20. How to Connect a Barcode Scanner

This chapter explains how to connect a barcode scanner and the relevant settings.

20.1. Overview

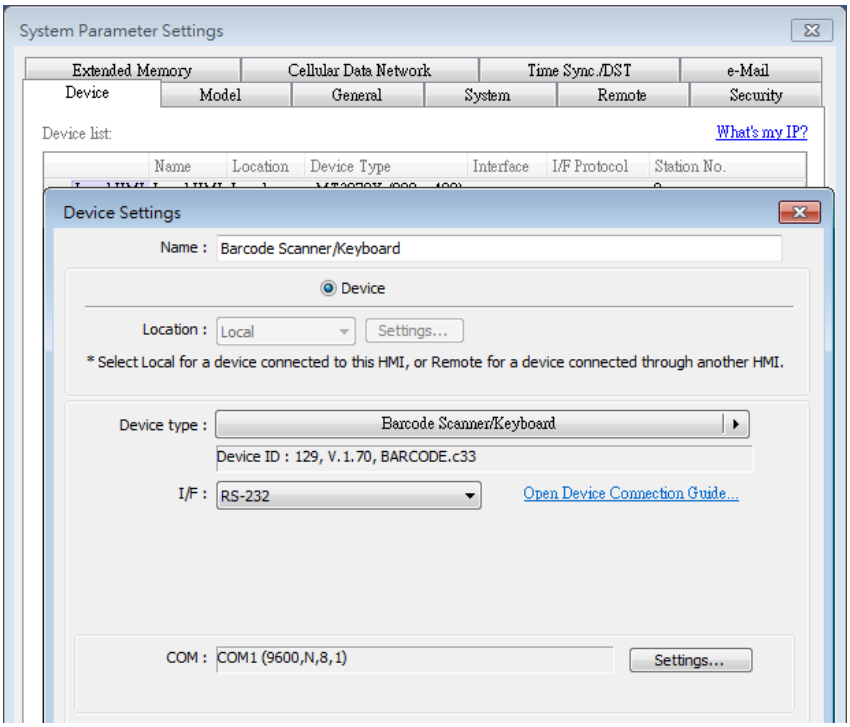
An HMI can connect with a barcode scanner via the following interfaces:

- USB
- COM port

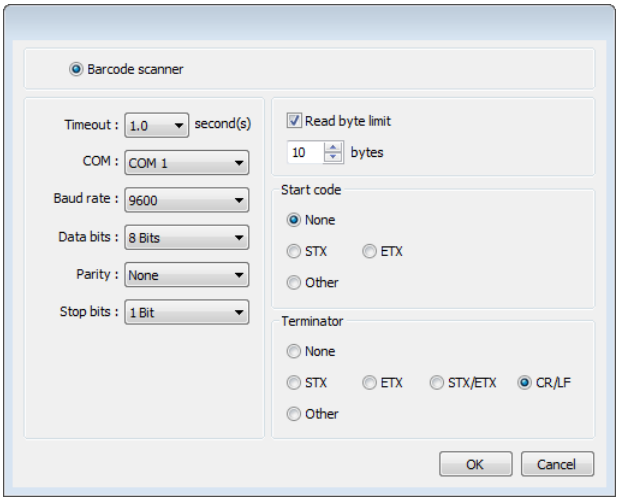
To connect a barcode scanner, please add a new device by the following steps.

20.2. Steps to Connect a Barcode Scanner

1. In EasyBuilder Pro click [System Parameters] » [Device list] and add a new device.



2. Click [Settings…] and finish the settings.



Setting	Description
Timeout	When [Barcode scanner] is selected, if the device reads slowly, a longer timeout is suggested for the device to complete reading data. When [Keyboard] is selected, a time range can be set for keyboard entries. The system starts counting time from the first entry.
COM **Baud rate** **Data bits** **Parity** **Stop bits**	When using COM port, please set the communication parameters correctly. When using USB, there is no need to set the parameters.
Read byte limit	With this option selected, the number of bytes a barcode scanner reads is restricted in order to prevent overloading. The range is 10 to 1024. Please note that the data cannot be read if it exceeds the limit.
Start code	The data is only valid when the first data is identical to the start code, otherwise the data will be ignored. The start code will not be stored in the address of barcode scanner. **None** When no start code is used, HMI will save all the data to the designated address of barcode scanner. **STX** Use 0x02 as start code. **ETX** Use 0x03 as start code. **Other** Use user-defined start code. Example: If the start code is 255 (0xff), and the data read is: 0xff 0x34 0x39 0x31 0x32 0x30 0x30 0x34 0x37 The data saved in the designated barcode scanner address will be: 0x34 0x39 0x31 0x32 0x30 0x30 0x34 0x37
Terminator	A terminator represents the end of data stream. **None** When no terminator is used, HMI will save all the data

	to the designated address of barcode scanner. **STX** Use 0x02 as terminator. **ETX** Use 0x03 as terminator. **STX/ETX** Use 0x02 or 0x03 as terminator. **CR/LF** Use 0x0a or 0x0d as terminator. **Other** Use user-defined terminator. Example: If the terminator is 55 (0x37), and the data read is: 0x34 0x39 0x31 0x32 0x30 0x30 0x34 0x37 The data saved in the designated barcode scanner address will be: 0x34 0x39 0x31 0x32 0x30 0x30 0x34

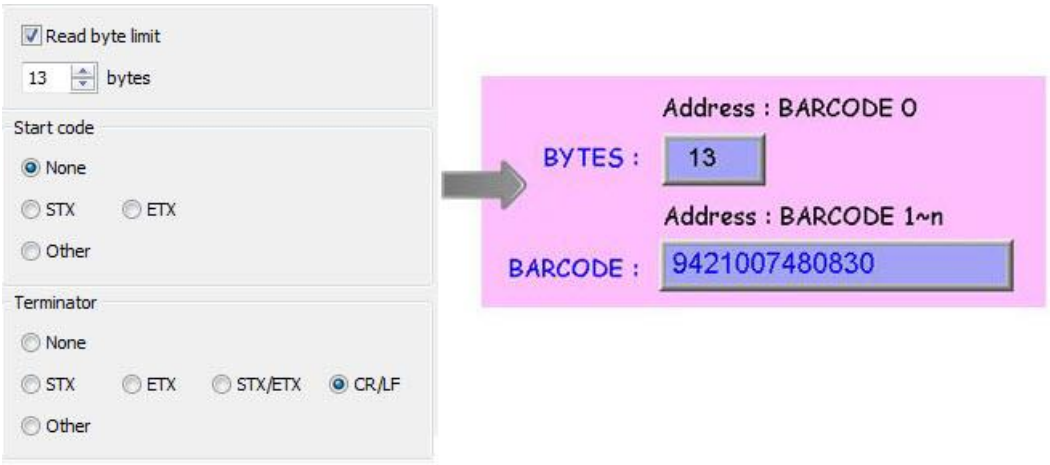
After adding the barcode scanner in the device list, it can then be selected in object settings with the following addresses to use.

Address Type	Address Name	Description
Bit	FLAG	**FLAG 0** indicates the status of data reading. When reading data, the status of FLAG 0 is set OFF and will return ON after reading data successfully.
	RESET	**RESET 0** clears the data of BARCODE and RESULT when set ON.
	CONNECT_STATUS	**CONNECT_STATUS 0** indicates whether the barcode scanner (USB interface) is connected. When the status is ON, the barcode scanner is connected.
Word	BARCODE	**BARCODE 0:** Number of bytes currently read. **BARCODE 1 ~ n:** Stores the data read.
	RESULT	**RESULT 0** indicates the result of data reading. The following codes indicate: **0x00** Waiting to read BARCODE.

	0x01 BARCODE successfully read. **0x02** Invalid BARCODE format. **0x03** The number of bytes specified in [Read byte limit] exceeded. **0x04** The Start Code of the data read does not match the setting. **0x05** The Terminator of the data read does not match the setting.

Example 1

The following is a setting example, the barcode is 9421007480830. BARCODE 0 is the address of Numeric Object (BYTES) and BARCODE 1 ~ n is the address of ASCII object (BARCODE).



In the example the data stored in the barcode scanner address is listed in the following table:

Barcode Scanner Address	Data
BARCODE 0	13 bytes (decimal) However, the data saved is 14 bytes = 7 words. It is because when the number of bytes is an odd number, the system adds a byte (0x00) to make it an even number.
BARCODE 1	3439 (HEX)
BARCODE 2	3132 (HEX)
BARCODE 3	3030 (HEX)
BARCODE 4	3437 (HEX)
BARCODE 5	3038 (HEX)
BARCODE 6	3338 (HEX)
BARCODE 7	0030 (HEX)

Note

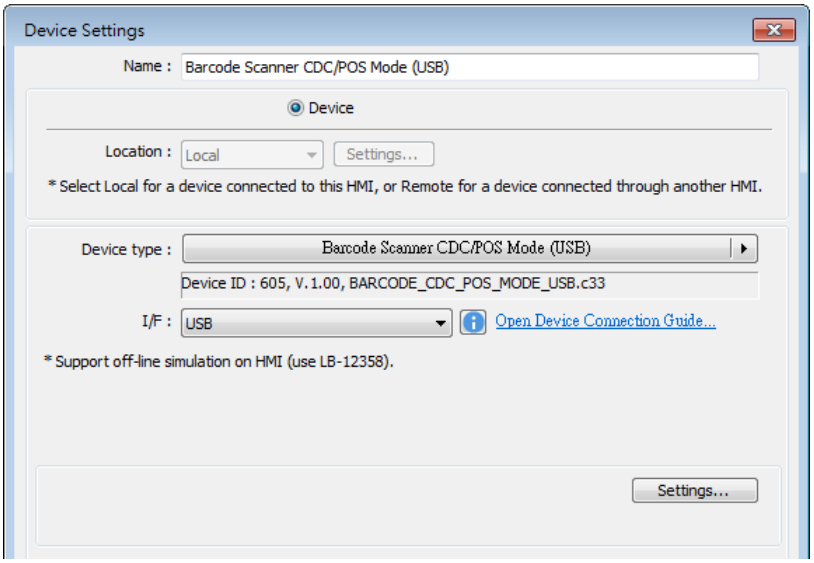
- An HMI can only be connected with one USB barcode scanner. When the device list in the project includes this kind of device, the system register LB-9064: [enable USB barcode device (disable keyboard) (when ON)] is set ON. To enable USB keyboard again and stop using USB barcode scanner, please set LB-9064 OFF.

Click the icon to download the demo project. Please confirm your internet connection.

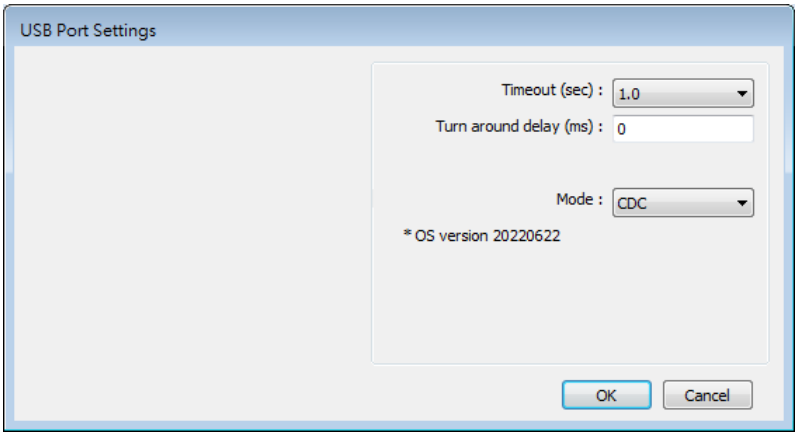
20.3. CDC/POS Mode

Certain barcode scanners can be configured to communicate in CDC or POS mode for higher reading speed.

1. In [System Parameters] » [Device list] add a “Barcode Scanner CDC/POS Mode (USB)” device.



2. Click [Settings…] and finish USB port settings.



Setting	Description
Timeout (sec)	The barcode scanner is considered as disconnected when the HMI has not received a response from the barcode scanner for a period of time set by timeout. In CDC mode, due to the lack of the terminating character, the timeout setting determines the elapsed time before the HMI stops receiving data.
Turn around delay (ms)	The HMI delays the sending of the next command for the specified period of time.
Mode	Select CDC or POS mode.

After adding the barcode scanner in the device list, it can then be selected in object settings with the following addresses to use.

Address Type	Address Name	Description
Bit	flag	Indicates the status of data reading. When reading data, the status of flag is set OFF and will return ON after data is successfully read.
Word	data	**data 0~1999:** Store the data read.
	state	**state 0:** The value is 0 when no barcode scanner is detected, and the value is 1 when the barcode scanner is connected successfully.
	len	**Len 0:** Number of bytes currently read.