16 Bar Code/USB Keyboard Inputs

This chapter explains how to set up and operate external input devices such as barcode readers and USB keyboards for the display unit.
First, read For more information, see "16.1 Settings Menu", page 16-2., and then go to the corresponding page for further instructions.

16.1 Settings Menu

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

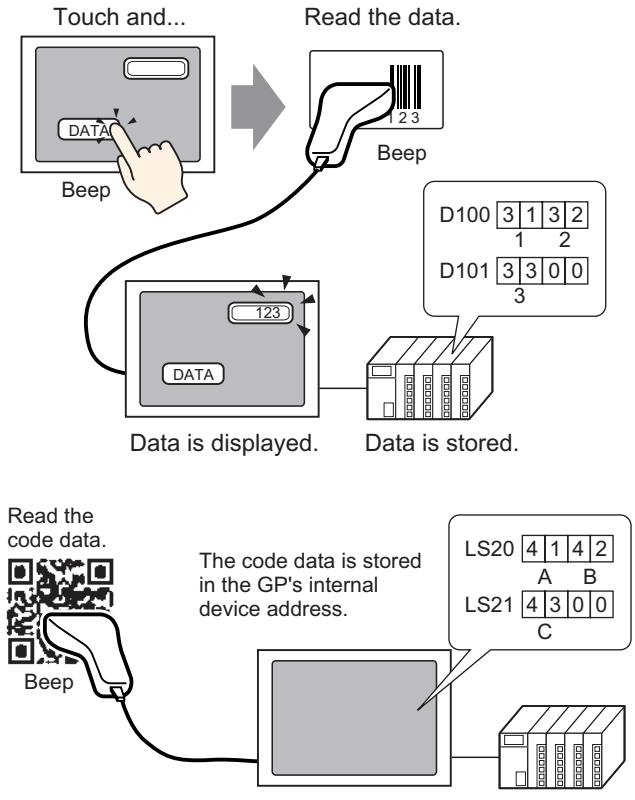
You can use a barcode reader with the COM1 or USB interface on the GP series display unit.

NOTE

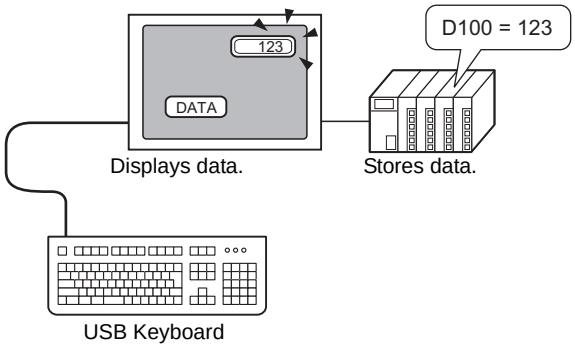
- You can connect one barcode reader to COM1, and another to the USB port at the same time. However, the system may not work properly if the two barcode readers run the same operation: either store data to Data Display parts or store data to internal devices. Separate the barcode signals so that one barcode reader reads data from the Data Display part and the other barcode reader stores data to the internal device.

Connecting a Barcode/Two-dimensional Code Reader

The code data read from a barcode/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.



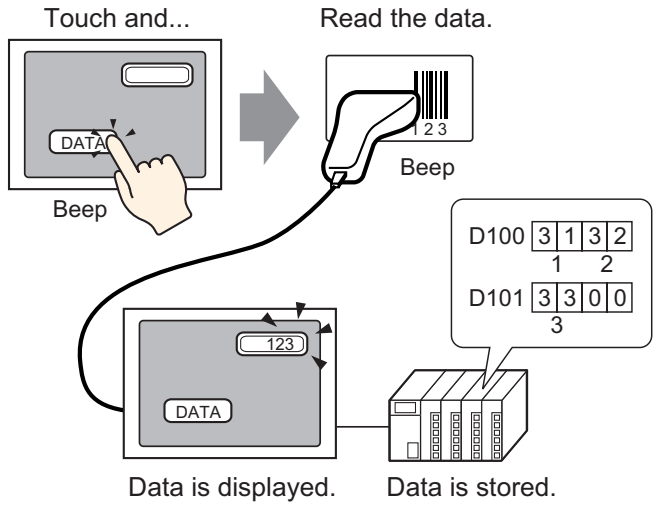
☞ Setup Procedure (page 16-5)
☞ Details (page 16-4)

Display USB Keyboard Inputs	
	☞ Setup Procedure (page 16-20) ☞ Details (page 16-19)

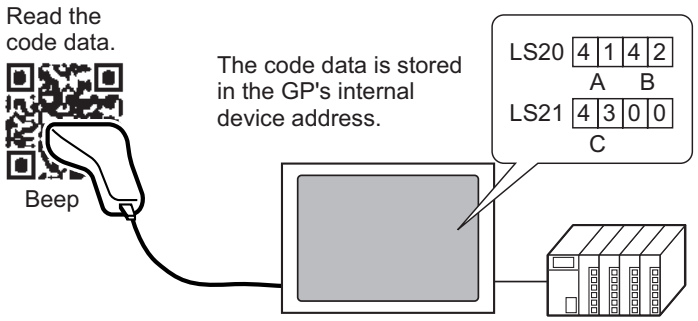
16.2 Connecting a Barcode/Two-dimensional Code Reader

16.2.1 Introduction

The code data read from a barcode 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.



16.2.2 Setup Procedure

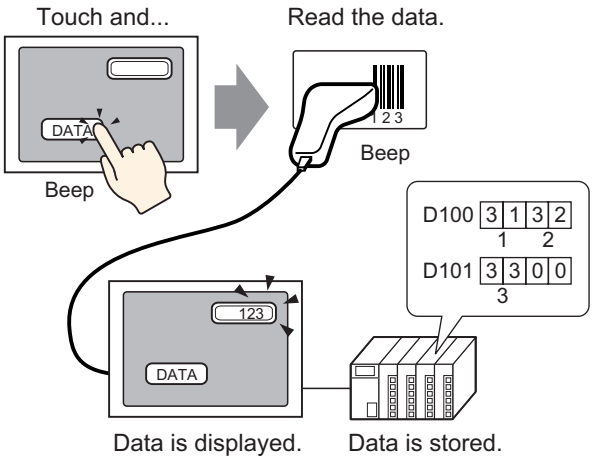
■ Barcode

NOTE

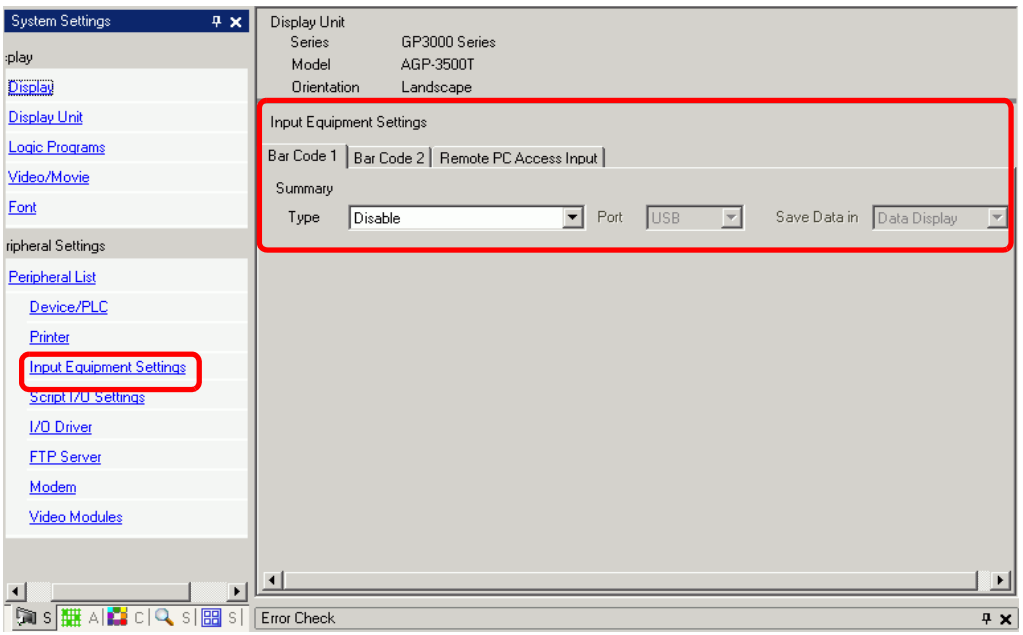
- Please refer to the settings guide for details.

☞ For more information, see "14.11 Data Display Settings Guide", page 14-39.
☞ For more information, see "16.4.1 [Input Equipment Settings] Settings Guide", page 16-24.

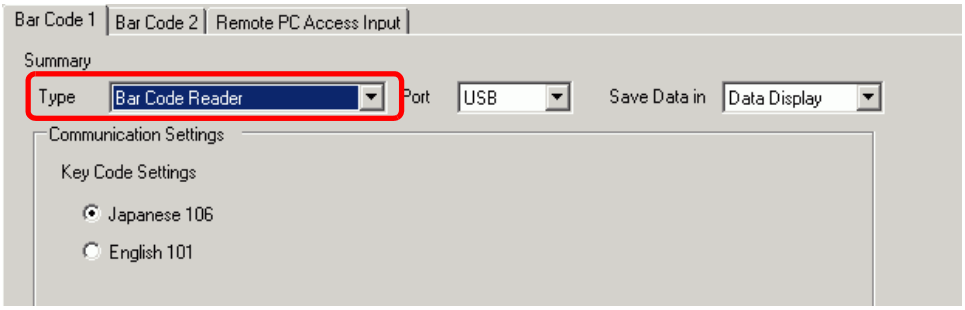
Configure settings to display the code data read from a barcode reader in Data Display parts and store it starting from the device/PLC's D100 address.



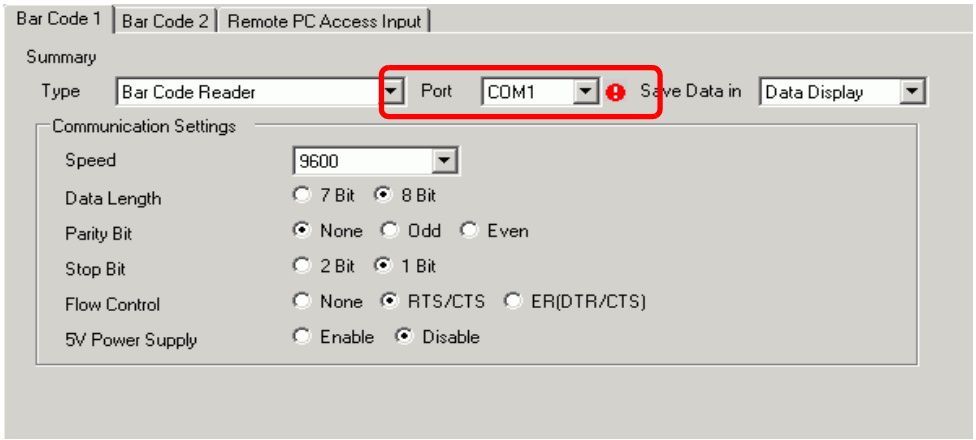
1. The following describes how to set up communication with barcodes. From the [System Settings] window, click [Input Equipment Settings] to display the following screen.



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



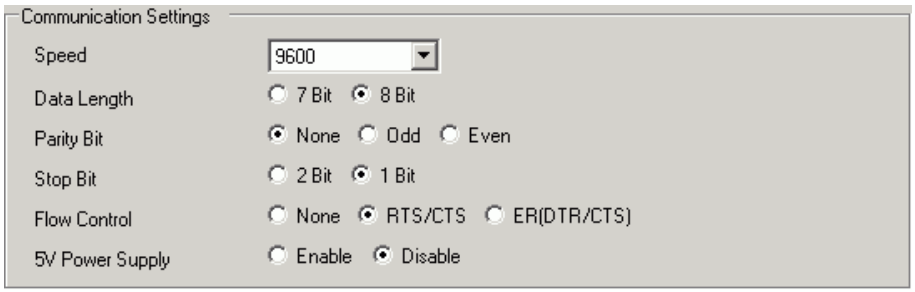
3. In the [Port] drop-down list, select the port you want to connect.



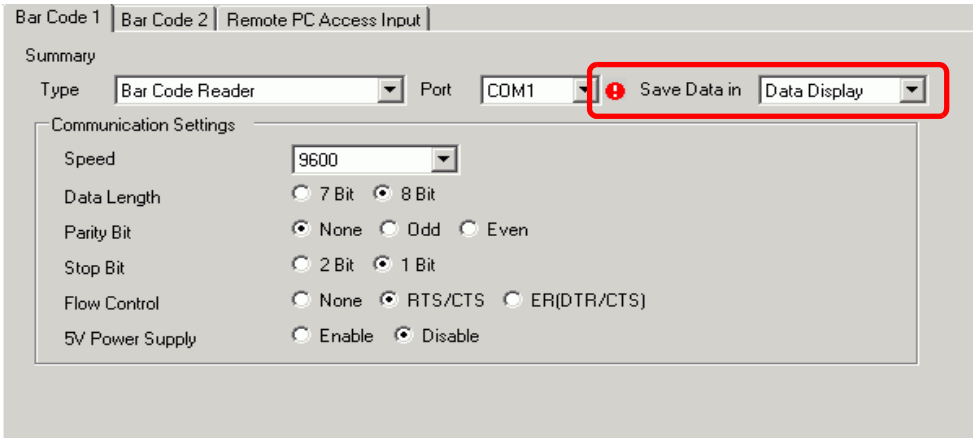
NOTE

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

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



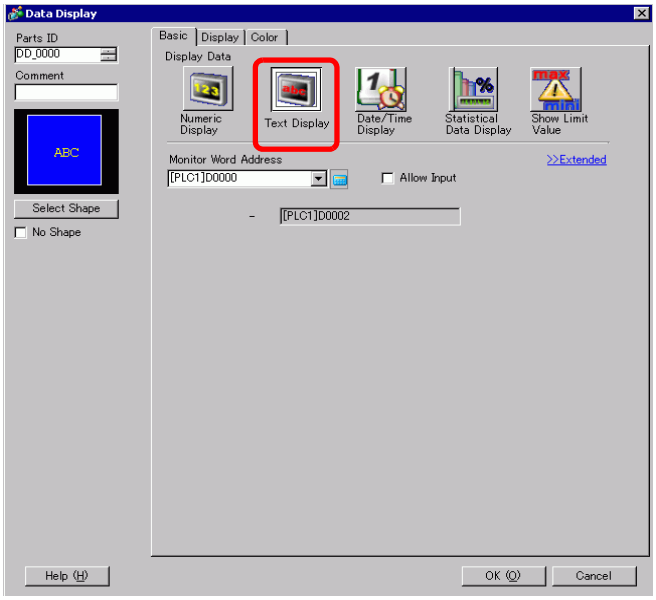
5. From the [Save Data In] drop-down list, select a data storage location. The settings to communicate with the barcode are complete.



6. On the drawing screen, configure the Data Display part that displays data from the barcode reader.

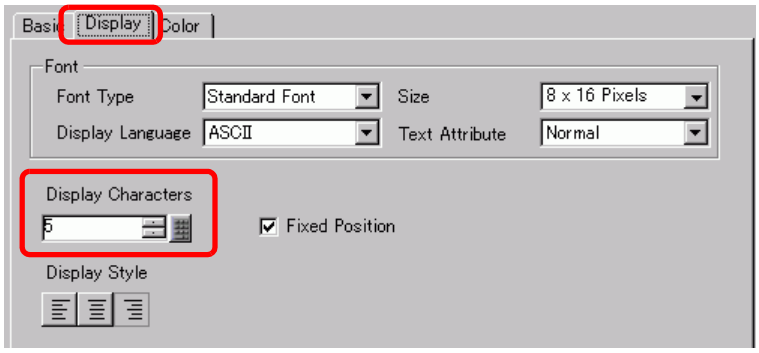
   From the [Part (P)] menu, point to [Data Display (D)] and select [Text Display], or click  to place a Data Display part on the screen.

7. Click the Data Display Parts, and the following dialog box appears. Click [Text Display].

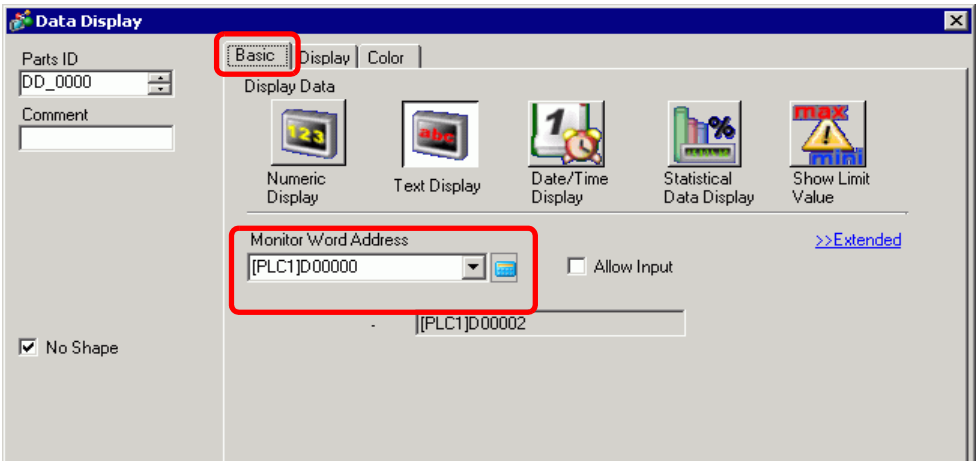


8. Select the Data Display shape from [Select Shape].

9. Click the [Display] tab. In the [Display Characters] field, define the number of single-byte characters, from 1 to 100. Each double-byte character counts as two display characters. (For example: 5 single-byte characters)

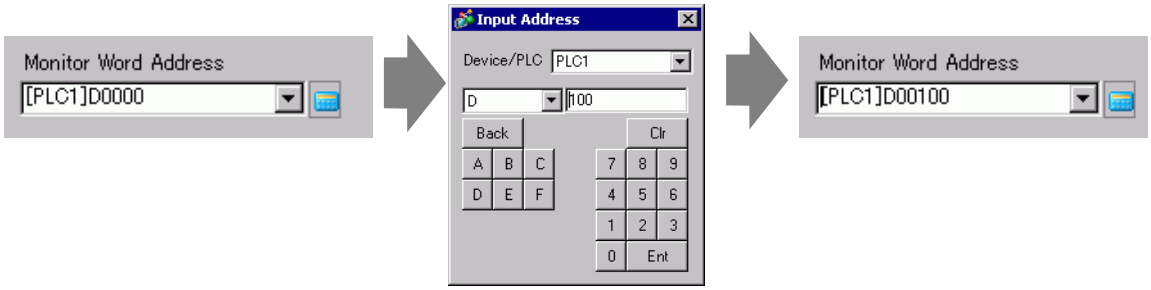


10. Click the [Basic] tab. In the [Monitor Word Address] field, set the address for where the value read from a barcode reader is stored.

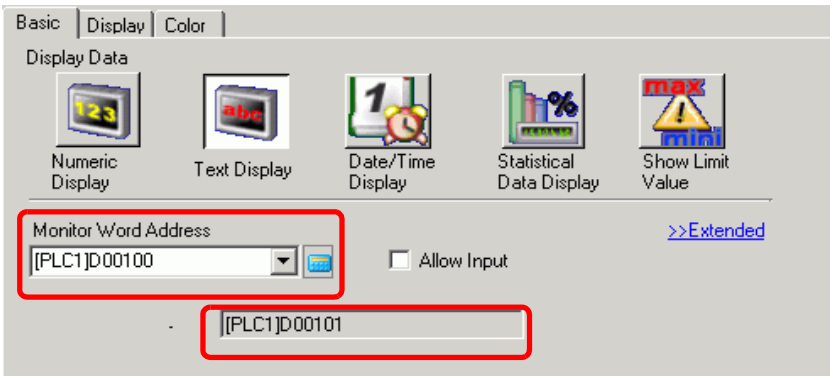


Click the icon to display an address input keypad.

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



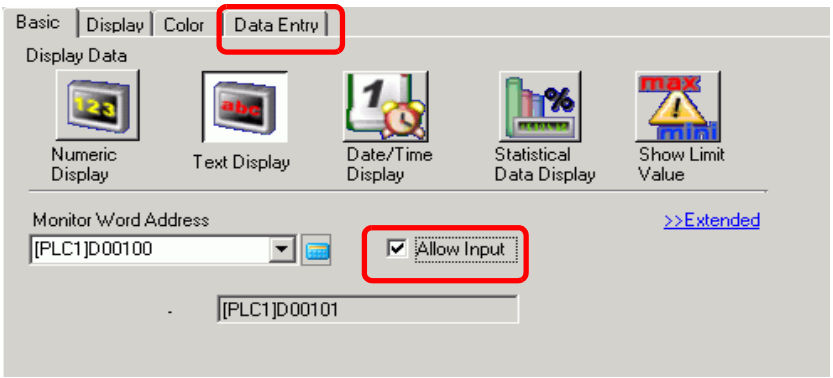
11. The address from the [Monitor Word Address] displays.



NOTE

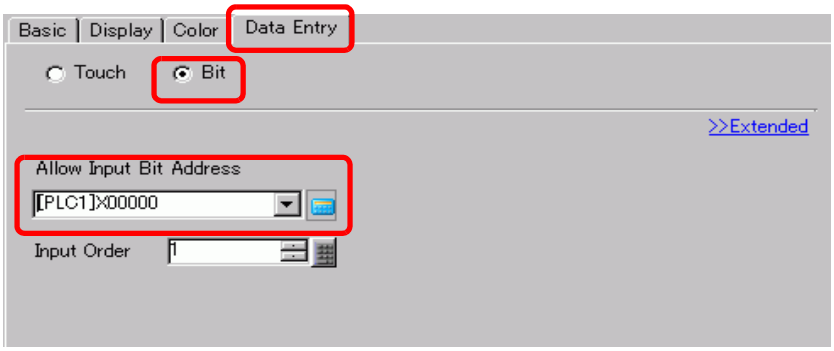
- One word is used for two single-byte alphanumeric characters, or for one double-byte character. In the above example, two words are used because in Step 10 [Display Characters] is set to 3 (single-byte characters).

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

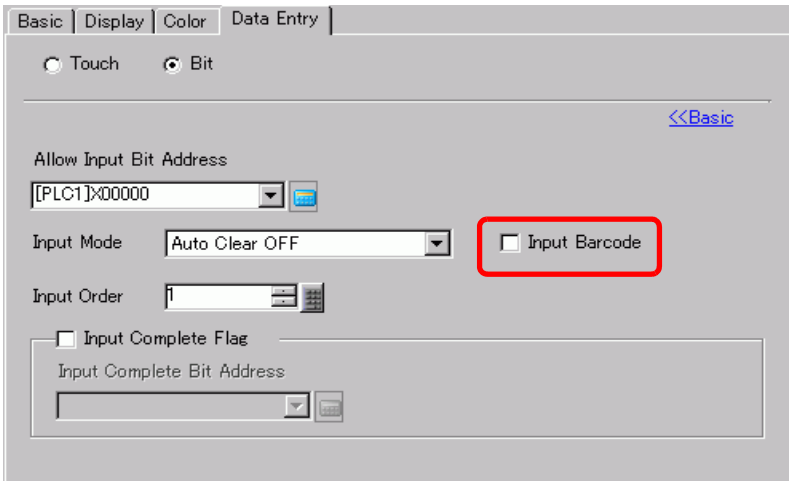


13. Click the [Data Entry] tab, and select [Bit] for the input method.

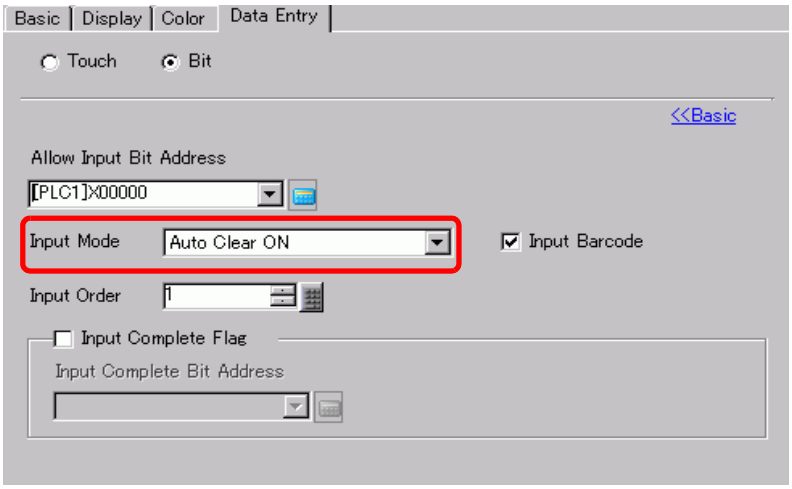
    Set the [Allow Input Bit Address] check box. A barcode reader can input data when this bit address is ON.



14. Click [Extended] to expand the dialog box properties, and then select the [Input Barcode] check box.



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



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

NOTE

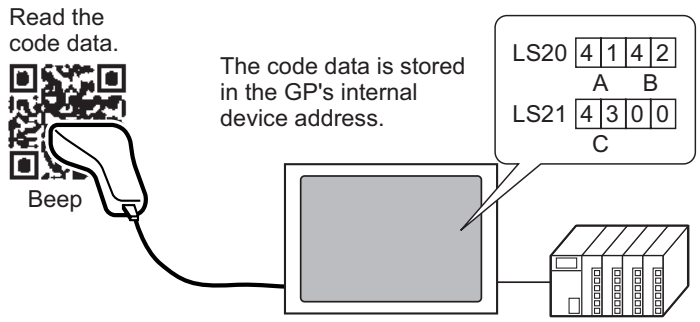
- You have to set the bit switch to permit input for Data Display parts.
☞For more information, see "10.3 Inverting a Bit ON/OFF", page 10-7.
- One barcode reader can be connected to each the COM1 and USB port, but when connecting two barcode readers at the same time and storing the code data in the Data Display parts or the internal device from both barcodes, the system may not work properly. Set the Data Display part to one barcode 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

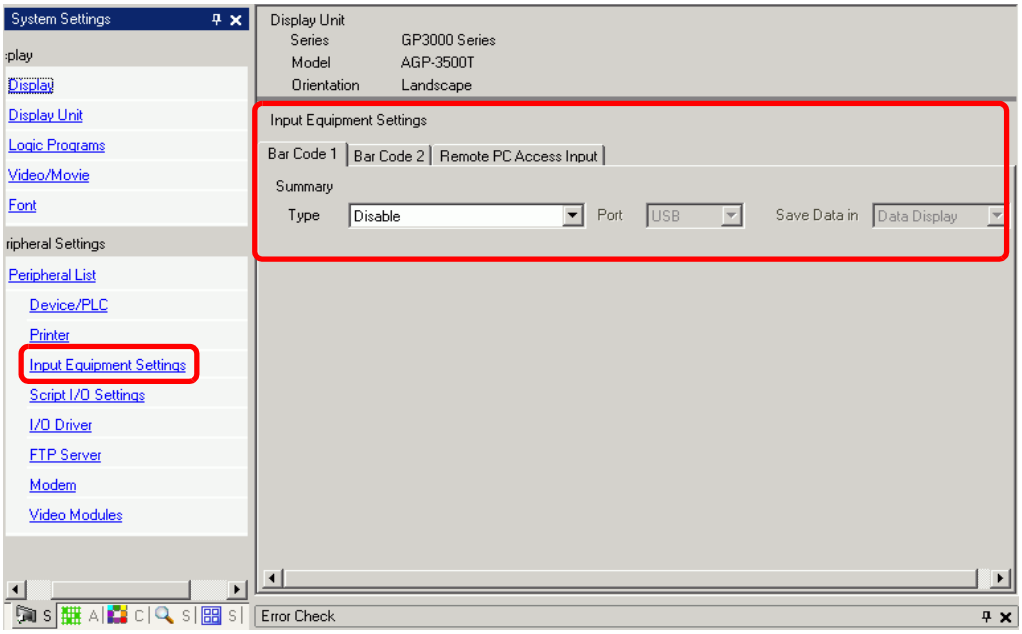
Configure settings to store the code data read from a two-dimensional code reader from LS20 in the GP.

NOTE

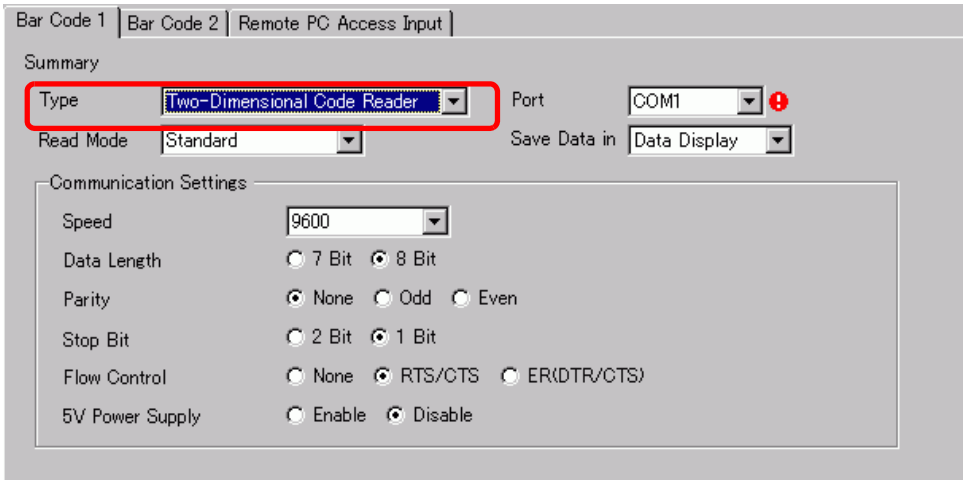
- Please refer to the settings guide for details.
☞For more information, see "16.4.1 [Input Equipment Settings] Settings Guide", page 16-24.



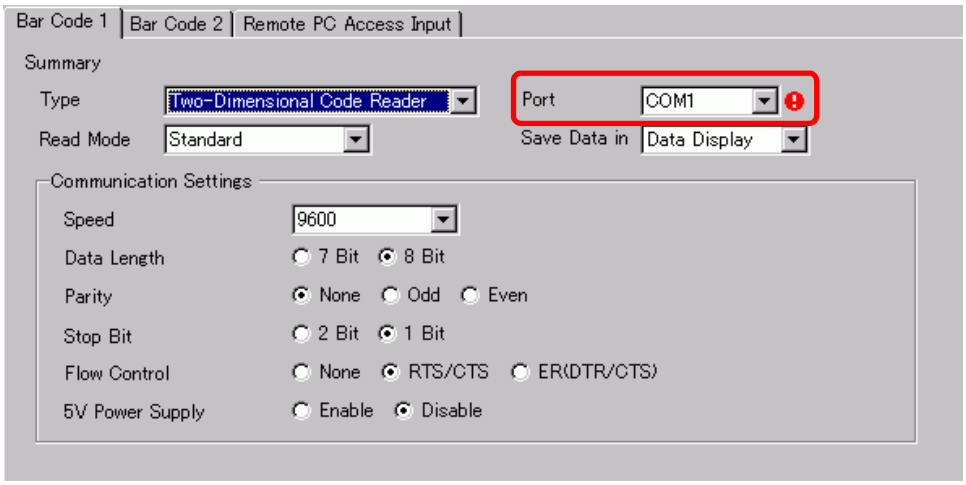
1. From the [System Settings], click [Input Equipment Settings] to display the following screen.



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



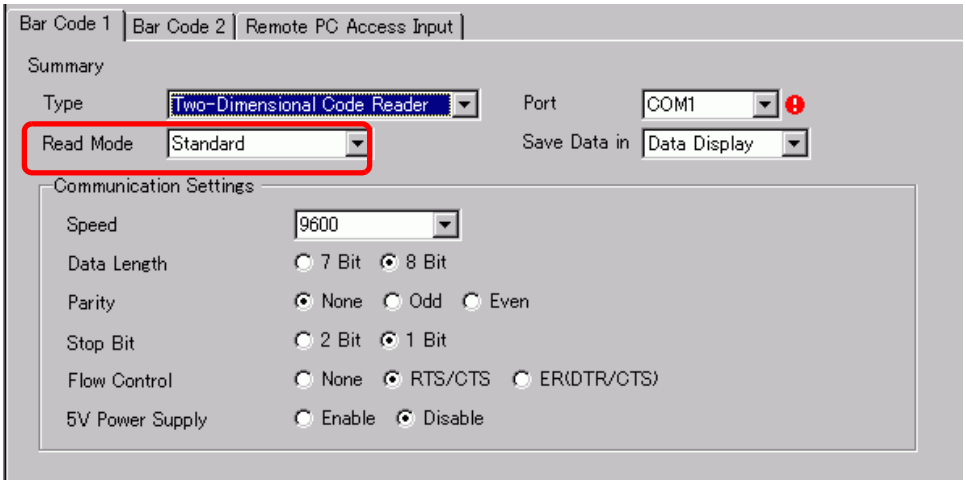
3. In the [Port] drop-down list, select the port to which you want to connect.



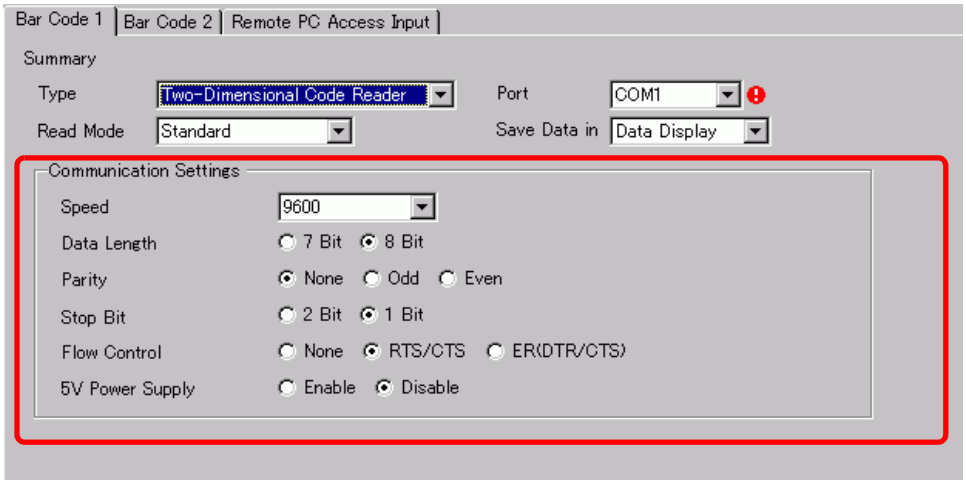
NOTE

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

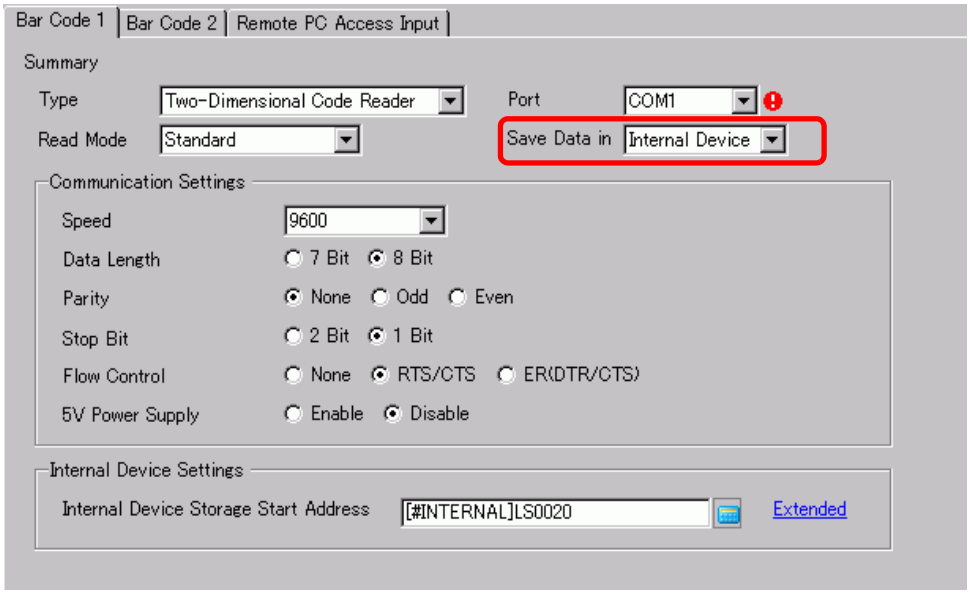
4. Set the [Read Mode].



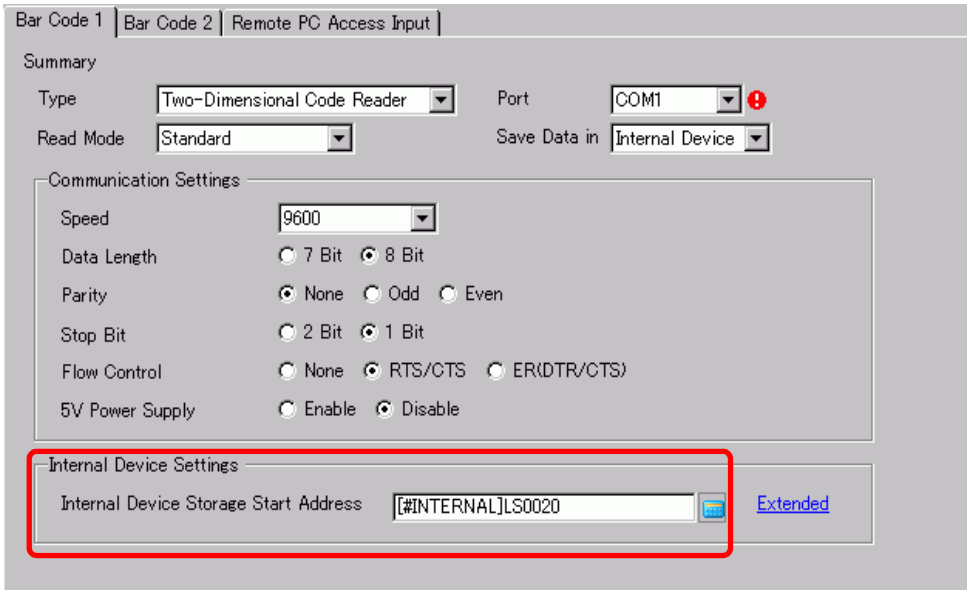
5. In [Communication Settings], set each option.



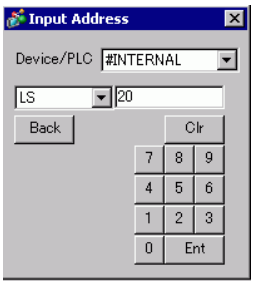
6. From the [Save Data in] drop-down list, select a data storage location.



7. From the [Internal Device Storage Start Address] drop-down list, set the data storage internal device's start address (for example, LS20).



Click the icon to display an address input keypad.

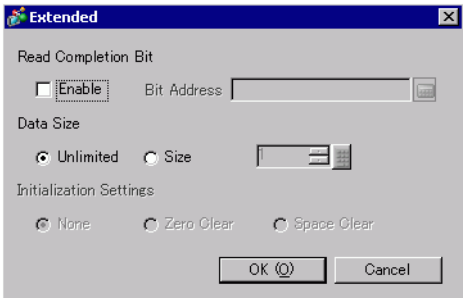


Select the device "LS", input "20" in the address, and press the "Ent" key.

NOTE

- For the internal device's address setting range, refer to "16.2 Connecting a Barcode/Two-dimensional Code Reader ■ Storing Code Data in the GP Internal Device Address ◆ The Range of Internal Device Addresses" (page 16-18)

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



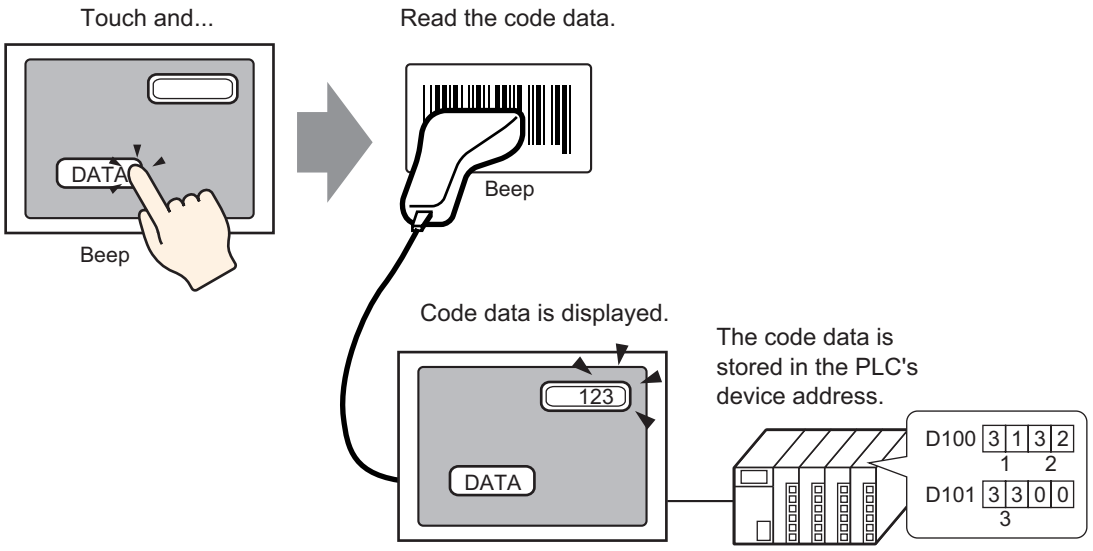
NOTE

- 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.

16.2.3 Barcode Inputs

■ Storing Code Data in the Connected Device's Address

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

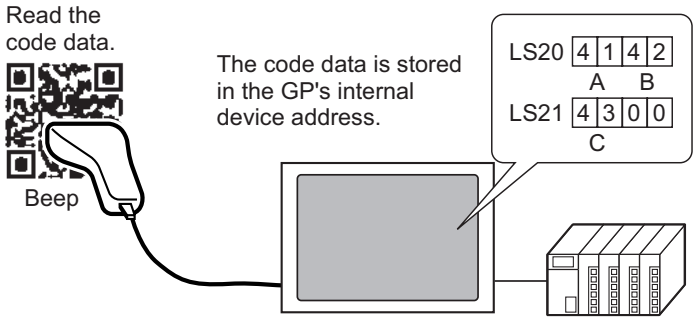


NOTE

- 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.

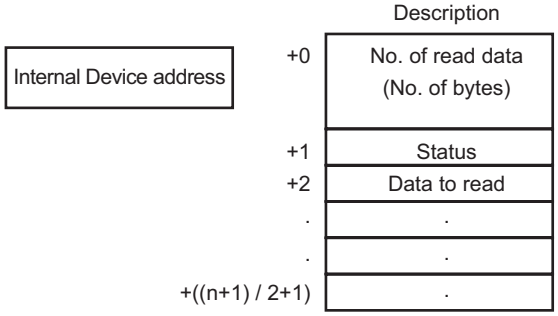
■ Storing Code Data in the GP Internal Device Address

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



◆ Internal Device Storage Start Address

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



Number of Read Data (Number of Bytes)	:F	The number of bytes to read.
Status	:F	If the data is not read normally or is not written to the internal device address, an error code is stored.

Error Contents

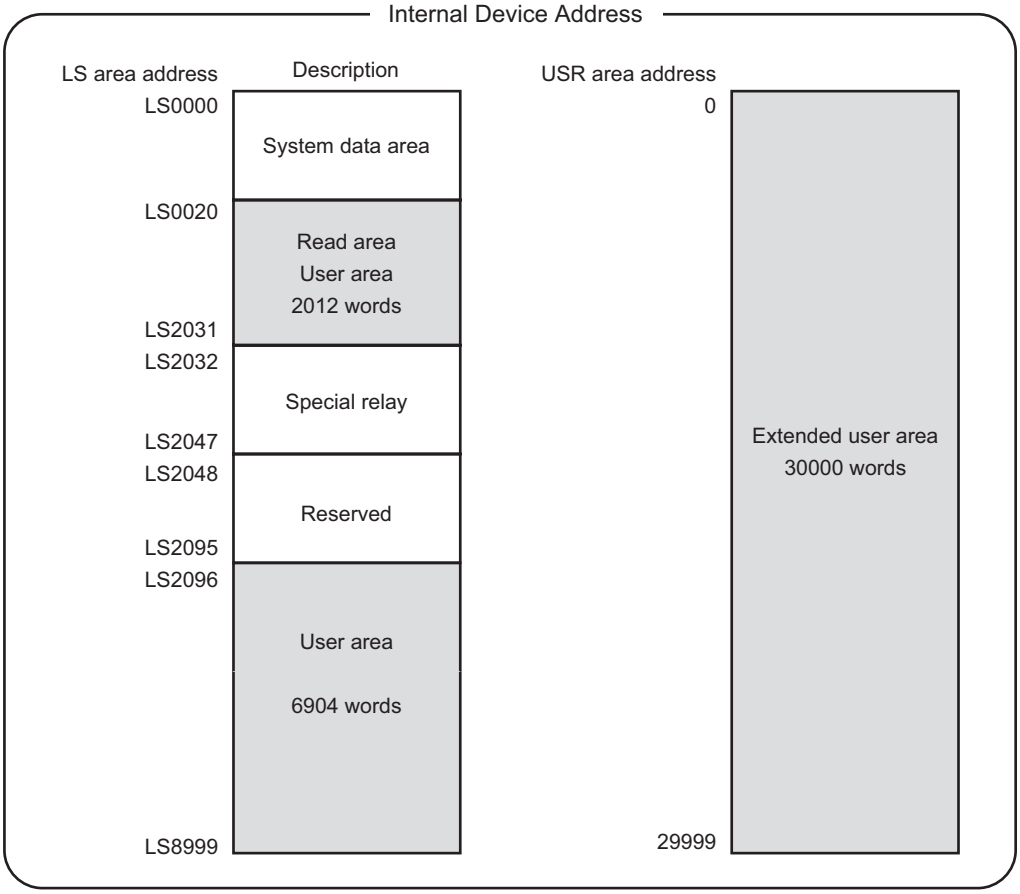
0000h	-
0001h	Read normally.
0002h	Code data read error. Not stored in internal device address.
0003h	Received code data exceeding the maximum number of bytes. The bytes of code data set in the [Extended] - [Data Size] - [Assigned Size], in this case the read completion bit address (when Yes is set)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

☞"5.15.6 [System Settings] Setting Guide ■ [Device/PLC] Setting Guide" (page 5-161)

◆ The Range of Internal Device Addresses



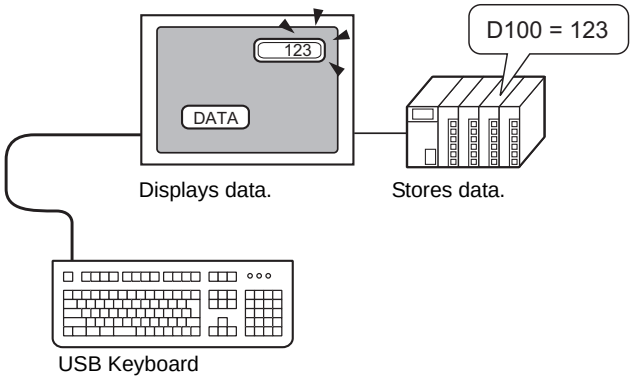
NOTE

- 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).

16.3 Display USB Keyboard Inputs

16.3.1 Details

You can connect a USB Keyboard to the display unit on the GP screen to input single-byte alphanumeric characters.



NOTE

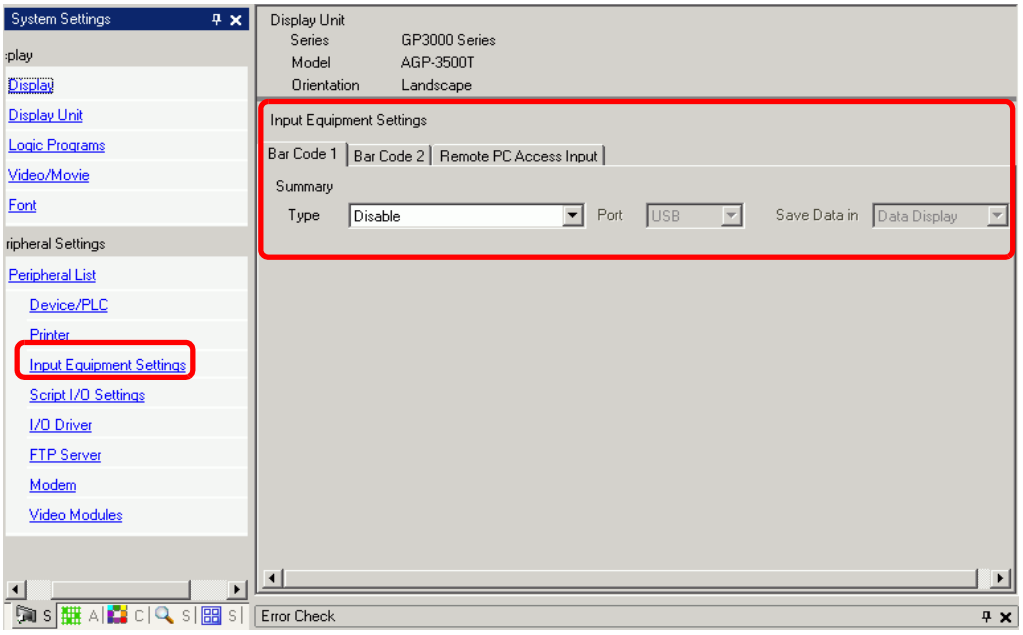
- You can use a USB Keyboard only for inputting data to a Data Display part that allows barcode inputs. The keyboard cannot be used as a screen keypad to enter passwords or other types of data.
- When using WinGP, you can use a PS/2 Keyboard to enter data to a Data Display part.

16.3.2 Setup Procedure

When [Allow Input Bit Address] (X50) is ON, numeric values entered from the USB keyboard are displayed in a Data Display. Define the data storage location of data input from the USB Keyboard as D100 in the Device/PLC.

1. Configure the settings for an external input device.

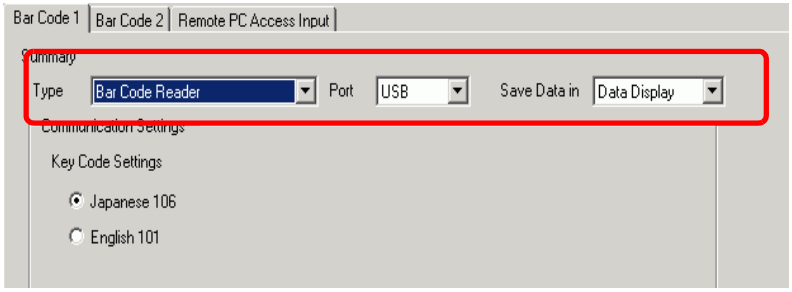
   From the System Settings, click [Input Equipment Settings] to display the following screen.



NOTE

- To display the System Settings, from the [View(V)] menu, point to [Work Space] and then select [System Settings].

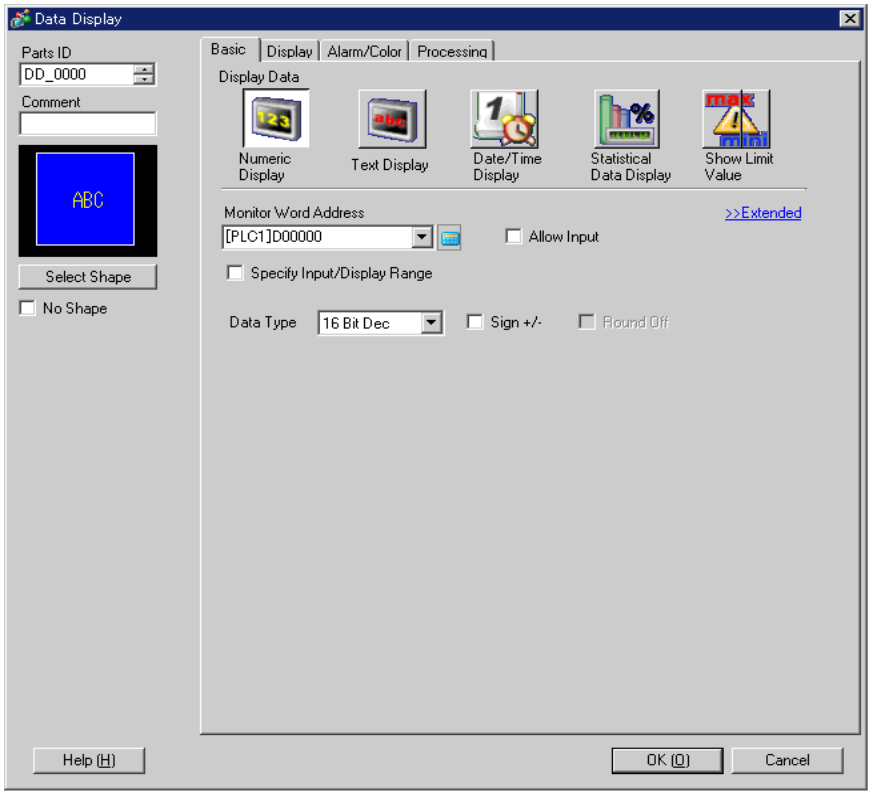
2. Set the [Type] to [Bar Code Reader], [Port] to [USB], and [Save Data in] to [Data Display].



3. Open the screen and configure the Data Display part used to display USB keyboard inputs.

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

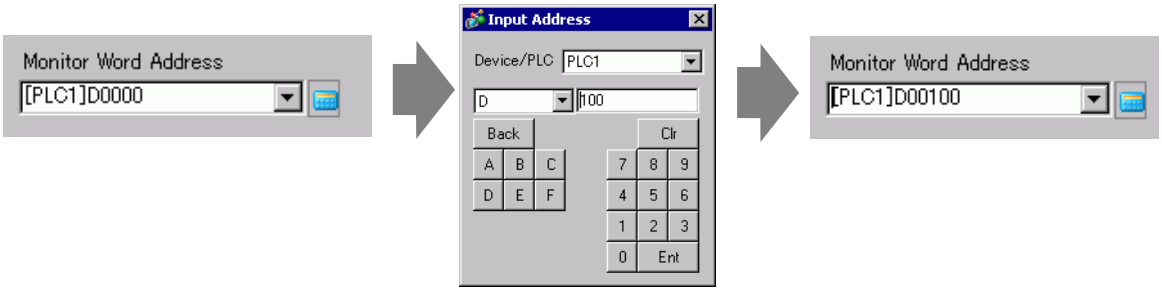
4. Double-click the placed element. The Data Display dialog box appears.



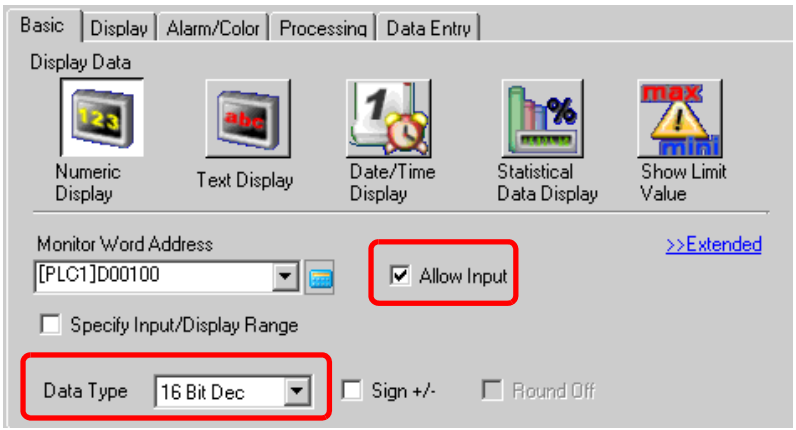
5. Click [Select Shape] and select the appropriate shape.
6. In the [Monitor Word Address] field, select the address (D100) that stores data inputs.

Click the icon to display an address input keypad.

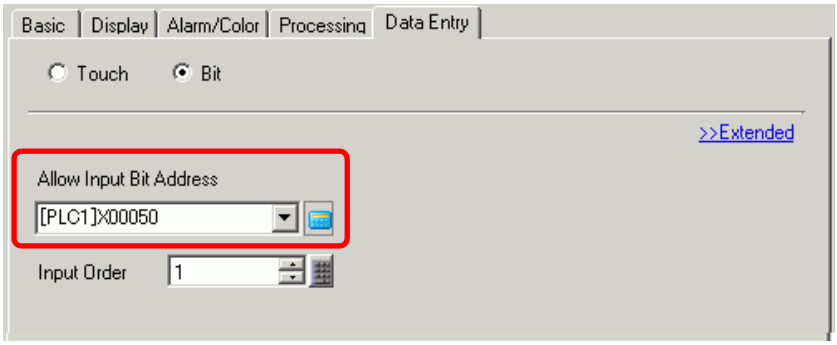
Select device "D", input "100" as the address, and press the Enter key.



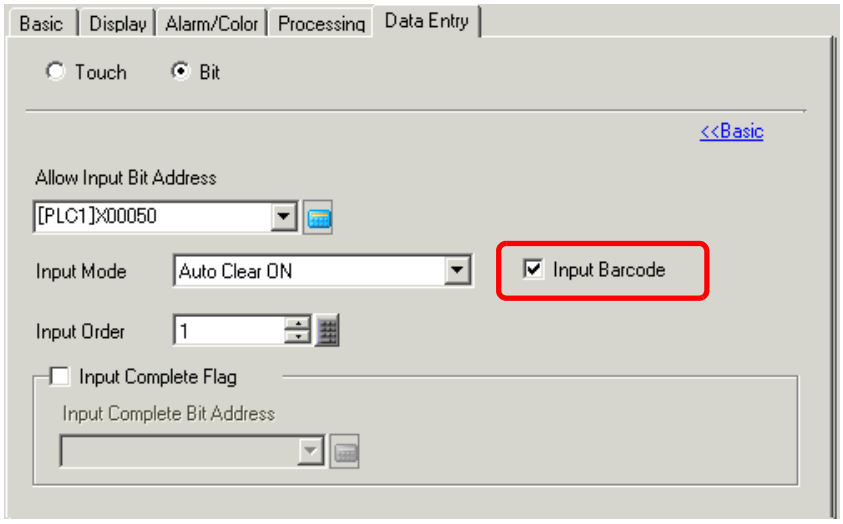
7. Select a [Data Type], and then select the [Allow Input] check box.



8. Click the [Data Entry] tab, choose the [Bit] option, and then define the [Allow Input Bit Address]. Data inputs are possible when this bit address is ON.



9. Click [Details] to expand the dialog box properties, and then select the [Input Barcode] check box. This enables you to input data from an external input device.



10. As needed, define the Data Display colors in the [Color] tab and fonts in the [Display] tab, and click [OK].

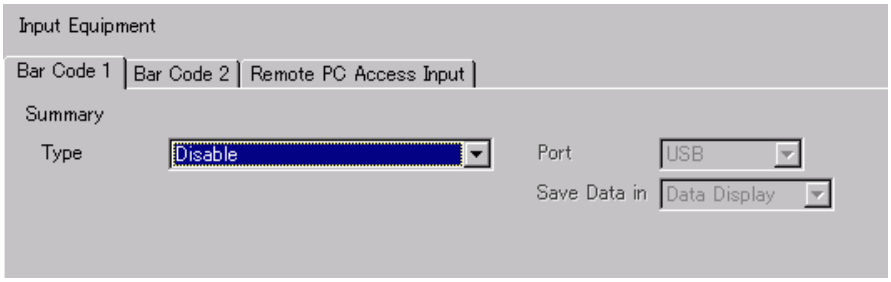
■ Keys You Can Input From a USB Keyboard

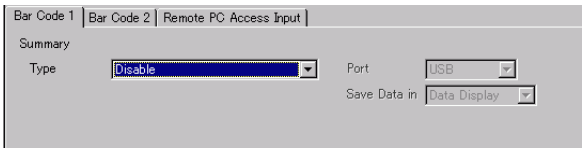
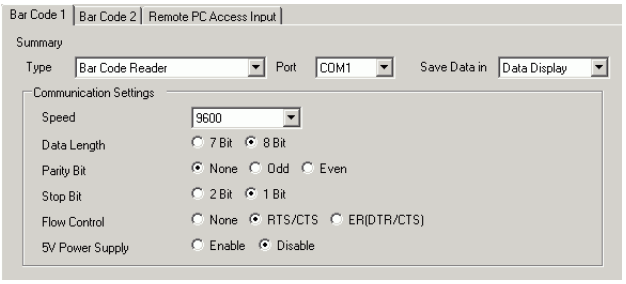
Key Name	Remarks
0 to 9	Numeric and character input
a to f	Numeric (HEX) and character input
g to z	Character Input
Tenkey: 0 to 9	Numeric and character input
Tenkey: *	Character Input
Tenkey: +	Character Input
Tenkey: ,	Character Input
Tenkey: -	Character Input
Tenkey: .	Numeric input (Float) and character input
Tenkey: /	Character Input
:	Character Input
;	Character Input
,	Character Input
-	Character Input
.	Numeric input (Float) and character input
/	Character Input
@	Character Input
[	Character Input
¥	Character Input
]	Character Input
^	Character Input
_	Character Input
Enter	Determine Input
BackSpace	Delete One Character to the Left
ESC	Cancel Input
Delete	Delete One Character
Space (Blank)	Character Input
←	Move Cursor to the Left
→	Move Cursor to the Right

You cannot use keys not included in the above table, such as control keys [Ctrl], [Shift], [Alt], and [Tab], function keys [F1] to [F12], and up/down arrow keys [↑], [↓].

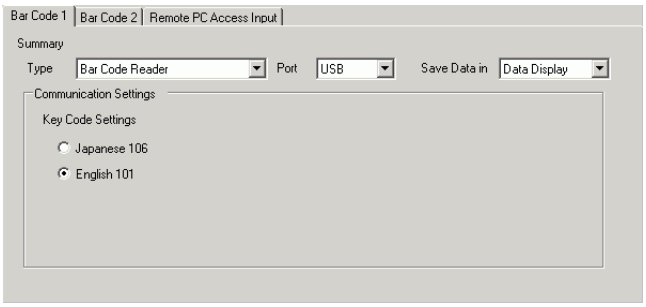
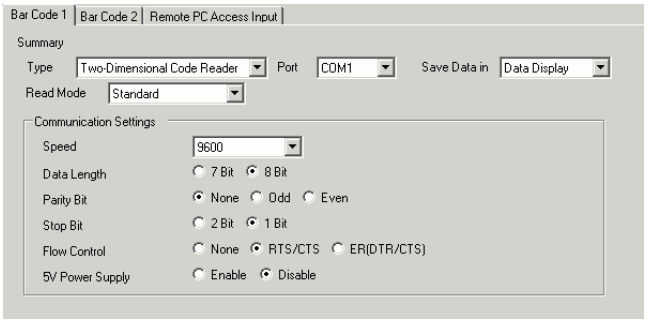
16.4 Settings Guide

16.4.1 [Input Equipment Settings] Settings Guide



Setting	Description
Type	Select the barcode type to connect. • Do Not Use Select when a barcode reader is not in use. • Bar Code Reader Select when using a barcode reader. • Two-dimensional Code Reader Select when using a two-dimensional code reader.
Do Not Use	Select when a barcode/two-dimensional code reader is not in use. 
Bar Code Reader	Select when using a barcode 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.
					Communication Speed	Select a communication speed from [2400], [4800], [9600], [19200], [38400], [57600] or [115200].
					Data Length	Choose the communication data length from [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.
			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 barcode reader. A two-dimensional code reader can only use COM1.
			COM1			Select when connecting to COM1. 

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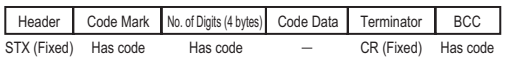
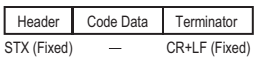
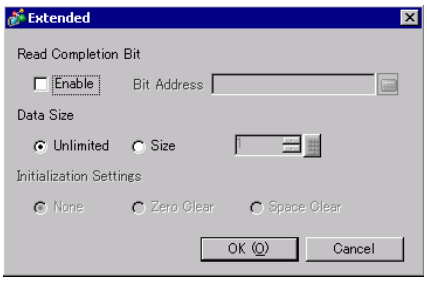
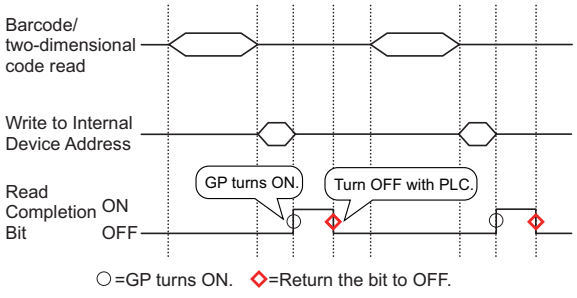
Setting						Description
Type	Two-dimension code reader	Port	COM1	Communication Settings		Configure communication settings.
					Communication Speed	Select a communication speed from [2400], [4800], [9600], [19200], [38400], [57600] or [115200].
					Data Length	Choose the communication data length from [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  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 QR Code Reader  In [DENSO QR Code Reader] 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 Code Reader  In [Tohken Code Reader] mode, the above communication format needs to be set to a two-dimensional code reader as well. Binary data cannot be handled in [Tohken Code Reader] 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	Determine whether 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 barcode/two-dimensional code's read timing and the [Read Completion Bit Address]'s action are as follows: 

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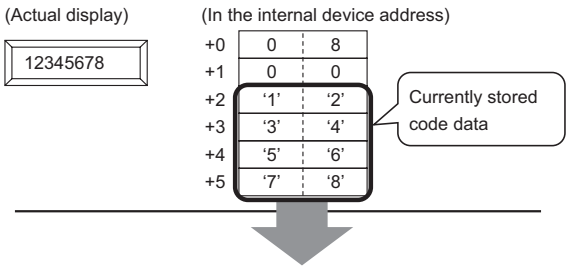
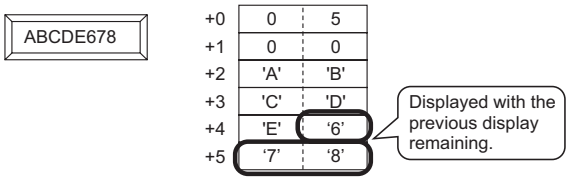
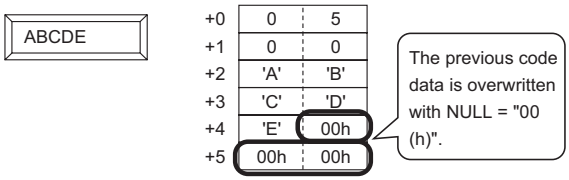
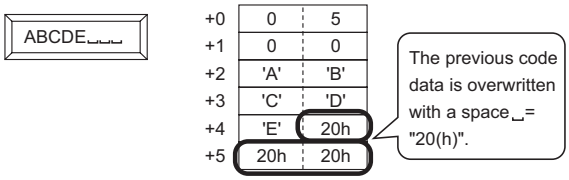
Setting						Description
Save Data In	Internal Device	Internal Display	Extended	Data Size	Unlimited	Set the code data size stored in the internal device address at read time to unlimited. **NOTE** • If the read code data exceeds the enabled area, the excess data will not be written.
					Specified Size	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]. For example)When code data "12345678" is stored, the [Data Size] is 8 bytes when storing "ABCDE". 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 "35.4.2 System Settings [Input Equipment Settings] - [Remote PC Access Input] Settings Guide", page 35-29.

16.5 Restrictions

16.5.1 Bar Code 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 Bit] is [None] and the communication speed settings for the barcode 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 you do not use the [Input Complete Bit Address] setting, reading in data continuously will overwrite previous code data.
- 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 barcode reader can be connected to each the COM1 and USB port, but when connecting two barcode readers at the same time and storing the code data in the Data Display parts or the internal device from both barcodes, the system may not work properly. Set the Data Display part to one barcode reader and the internal device to the other as a storage location.

16.5.2 USB Keyboard Restrictions

- USB keyboard restrictions include all the barcode restrictions described in previous sections.
- You can use the USB keyboard to enter data in the Data Display parts setup to allow barcode inputs. You cannot use the keyboard to enter passwords or other types of data.
- When reading BackSpace, ESC, Delete, Left Arrow, and Right Arrow key codes from the barcode reader, the control keys are processed the same as if they are input from the USB Keyboard.
- Japanese kanji characters are not supported.
- When using WinGP, you can use a PS/2 Keyboard to enter data to a Data Display part. In the [System Settings], set [Port] to [USB].
- When using Remote PC Access with a USB Keyboard, you cannot use the USB keyboard feature.