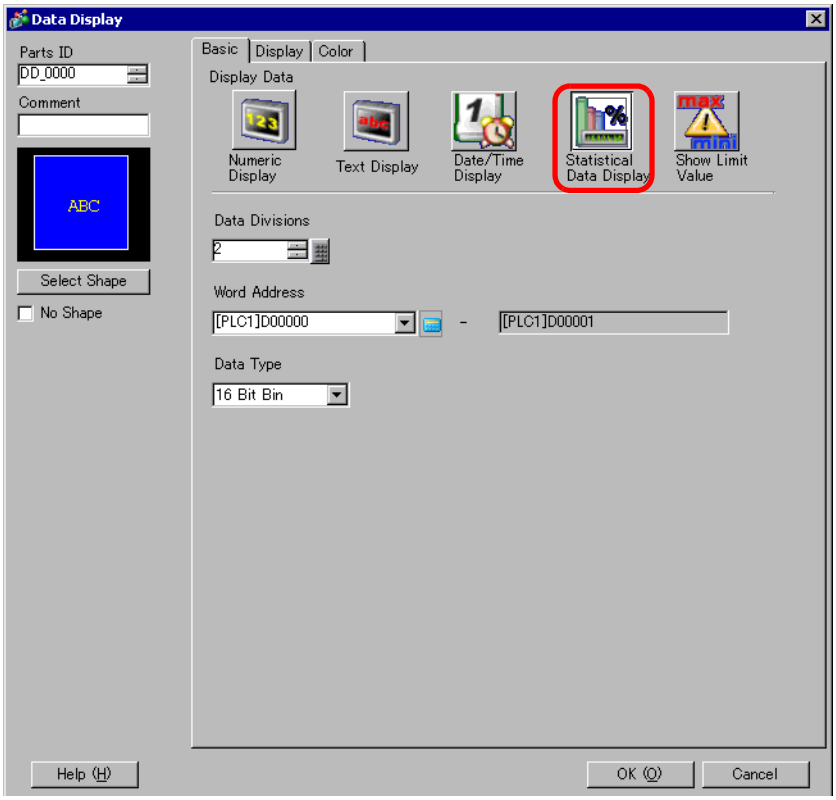


Setting	Description
Border Color	Select a border color.
Numeral Value Color	Select a text color.
Shadow Color	Select a text shadow color.
Plate Color	Select a background color.
Pattern	Select a background pattern.
Pattern Color	Select a pattern color.
Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for the [Border Color], [Numeral Value Color], [Shadow Color], [Plate Color], and [Pattern Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

14.11.4 Statistical Data Display

This function takes statistics from the values of successive Word Addresses, and displays them as numeric values. This is mainly used to display statistical graph data set in a Graph. The statistical data settings can be set independently, even without using the Graph's settings.

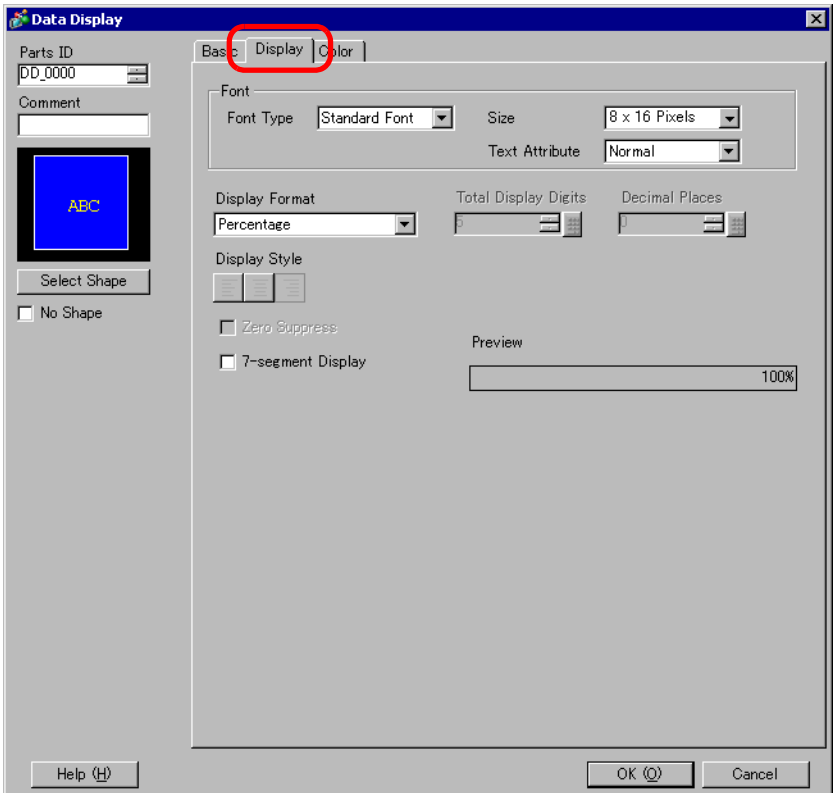
■ Basic Settings



Setting	Description
Data Divisions	Set the no. of Data shown in the Statistical Data Display. The value can be from 2 to 16.
Word Address	Set the initial Word Address for the data from the statistical data display. The address for divisions is allocated from the specified address for statistical data display automatically. When you use Statistical Data Display of a Statistical Graph, specify to match the [Monitor Word Address] of the statistic graph.
Data Type	Select the type of data to be displayed. Bit Length / Data Type 16 Bit / Bin, BCD 32 bit / Bin, BCD, Float **NOTE** • Bin, BCD, and Float data cannot be mixed on a single Statistical Data Display.

■ Display

Set the Statistical Data Display's font and attributes.



Setting		Description
Font		Set a font for the text.
	Font Type	Choose a font type for the statistical data from [Standard Font] or [Stroke Font].
	Character Size	Choose a font size for the statistical data. Standard Font: (8 to 64) x (8 to 128) Standard Font (Fixed Size): [6x10], [8x13], [13x23] Stroke Font: Select from 6 to 127.
	Text Attribute	Select the font text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] Standard Font (Fixed Size): Choose from [Standard], [Shadow] Stroke Font: Choose from [Standard], [Bold], [Outline] NOTE • If [7-segment Display] is set, [Text Attribute] cannot be set.
Display Format		There are three ways of displaying statistical data: [Percentage], [Numeric Value], and [Numeric Value + Percentage]. IMPORTANT • When [Percentage] has been selected, the division operation may create results that, when totaled, do not add up to exactly 100%.

Continued

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Total Display Digits
Decimal Places</td><td>Select the number of digits to display in the numeric display with [Total Display Digits]. Numbers after the decimal point are included in the display digits. However, the decimal point is not included in the display digits. Each data format has a different size range.
Select the number of digits after the decimal point with [Decimal Places]. This can only be set when the [Data Type] is [Dec] or [Float]. Each digit number range is different, depending on the [Data Type].

For example,
When the Total Display Digits is 5, and the Decimal Places is 2, the Numeric Display will appear as follows.

123.45

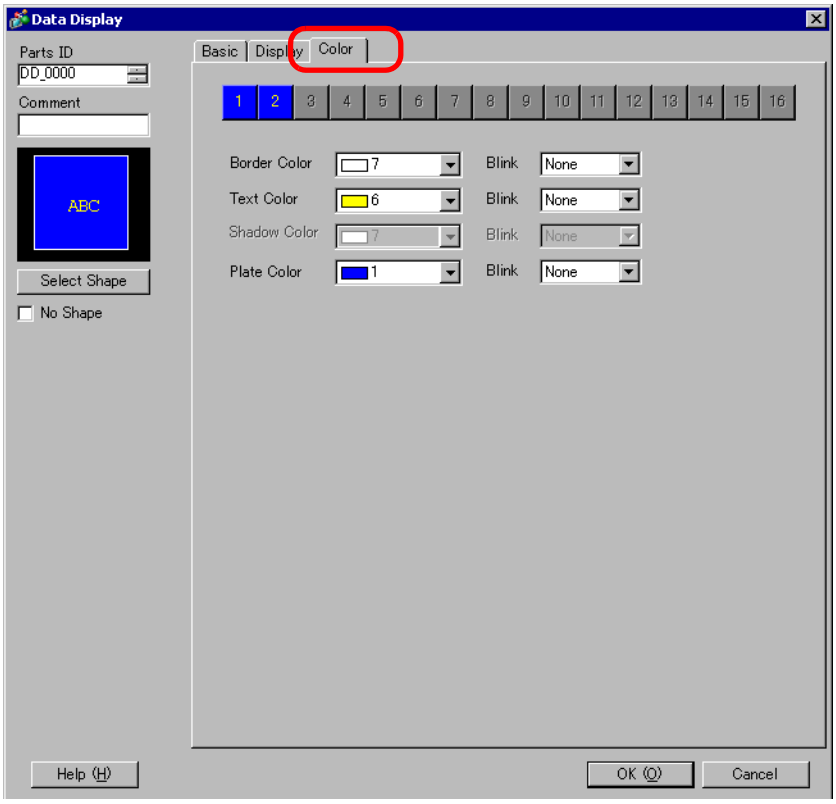
<table>
<tr><th>Data Length</th><th>Data Type</th><th>Total Display Digits</th><th>Decimal Places</th></tr>
<tr><td rowspan="2">16 Bit</td><td>Bin</td><td rowspan="2">1 to 11</td><td rowspan="2">1 to 10</td></tr>
<tr><td>BCD</td></tr>
<tr><td rowspan="3">32 bit</td><td>Bin</td><td rowspan="2">1 to 11</td><td rowspan="2">1 to 10</td></tr>
<tr><td>BCD</td></tr>
<tr><td>Float</td><td>1 to 17</td><td>1 to 16</td></tr>
</table>
</td></tr>
<tr><td>Display Style</td><td>There are three ways of positioning statistical data: [Align Right], [Align Left], and [Align Center].</td></tr>
<tr><td>Zero Suppress</td><td>If this option is selected, leading zeros are not displayed.
For example,
When Total Display Digits = 4

☑ Zero Suppress 25
Leading zeroes are not displayed

☐ Zero Suppress 0025
Zeroes are added to correspond to the length of Display Digits</td></tr>
<tr><td>7-segment Display</td><td>Data will be displayed using the 7-segment display setting.
NOTE
• This cannot be set when [Size] is [Fixed Size].
• This can be set only when [Text Attribute] is selected as [Standard].</td></tr>
<tr><td>Preview</td><td>Displays the data image according to the settings.</td></tr>
</table>

■ Color

Select colors for the Statistical Data Display.

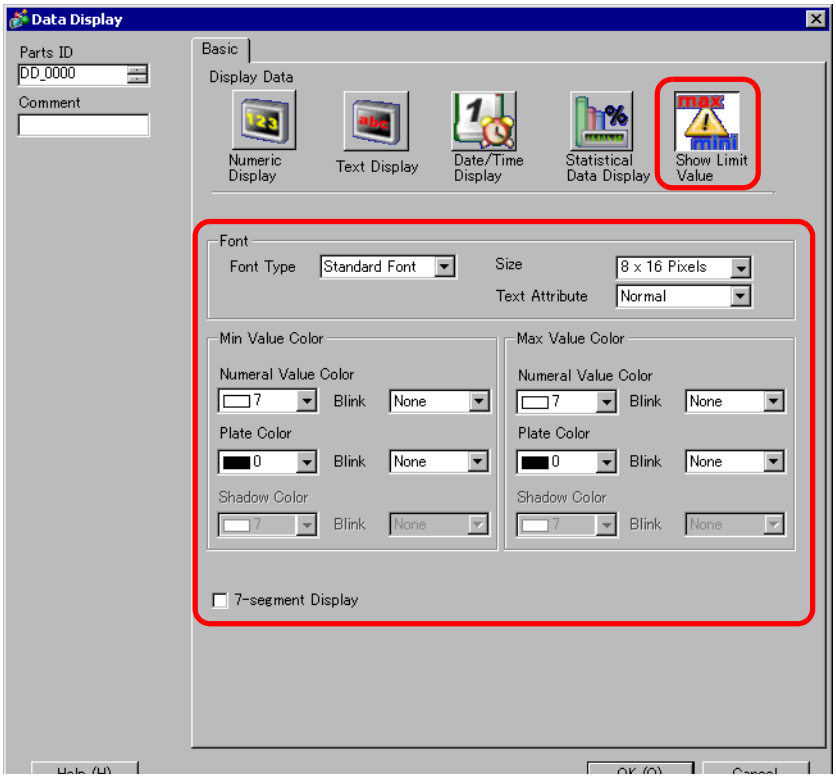


Setting	Description
Select State Bar	Displays the division range number selected in [Data Divisions].
Border Color	Set the border color.
Text Color	Set the text color.
Shadow Color	Set the shadow color.
Plate Color	Select the background color.
Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for the [Border Color], [Text Color], [Shadow Color], and [Plate Color]. **NOTE** • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

14.11.5 Show Limit Value

Displays the set Alarm values (the displayed data's upper/lower limit values) on the same screen as a Numeric Display part with alarms set.

■ Basic Settings



Setting			Description
Font			Set the font.
	Font Type		Choose a font type for the Limit Value from [Standard Font] or [Bitmap Font].
	Character Size		Choose a font size for the Limit Value. Standard Font: (8 to 64) x (8 to 128) Standard Font (Fixed Size): [6X10], [8X13], [13X23] Stroke Font: Select from 6 to 127.
	Text Attribute		Select the font text attributes. Standard Font: Choose from [Standard], [Bold], [Shadow] Standard Font (Fixed Size): Choose from [Standard], [Shadow] Stroke Font: Choose from [Standard], [Bold], [Outline]
Maximum Value/ Minimum Value Color		Numeral Value Color	Set a color for the min value/max value.
		Plate Color	Set the background color for the max/min value.
		Shadow Color	Set the shadow color for the Limit Value.

Continued

Setting	Description
7-segment Display	Data will be displayed using the 7-segment display setting. NOTE • This cannot be set when [Size] is [Fixed Size]. • This can be set only when [Text Attribute] is selected as [Standard].
Blink	Select whether or not the Part will blink, and the blink speed. You can choose different blink settings for the [Numeral Value Color], [Plate Color], and [Shadow Color]. NOTE • There are cases where you can and cannot set Blink depending on the Main Unit and System Settings [Color]. ☞ "9.5.1 Setting Colors ■ List of Available Colors" (page 9-34)

NOTE

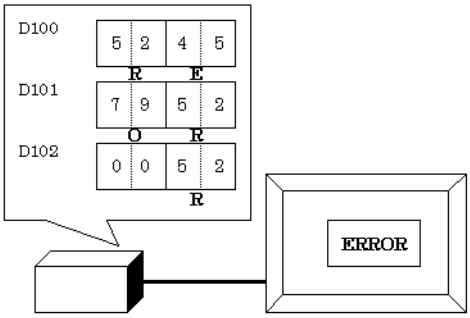
- The input range's (Limit Value's) data type depends on the Numeric Display's data type.
- If there are no [Alarm] in a Data Display in the Input Permitted state or if there is no Data Display part, the value range will be displayed as a blank.

14.12 Restrictions

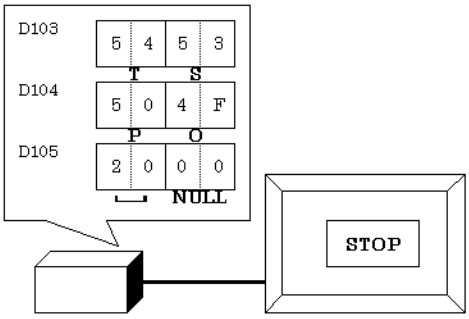
14.12.1 Text Display Restrictions

- It may take longer to transfer text strings because text is larger than other data types. You can change the text display faster with one of the following procedures:
  - If the text is short, set [Display Update Condition] to [Data Change] and display without using [Display Update Bit Address].
  - If the text is long, select [Bit ON] or [Bit Change], and [Display Update Bit Address].
- A NULL code or Display characters (no. of bytes) is recognized at the end of a text string. If the actual number of displayed characters is smaller than the number of characters set in [Display characters], please store NULL="00(h)" (In Unicode, Null="0000(h)" in the leftover portion of the device/PLC's address. If there is still room left after the NULL, a SPACE (␣)="20(h)" character will be stored.

  For example, Display characters = 6 Actual Number of Displayed Characters ("ERROR") = 5

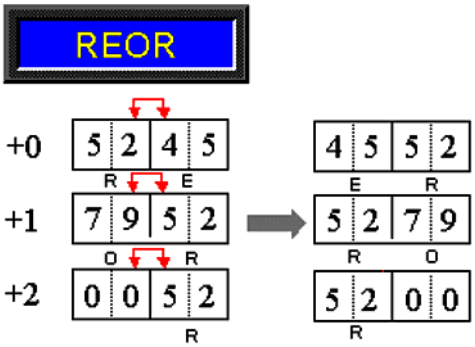


  For example, Display characters = 6 Actual Number of Displayed Characters ("STOP") = 4



- The relationship of high order and low order Word data will differ according to the device/PLC type.

If the text is not displayed correctly, as in the following example, change the character code's store order in the device/PLC.



- When you input the text to a display with integer variables, the data sequence is displayed as follows regardless of the text data mode of the device/PLC.

For example, Display Characters: 4, Allow Input is specified, Input Character "ABCD"

	31 24	23 16	15 8	7 0
HEX	44	43	42	41
ASCII	D	C	B	A

■ Character Input

- If the number of input characters is less than the [Display characters], a SPACE ( )="␣20(h)" character will be stored in the remaining portion.

Display characters= 6 Inputted Characters = 4 (when using a 16-bit device)

'A'	'B'	'C'	'D'	'␣'	'␣'

Display characters= 5 Inputted Characters = 4 (when using a 16-bit device)

'A'	'B'	'C'	'D'	'␣'	NULL

14.12.2 Limitations of Time-Base Function

- If the device specified in the [Basic Settings] workspace's [Monitor Word Address] field is not compatible, the Time-Base function will not work.
- If you select the [Time-Base] check box, you cannot change the following items:

Category	Item	Fixed Value
Basic Settings	Address Type	Direct Specification
	Input/Display Range Definitions	Disable
	Data Type	16 Bit Dec
	Sign +/-	Disable
	Round Off	Disable
Display	Total Display Digits	3
	Decimal Places	0
	Display Style	Right Align
	Zero Suppress	Enable
	Zero Display	Enable
	Display Format	Disable
Alarm/Color*1	Ranges	1
	Specify Range	Constant
	Range Number	Min: 0 Max: 999
	Alarm Action	Direct
Processing	Processing	Disable
Input Permitted	Input Barcode	Disable

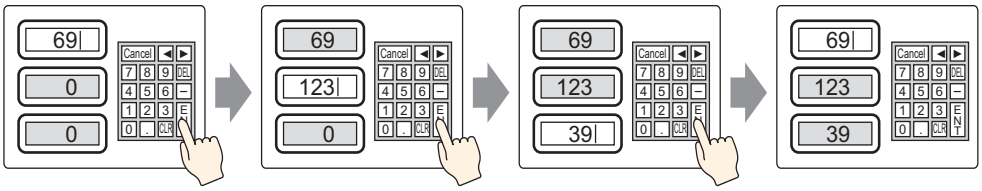
*1 If the [Allow Input] check box is selected in the [Basic Settings] tab and the [Fixed Input] check box is cleared in the [Time-Base] group, you cannot change [Alarm] in the [Alarm/Color] tab. You can set the [Alarm Range] with a value from 0 to 999.

- If you change the mode in the specified address during input on the GP, the input mode will not change. The change is not updated in real time.

14.13 How Data Input Order Works

14.13.1 Set Input Order

After confirming the input in a given Data Display (and pressing the [ENT] key), the Data Display part registered with the next [Input Order] number enters the Input Permitted state.



Input data and touch the [ENT] key

The input is confirmed and the next Data Display part in the input order enters the Input Permit state. ? Input data and touch the [ENT] key

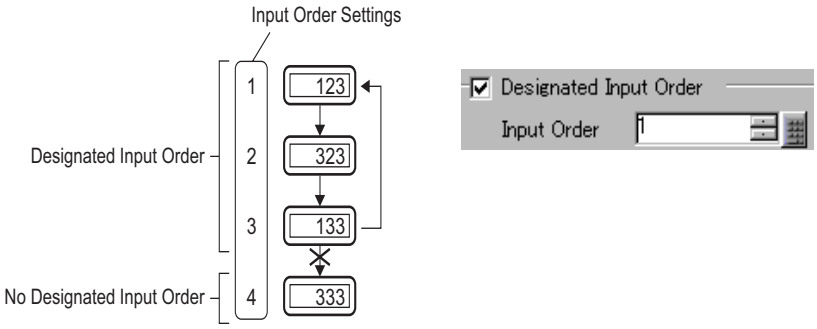
The input is confirmed and the Data Display part at the top of the input order once again enters the Input Permit state.

Ending sequential input

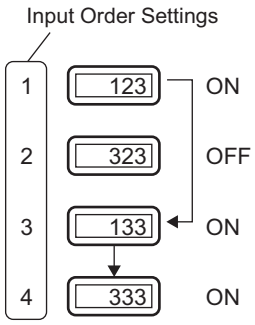
For [Touch], when inputting is complete either touch the keypad's [CANCEL] key, or touch the currently selected Data Display part a second time. For [Bit], the input is completed by turning OFF the [Allow Input Bit Address].

Sequential input targets

For [Touch], the Data Displays that have a [Designated Input Order] set become targets for sequential inputting.

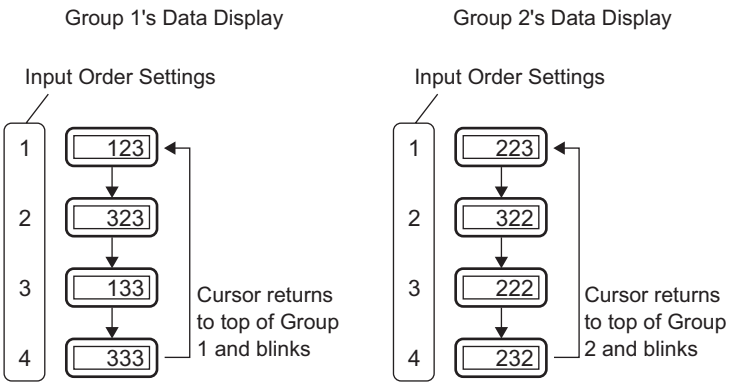


For [Bit], there is a setting for inputting the order of all data display parts. In practice, the only target of sequential input is the [Allow Input Bit Address] being ON.



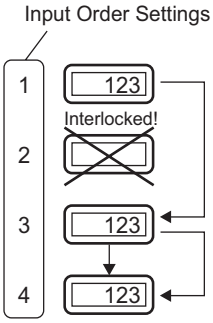
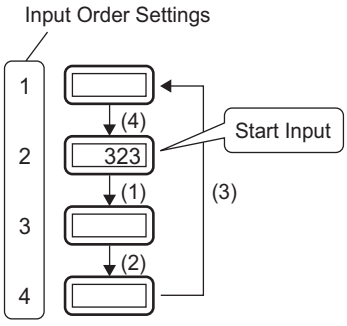
14.13.2 Set Input Order by Group

For [Touch], sequential input Data Displays can be divided up into groups on the Detail screen. Sequential input then takes place inside each group.



NOTE

- If there is an interlocked data display part set in [Input Order], skip the interlocked part to the next number of the data display part in an acceptable state for input. In the following figure, the order is 1→3→4→1.



- If you press the [↑][↓] arrow keys while inputting, the current input will be canceled, the previous data will appear, and the next Data Display in the order will enter the Input Permitted state (displayed by the cursor).
- In the figure below, when the second Data Display Part of the [Input Order] becomes available for input, you can input data in the following order: 2→3→4→1→2