8 Bar Code

This chapter provides a basic explanation of the operation of the "Bar Code" on the GP-Pro EX.
Please read For more information, see “8.1 Settings Menu” on page 8-2., and skip to the required explanations.

8.1 Settings Menu

Barcode readers are one of the most widespread ID system for books, CDs, information devices, etc.

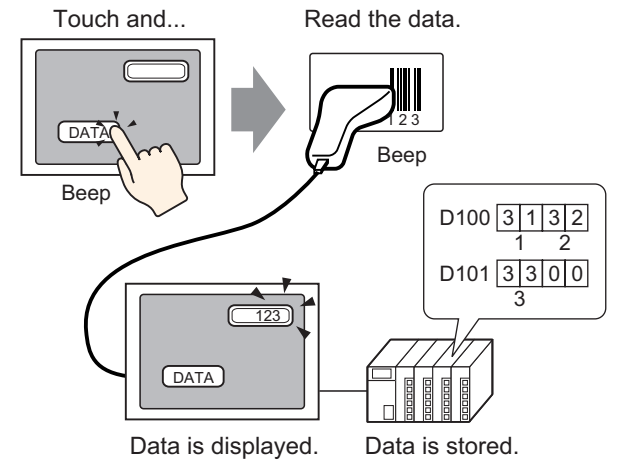
You can use a bar code reader with the COM1 or USB interface supplied with the GP series main unit.

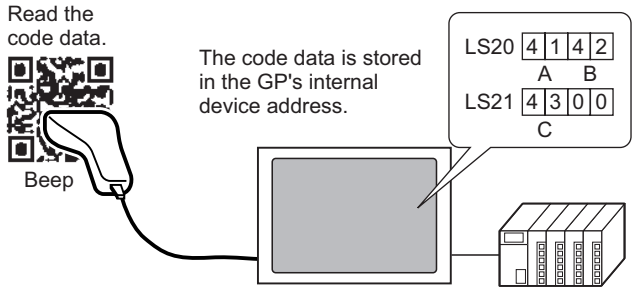
NOTE

- One bar code reader can be connected to each the COM1 and USB port, but when connecting two bar code readers at the same time and storing the code data in the Data Display parts or the internal device from both bar codes, the system may not work properly. Set the Data Display part to one bar code reader and the internal device to the other as a storage location.

Connecting a Barcode/Two-dimensional Code Reader

The code data read from a bar code/two-dimensional code reader can be stored in a device/PLC's device address using Data Display parts or can be stored in the GP's Internal Device address.



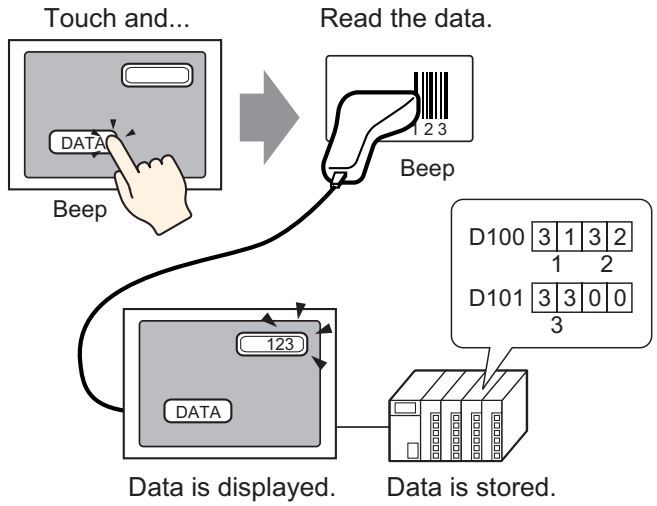


☞ Setup Procedure (page 8-5)
☞ Introduction (page 8-4)

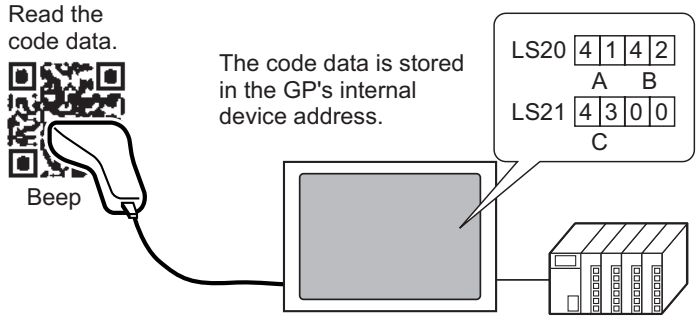
8.2 Connecting a Barcode/Two-dimensional Code Reader

8.2.1 Introduction

The code data read from a bar code reader can be stored in a device/PLC's device address using Data Display parts or can be stored in the GP's internal device address.



The code data read from a two-dimensional code reader can be stored in a device/PLC's device address through data display parts or can be stored in the GP's internal device address.



8.2.2 Setup Procedure

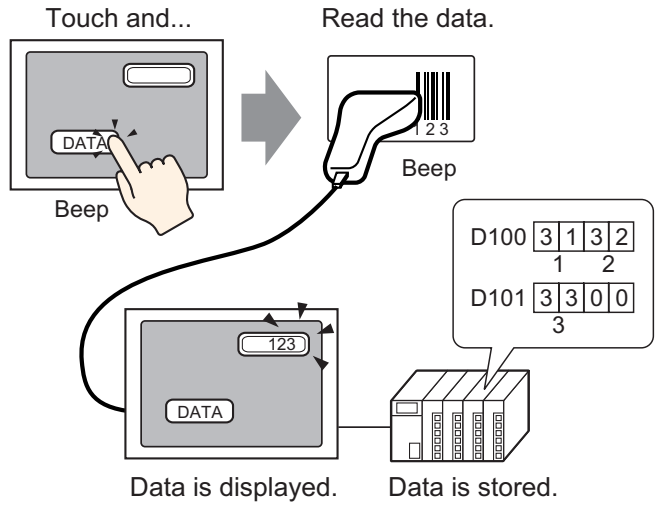
■ Barcode

NOTE

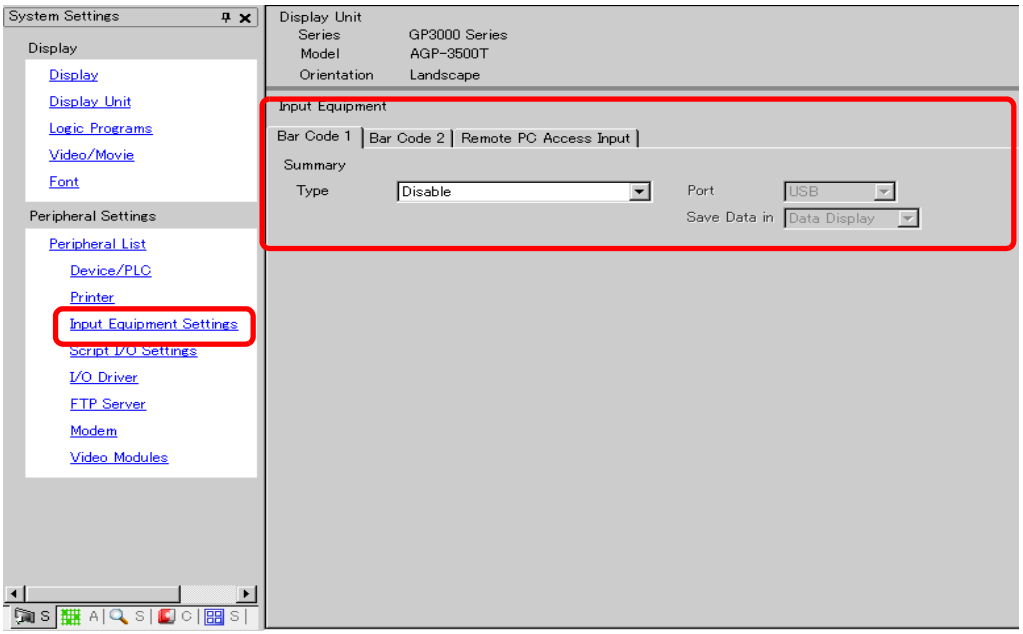
- For more details, refer to the settings guide.

☞ For more information, see “14.11 Data Display Settings Guide” on page 14-42.
☞ For more information, see “8.4.1 [Input Equipment Settings] Settings Guide” on page 8-21.

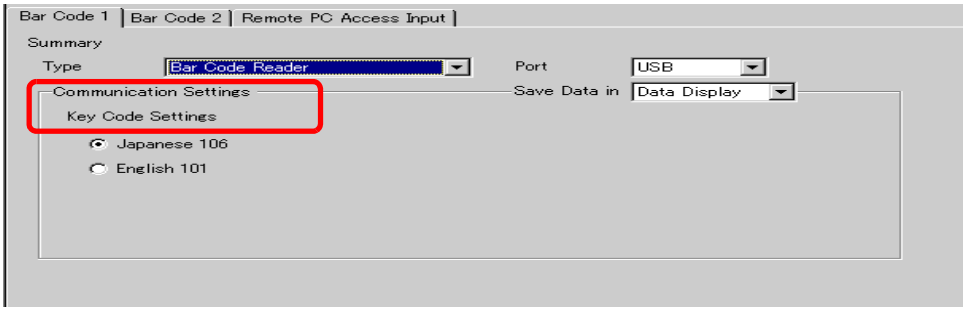
Configure settings to display the code data read from a bar code reader in Data Display parts and store it starting from the device/PLC's D100 address.



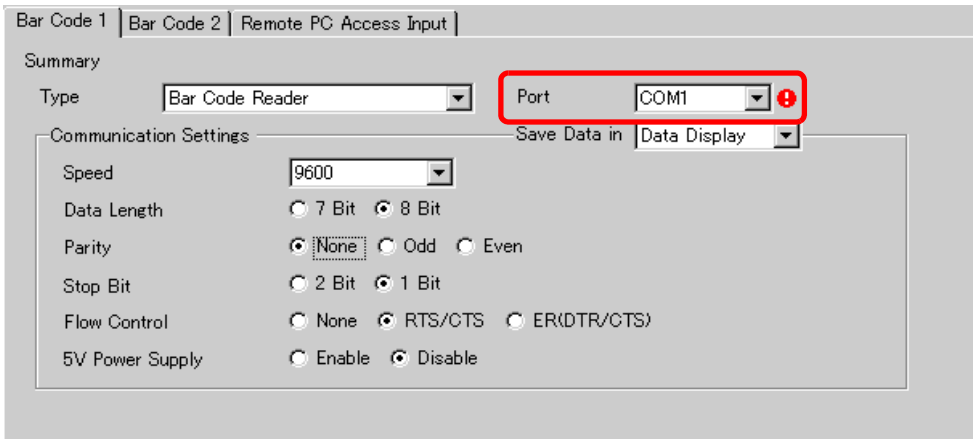
1. From the [Project (F)] menu, point to [System Settings (C)] or click  and click the [Input Equipment Settings] in [System Settings]. The [Input Equipment Settings] screen appears.



2. From the [Type] drop-down list, select [Bar Code Reader].



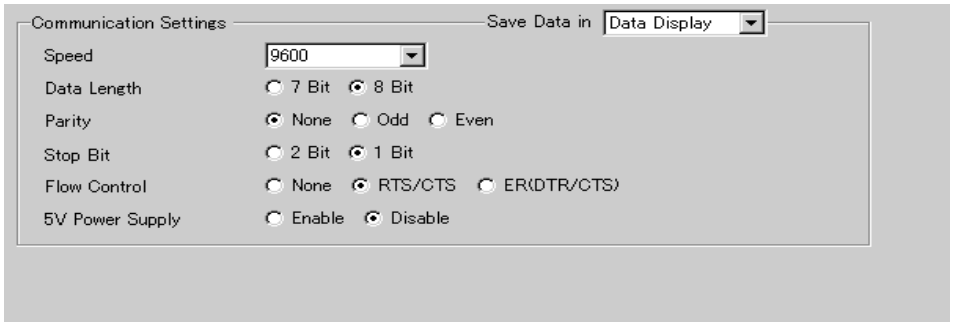
3. In the [Port] drop-down list, select the port to which you want to connect.



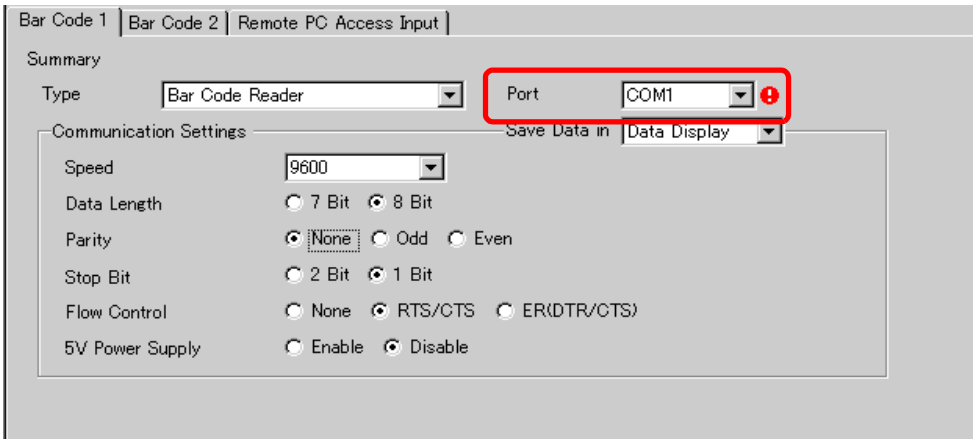
NOTE

- If the port is also used for other devices/PLCs, is displayed to the right of the [Port].

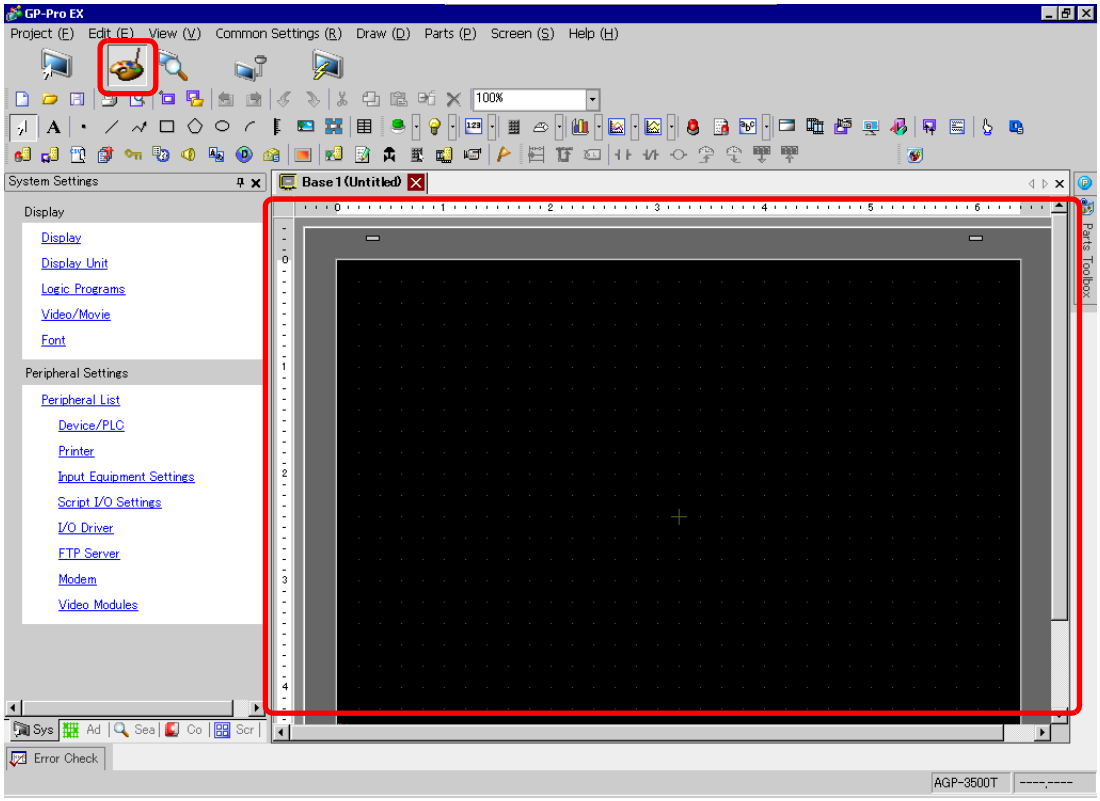
4. In [Communication Settings], set each option.



5. From the [Save Data In] drop-down list, select a data storage location. The settings to communicate with the bar code are complete.

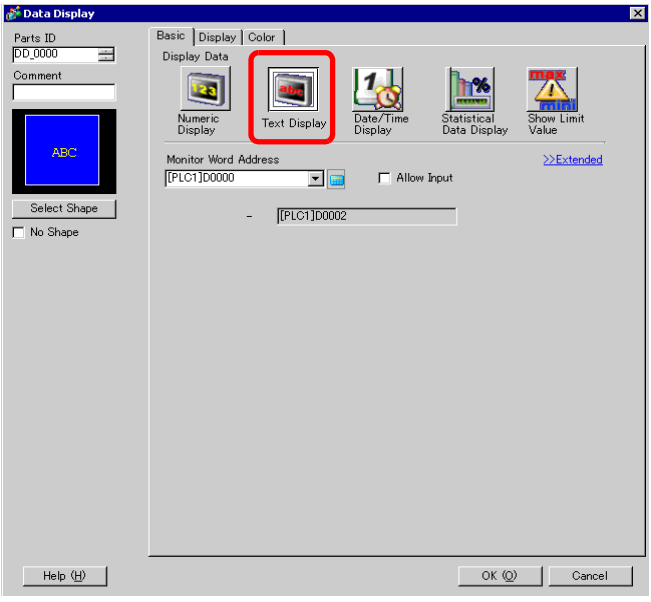


6. Set the Data Display part to display the data read from the bar code. Click  to display the following editing screen.



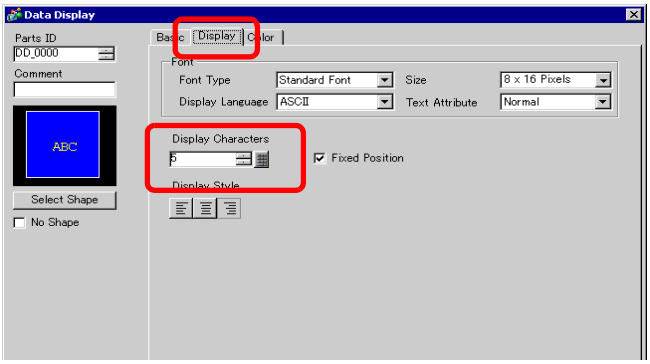
7. From the [Parts (P)] menu, point to [Data Display (D)] and select [Text Display (S)], or click  to place a Data Display part on the screen.

8. Click the Data Display Part and the following dialog box appears. Click [Text Display (S)].

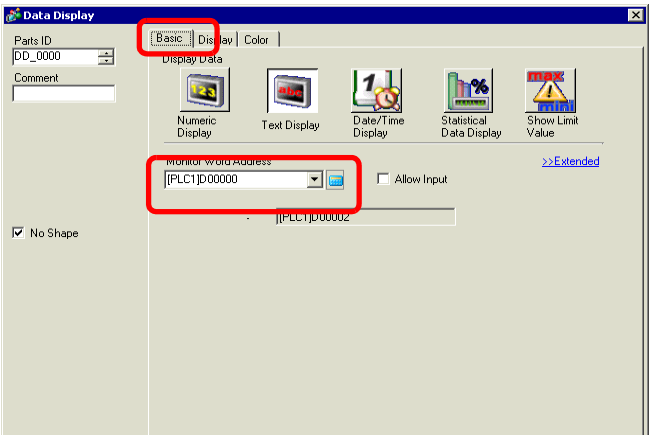


9. Click the [Select Shape] button. Select the Data Display shape.

10. Click the [Display] tab. In the [Display Characters] field, set the value from 1 to 100 for the number of single-byte characters. For double-byte characters, when the number of display characters is two, it corresponds to one double-byte character.

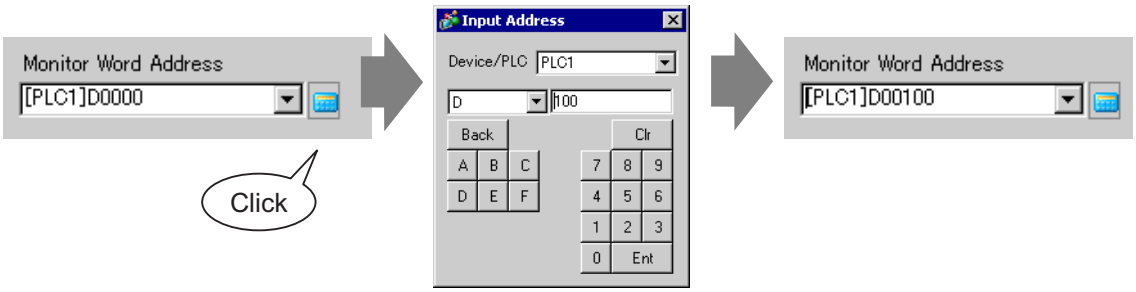


11. Click the [Basic] tab. In the [Monitor Word Address] field, set the address for where the value read from a bar code reader is stored.

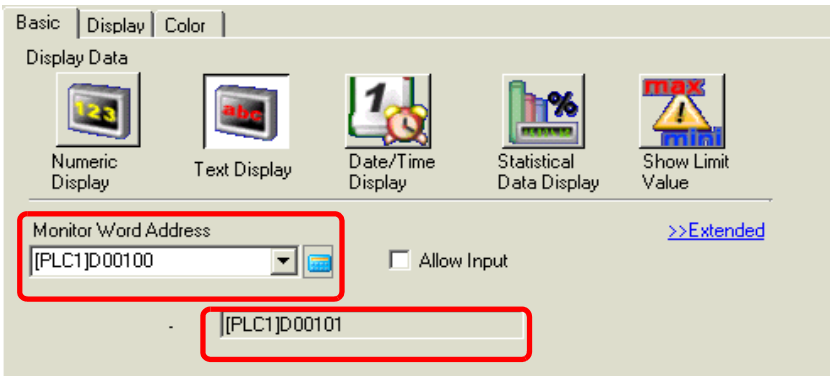


Click the icon to display an address input keypad.

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



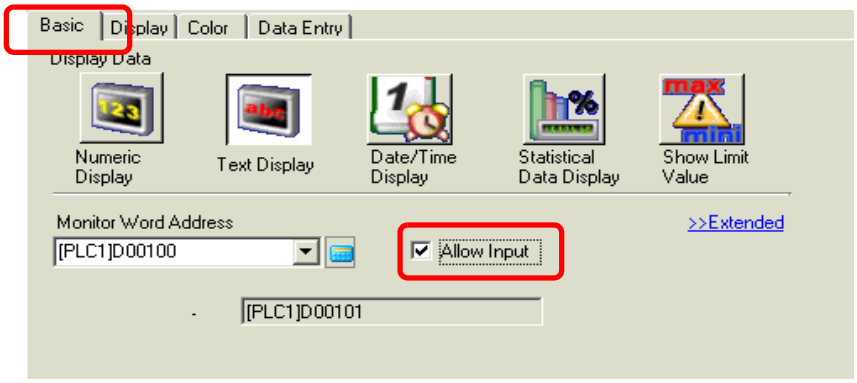
12. The address from the [Monitor Word Address] is displayed.



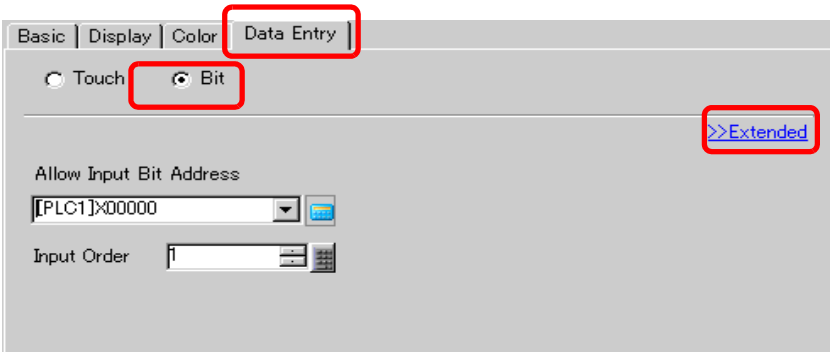
NOTE

- One word is used for two single-byte alphanumeric characters or for one double-byte character. In the above example, two words will be used because "3" single-byte characters are set to the [Display Characters] in Step 10.

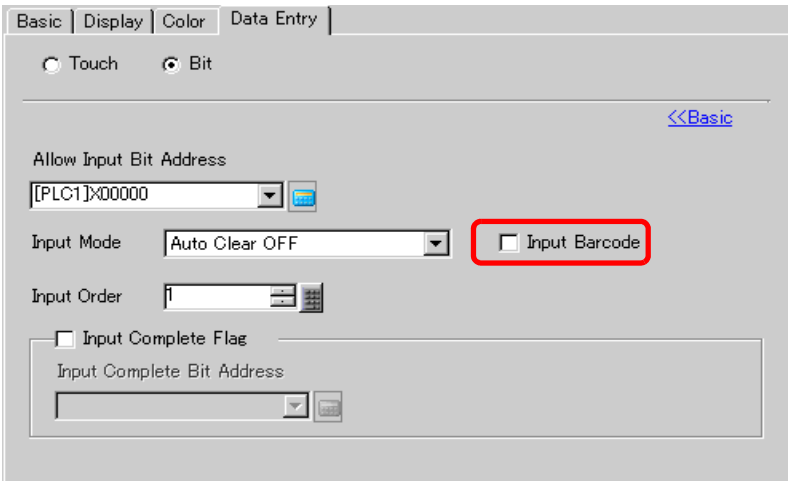
13. To allow text data input, select the [Allow Input] check box.



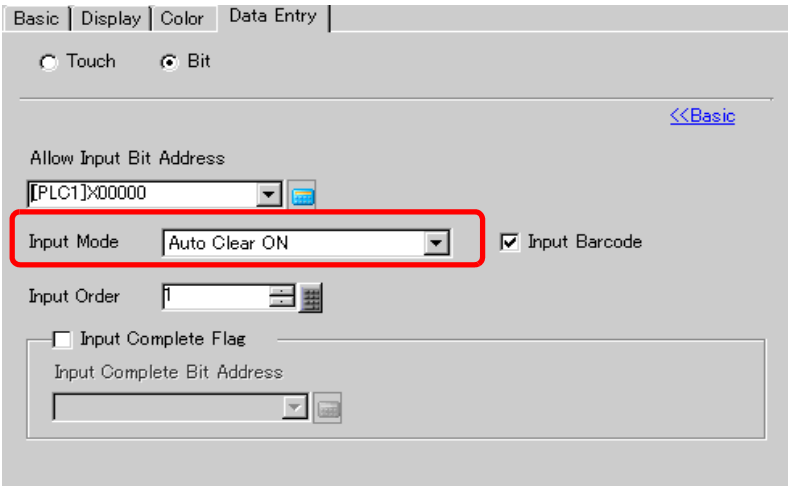
14. Click the [Data Entry] tab, select [Bit] for the input method, and click [Extended].



15. Select the [Input Barcode] check box.



16. From the [Input Mode] drop-down list, select the processing method to overwrite the read code data.



17. If necessary, set the Data Display part's color in the [Color] tab or text in the [Display] tab, and click [OK].

NOTE

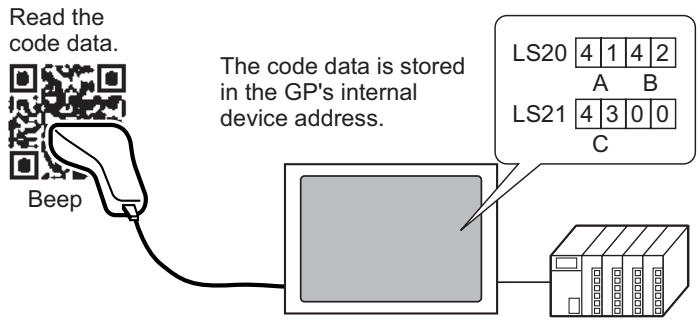
- You have to set the bit switch to permit input for Data Display parts.
☞For more information, see “11.3 Inverting a Bit ON/OFF” on page 11-6.
- One bar code reader can be connected to each the COM1 and USB port, but when connecting two bar code readers at the same time and storing the code data in the Data Display parts or the internal device from both bar codes, the system may not work properly. Set the Data Display part to one bar code reader and the internal device to the other as a storage location.
- If [Input Barcode] is not set in the [Data Entry] tab for the Data Display part, the read code data is not written to the Data Display part.
- If the number of the read code data exceeds the [Display Characters] set for a Data Display part, the data cannot be properly displayed on the Data Display part. The maximum number of display characters that can be set in a Data Display part is 100 (single-byte) characters.

■ Two-dimensional Code Reader

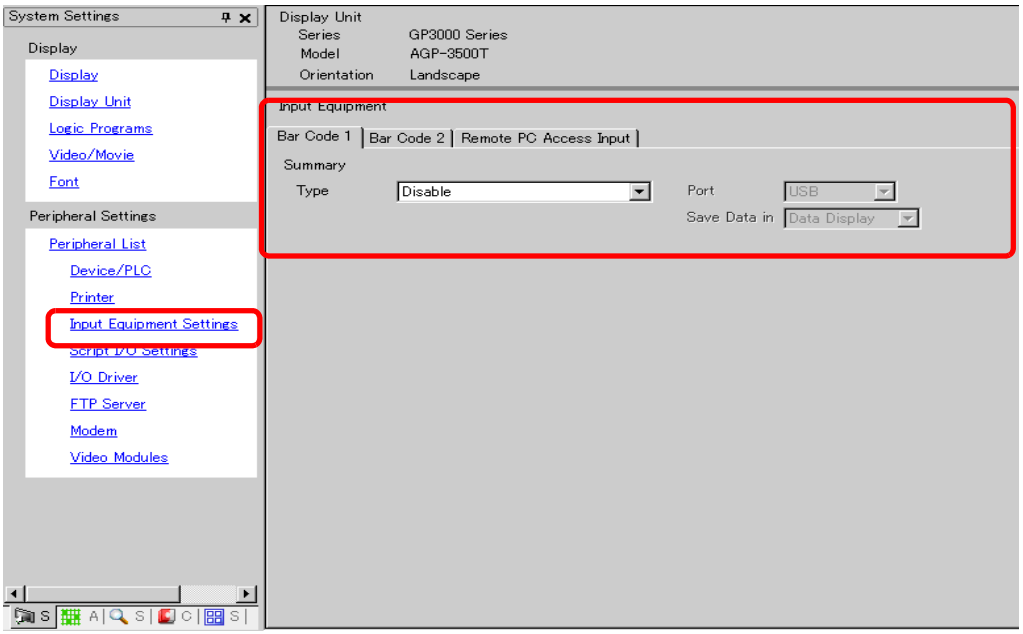
Configure settings to store the code data read from a two-dimensional code reader from LS20 in the GP.

NOTE

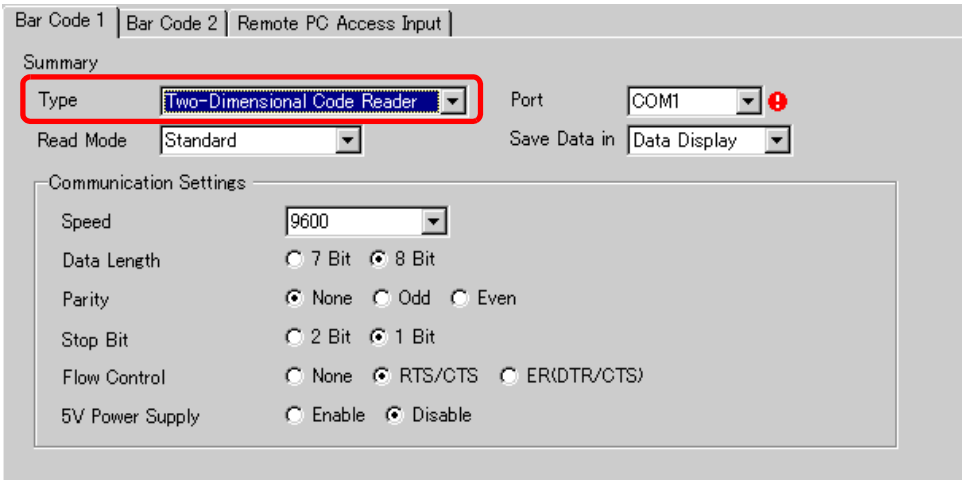
- For more details, refer to the settings guide.
☞For more information, see “8.4.1 [Input Equipment Settings] Settings Guide” on page 8-21.



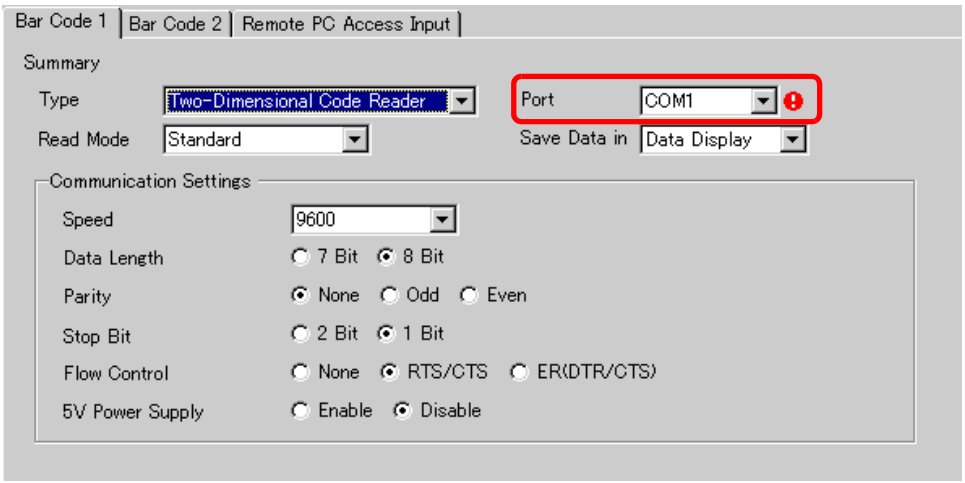
1. From the [Project (F)] menu, point to [System Settings (C)] or click , and click the [Input Equipment Settings] in [System Settings]. The [Input Equipment Settings] screen appears.



2. From the [Type] drop-down list, select [Two-dimensional Code Reader].



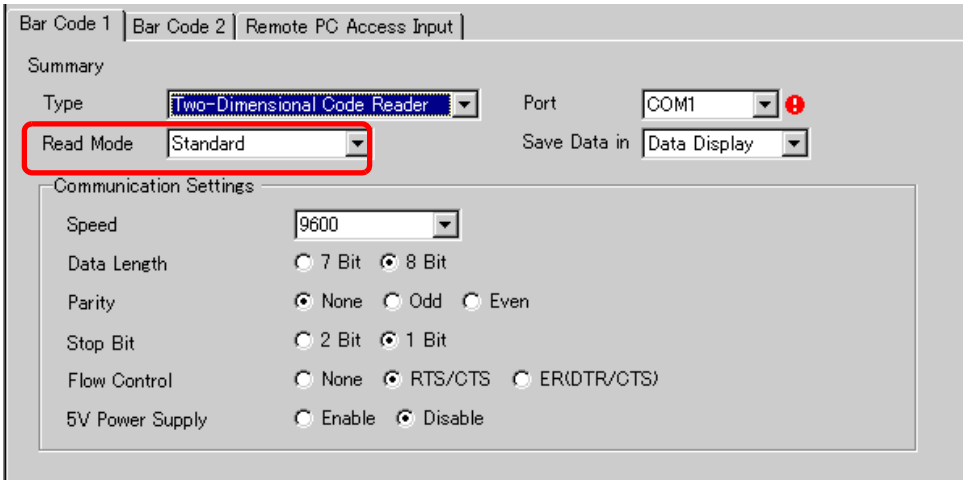
3. In the [Port] drop-down list, select the port to which you want to connect.



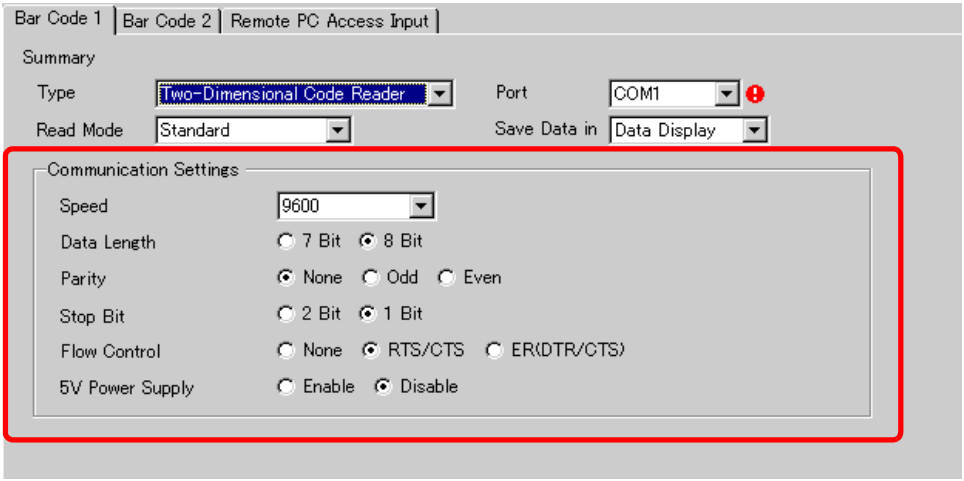
NOTE

- If the port is also used for other devices/PLCs, is displayed to the right of the [Port].
- A two-dimensional code reader can be set only to COM1.

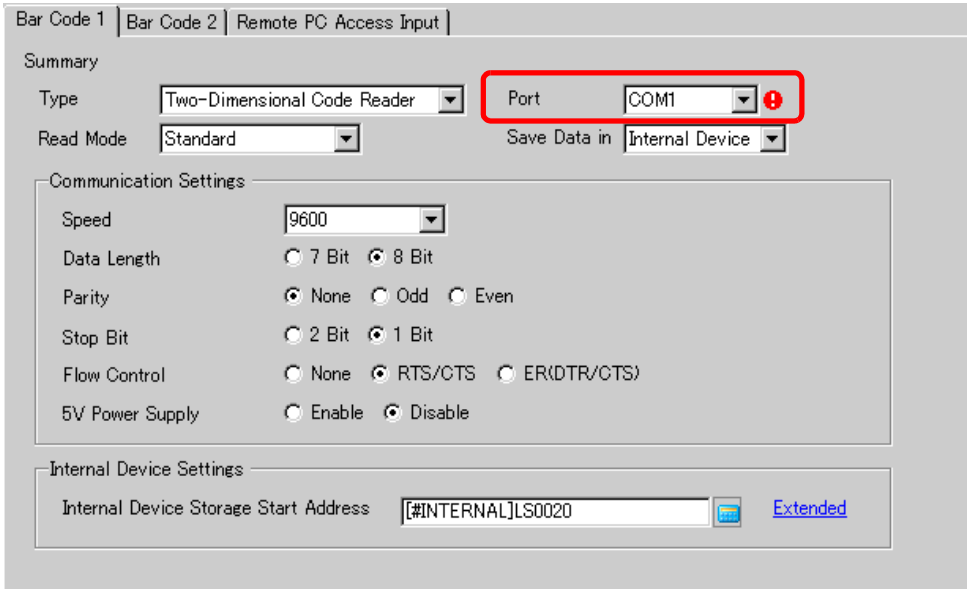
4. Set the [Read Mode].



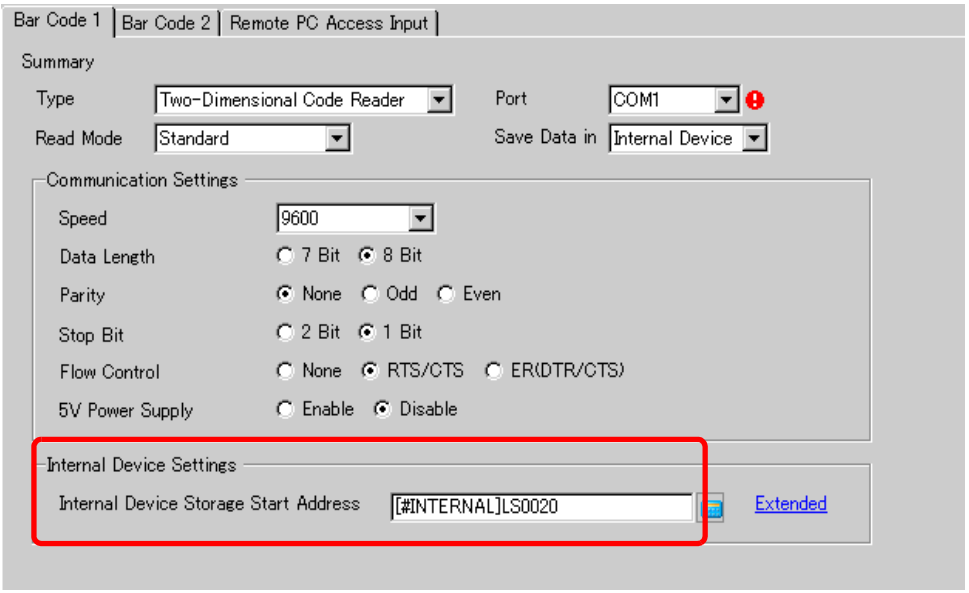
5. In [Communication Settings], set each option.

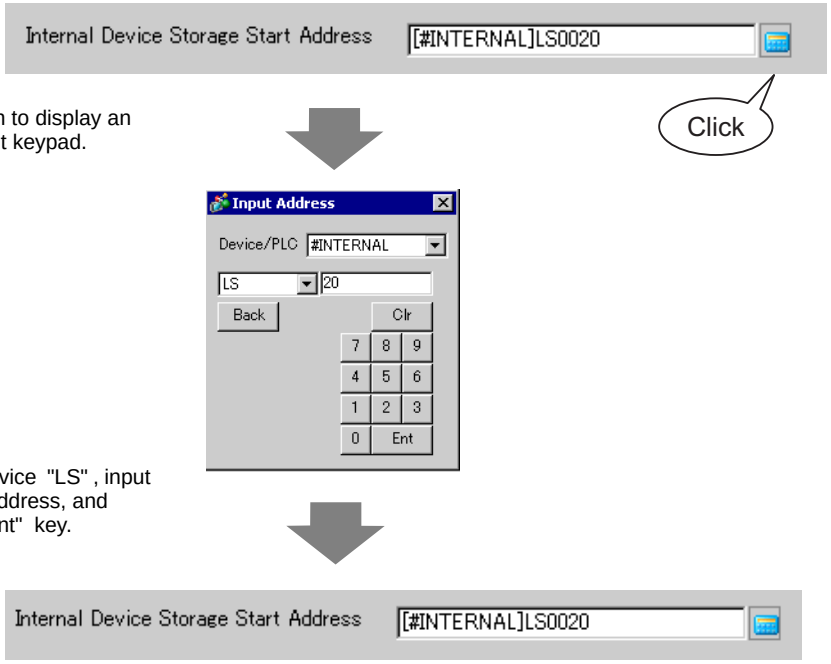


6. From the [Save Data in] drop-down list, select a data storage location.



7. From the [Internal Device Storage Start Address] drop-down list, set the data storage internal device's start address.

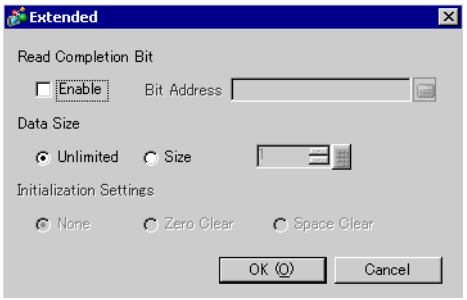




NOTE

- For the internal device's address setting range, refer to “8.3 Structure ■ Storing Code Data in the GP Internal Device Address ◆ The Range of Internal Device Addresses” (page 8-20).

8. Click [Extended] to configure the [Read Completion Bit], [Data Size] and [Initialization Settings].



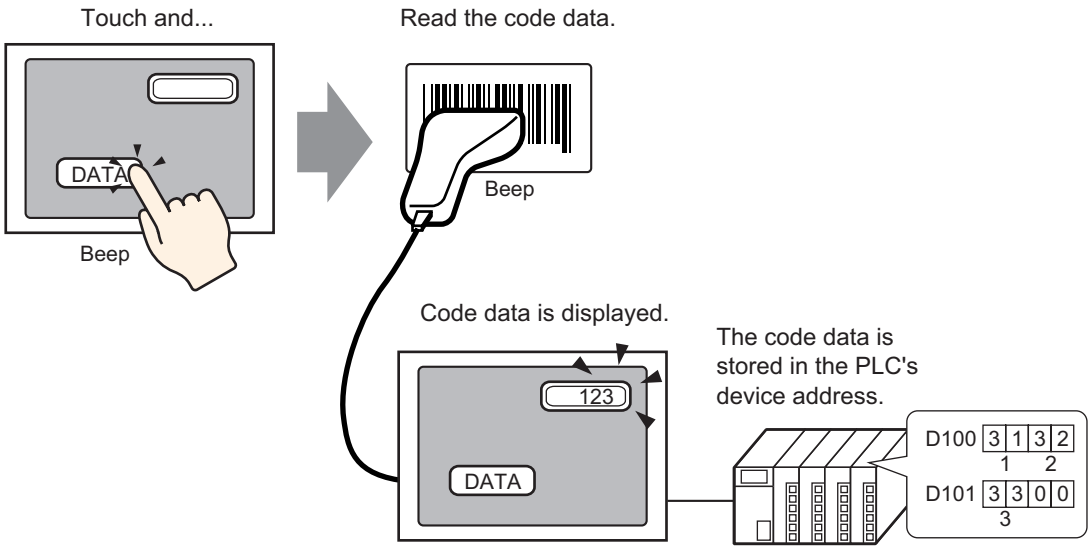
NOTE

- When [Read Completion Bit] is not set, when data is read continuously the data gets overwritten.
- If [Read Completion Bit] is set, turn OFF the [Read Completion Bit] when input is complete. If the bit is not set to OFF, the GP cannot read the next code data.

8.3 Structure

■ Storing Code Data in the Connected Device's Address

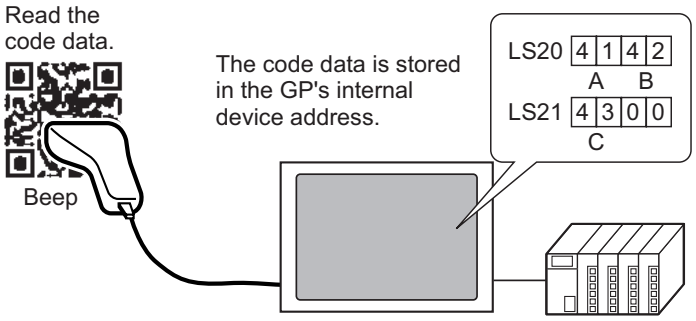
You can store the data read from the bar code in the Display Part [Monitor Word Address] field.



NOTE	• If [Input Barcode] in [Allow Input] has not been set for the data display parts, the data display parts cannot be written even though the code data is read.

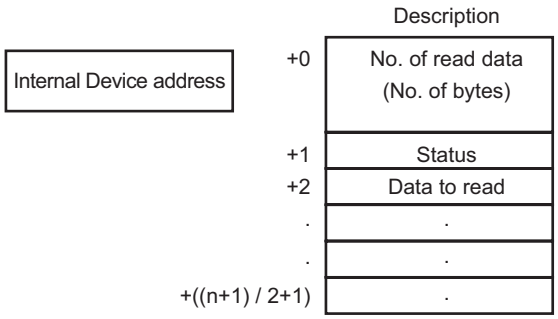
■ Storing Code Data in the GP Internal Device Address

Sets the [Internal Device Storage Start Address] and stores the bar code data.



◆ Internal Device Storage Start Address

The bar code data is stored in the [Internal Device Storage Start Address] in the following order.



Number of Read Data (Number of Bytes) : The number of bytes to read.

Status : If the data is not read normally or is not written to the internal device address, an error code is stored.

Error Contents

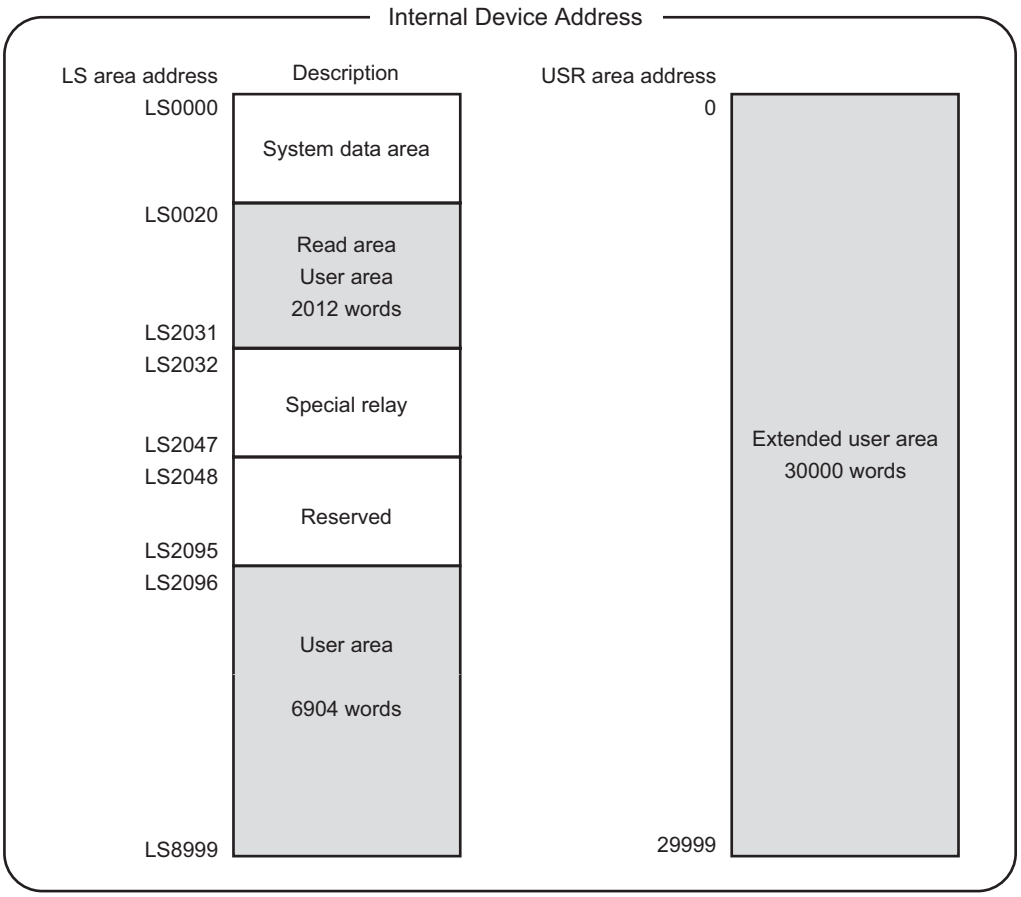
0000h	-
0001h	Read normally.
0002h	Code data read error. Not stored in internal device address.
0003h	Received code data exceeding the maximum number of bytes. The bytes of code data set in the [Extended] - [Data Size] - [Assigned Size], in this case the read completion bit address (when Yes is set) turns ON. The portion of data exceeding the range is not written to the internal device address.

NOTE

- The read two-dimensional code data is stored according to the [Text Data Mode] set in the GP.

☞ "5.14.6 [System Settings] Setting Guide ■ [Device/PLC] Setting Guide" (page 5-140)

◆ The Range of Internal Device Addresses

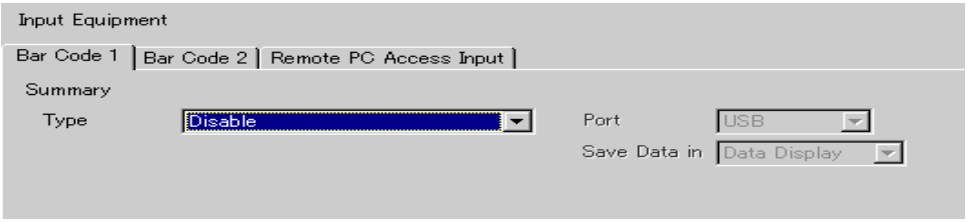


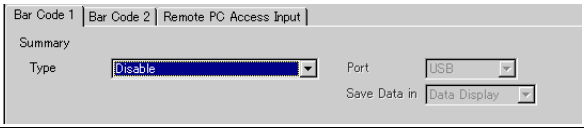
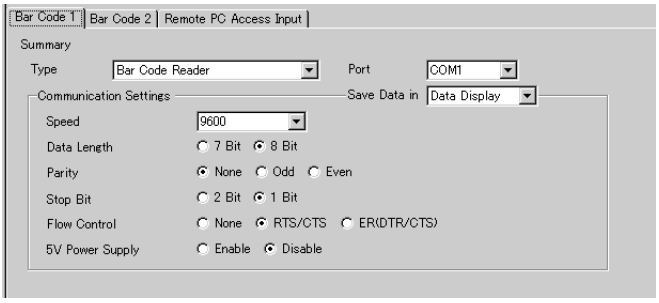
NOTE

- If the data size is out of range, the data within the shaded range is written to the internal device address. However, the status is 0003h (Received code data exceeding the maximum number of bytes allowed for LS storage).

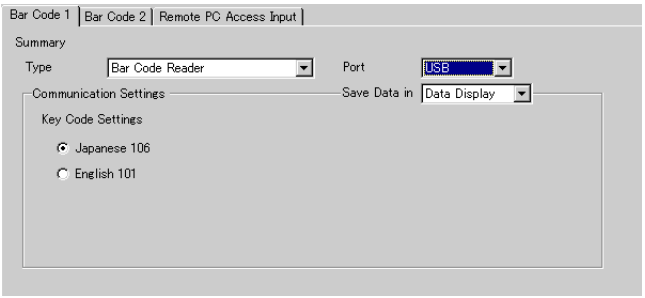
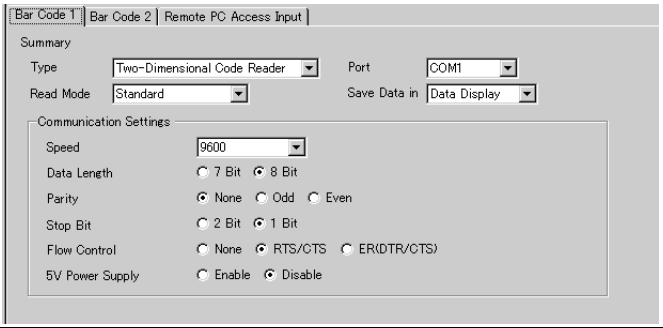
8.4 Settings Guide

8.4.1 [Input Equipment Settings] Settings Guide



Setting	Description
Type	Select the bar code type to connect. • Disable Select when a bar code reader is not in use. • Bar Code Reader Select when using a bar code reader. • Two-Dimensional Code Reader Select when using a two-dimensional code reader.
Disable	Select when a bar code/two-dimensional code reader is not in use. 
Bar Code Reader	Select when using a bar code reader.
Port	Select the port to connect from [COM1] or [USB].
COM1	Select when connecting to COM1. 

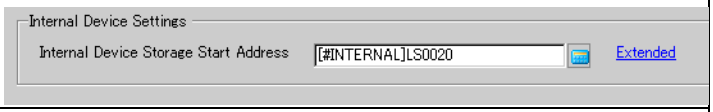
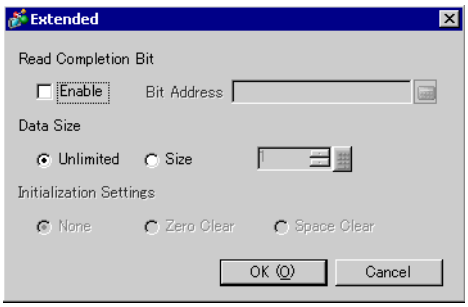
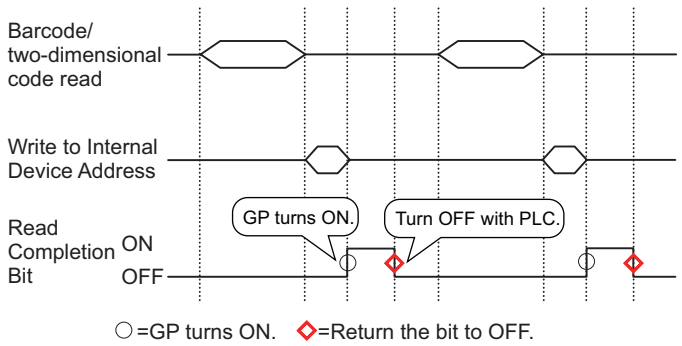
Continued

Setting						Description
Type	Bar Code Reader	Port	COM1	Communication Settings		Configure communication settings.
					Speed	Select the communication speed: [2400], [4800], [9600], [19200], [38400], [57600], or [115200].
					Data Length	Choose the communication data length: [7 bit] or [8 bit].
					Parity	Select the communication parity bit: [Even], [Odd] or [None].
					Stop Bit	Choose the communication stop bit length: [1 bit] or [2 bit].
					Flow Control	Select the communication control method: [None], [RTS/CTS Control], or [ER(DTR/CTS) Control].
					5V Power Supply	Designate whether or not to set the 5V power supply.
			USB			Select this when connecting to the USB port. 
				Communication Settings		Configure communication settings.
					Key Code Settings	Select the text type that the barcode reader reads: [Japanese 106 Keypad] or [English 101 Keypad].
	Two-dimensional Code Reader					Select when using a two-dimensional code reader.
		Port				Set the port to which to connect the bar code reader. A two-dimensional code reader can only use COM1.
			COM1			Select when connecting to COM1. 

Continued

Setting						Description
Type	Two-dimension code reader	Port	COM1	Communication Settings		Configure communication settings.
					Speed	Select the communication speed: [2400], [4800], [9600], [19200], [38400], [57600], or [115200].
					Data Length	Choose the communication data length: [7 bit] or [8 bit].
					Parity Bit	Select the communication parity bit: [Even], [Odd] or [None].
					Stop Bit	Choose the communication stop bit length: [1 bit] or [2 bit].
					Flow Control	Select the communication control method: [None], [RTS/CTS Control], or [ER(DTR/CTS) Control].
					5V Power Supply	Designate whether or not to set the 5V power supply.
		Read Mode				Select the read mode. • Standard Code Data | Terminator (CR) In [Standard] mode, binary data cannot be handled. In this mode, two-dimensional code readers from other manufacturers can read data using the above setting. • DENSO Header | Code Mark | No. of Digits (4 bytes) | Code Data | Terminator | BCC STX (Fixed) | Has code | Has code | — | CR (Fixed) | Has code In [DENSO] mode, binary data can be handled. But in this case, the above communication format needs to be set to a two-dimensional code reader as well. • Tohken Header | Code Data | Terminator STX (Fixed) | — | CR+LF (Fixed) In [Tohken] mode, the above communication format needs to be set to a two-dimensional code reader as well. Binary data cannot be handled in [Tohken] mode. Unlike DENSO's, the Tohken code reader does not check the number of digits or BBC and determines that the code data ends at the CR+LF code in the code data.
Save Data in						Select the read code data storage location.
	Data Display					Stores the data in the [Monitor Word Address] set on the Data Display part. 

Continued

Setting	Description
Save Data In: Internal Device	Store the data in the Internal Device Address. 
Internal Display	Configure settings to store the read code data in the internal device. 
Internal Device Storage Start Address	Set the internal device address to store the read code data.
Extended	
Read Completion Bit: Enable	Designate whether or not to turn ON the read completion bit address if the entire data has been written to the internal device address. **NOTE** • When [Read Completion Bit] is not set, the data is overwritten if read continuously.
Read Completion Bit: Bit Address	Set the read completion bit address. **NOTE** • Set this bit to OFF when input is complete. The GP will not read the next data code without turning the read completion bit OFF. • The bar code/two-dimensional code's read timing and the [Read Completion Bit Address]'s action are as follows: 

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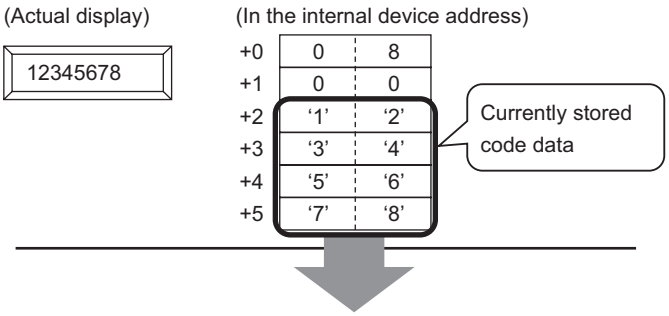
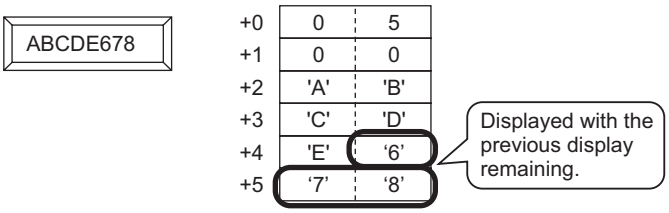
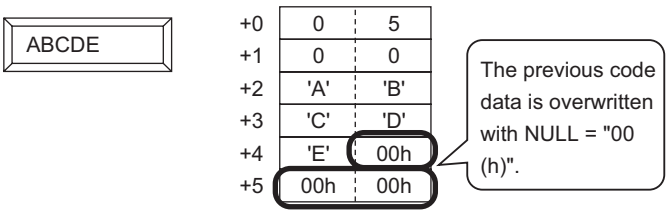
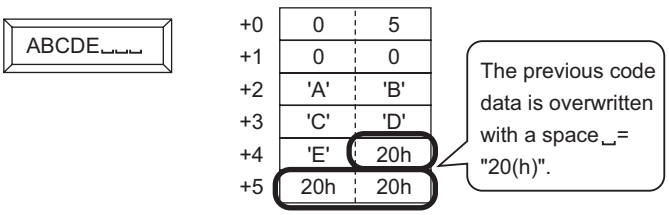
Setting						Description
Save Data In	Internal Device	Internal Display	Extended	DataSize	Unlimited	Set the code data size stored in the internal device address at read time to unlimited. NOTE • If the read code data exceeds the enabled area, the excess data will not be written.
					Specified Size	Set the code data size stored in the internal device address at the read time from 1 to 9,999. NOTE • If the read code data exceeds the [Specified Size], the excess data will not be written to the internal device address.

Continued

Setting					Description
Save Data In	Internal Device	Internal Display	Extended	Initialization Settings	Select the processing method when overwriting the read data code data from [None], [Zero Clear] or [Space Clear]. e.g.)If the code data "ABCDE" is stored to the previously stored code data "12345678", the [Data Size] is 8 bytes. Previous Display: The 8-byte code data "12345678" is stored.  Current Display: Reads the 5-byte code data "ABCDE". • For [None]  • For [Zero Clear] (data clear with Null)  • For [Space Clear] 
Remote PC Access Input					Set the input device for operation of the server screen from the display. ☞ For more information, see "36.4.2 System Settings [Input Equipment Settings] - [Remote PC Access Input] Settings Guide" on page 36-20.

8.5 Restrictions

- If the [Save Data in] is set to [Internal Device] and [Read Completion Bit] is set, turn OFF the [Read Completion Bit] when input is complete. The GP will not read code data without turning the read completion bit OFF.
- When the [Parity] is [None] and the communication speed settings for the bar code reader are different from those of the GP, the system may read invalid data because it cannot detect errors. Use the same communication settings for both the devices.
- When the [Parity] is [None] and the communication speed settings for the bar code reader are different from those of the GP, the system may read invalid data because it cannot detect errors. Use the same communication settings for both the devices.
- If switching between screens while entering data, the switching process takes priority and the data being input is ignored.
- If [Input Barcode] is not set in the [Data Entry] tab for the Data Display part, the read code data is not written to the Data Display part.
- If the number of the read code data exceeds the [Display Characters] set for a Data Display part, the data cannot be properly displayed on the Data Display part. The maximum number of display characters that can be set in a Data Display part is 100 (single-byte) characters.
- One bar code reader can be connected to each the COM1 and USB port, but when connecting two bar code readers at the same time and storing the code data in the Data Display parts or the internal device from both bar codes, the system may not work properly. Set the Data Display part to one bar code reader and the internal device to the other as a storage location.