



# FM700 OEM Scan Engine

## User Guide



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## **About This User Guide**

Please read all the content of the user guide carefully to use the products safely and effectively. You are advised of keeping it properly for your using reference.

### **Disclaimer**

Please do not dismantle the product or tear up the seal on it, otherwise we won't provide warranty or replacement service.

The pictures in this user guide are for reference only. If there are any pictures which not match the actual product, please take actual products as the standard. Updated information is subject to change without notice.

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### **Service Information**

For technical assistant or product service and repair, please contact YidaScan. Visit our website to learn more: [www.yidascan.com](http://www.yidascan.com)

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## Revision

Version	Description	Date
V1.0.1	Initial Release	2021.08.20
V1.2	<ol style="list-style-type: none"><li>1. Add Command-setting Beep Setting</li><li>2. Add Custom Setting for Good Read Beep</li><li>3. Add Custom Setting for Error Beep</li><li>4. Add Command for Enable/Disable Programming barcode scanning</li><li>5. Add GS1 program marks</li><li>6. Add Convert UPC-A to EAN13</li><li>7. GBK 和 UTF-8 Add GBK and UTF-8 decode standard in RS232</li><li>8. Add French, German, Q Turkish/F, British, Japanese, Swiss keyboard</li></ol>	2021.09.23

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# Preview

## Introduction

This manual provides detailed instructions for setting up and using the FM700 scanner.

## Chapter Description

《Chapter1 About FM700》

Introduces three configuration methods and

《Chapter2 System Setting 》

describes how to configure general parameters of the FM700

《Chapter3 Scan Mode》

Describes different scan modes and relevant parameters.

《Chapter4 Interface》

Describes how to configure different interface parameter

《Chapter5 Data Format》

Describe how to customize scanned data

《Chapter6 Sysmbologies》

Lists all compatible symbologies and describes how to configure the relevant parameters.

《Appendix》

Provides factory defaults table and a bunch of frequently used programming barcodes.

## Explanation of Icons



This icon indicates this information requires extra attention from the reader.



This icon indicates handy tips that can help you use or configure the engine with ease.



This icon indicates practical examples that can help you to acquaint yourself with operations.

# Chapter1 About FM700

## Introduction

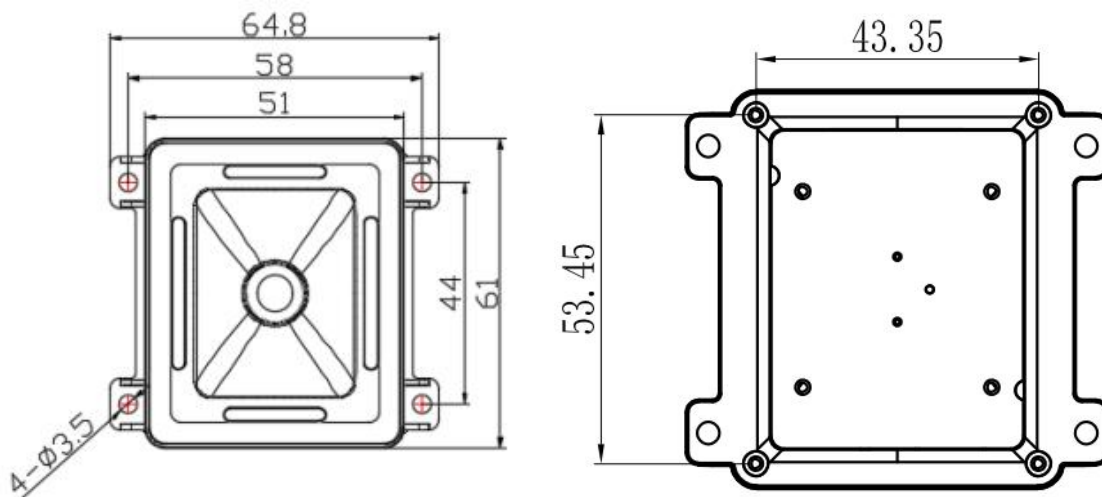
The FM700 is an area image scanner for barcode reading. It includes four illumination LEDs, four Good Read LEDs, one 12-pin FPC connector and two 8-pin box connectors(for USB, RS232, TTL, RS485, Wiegand interfaces).

The FM700 contains :

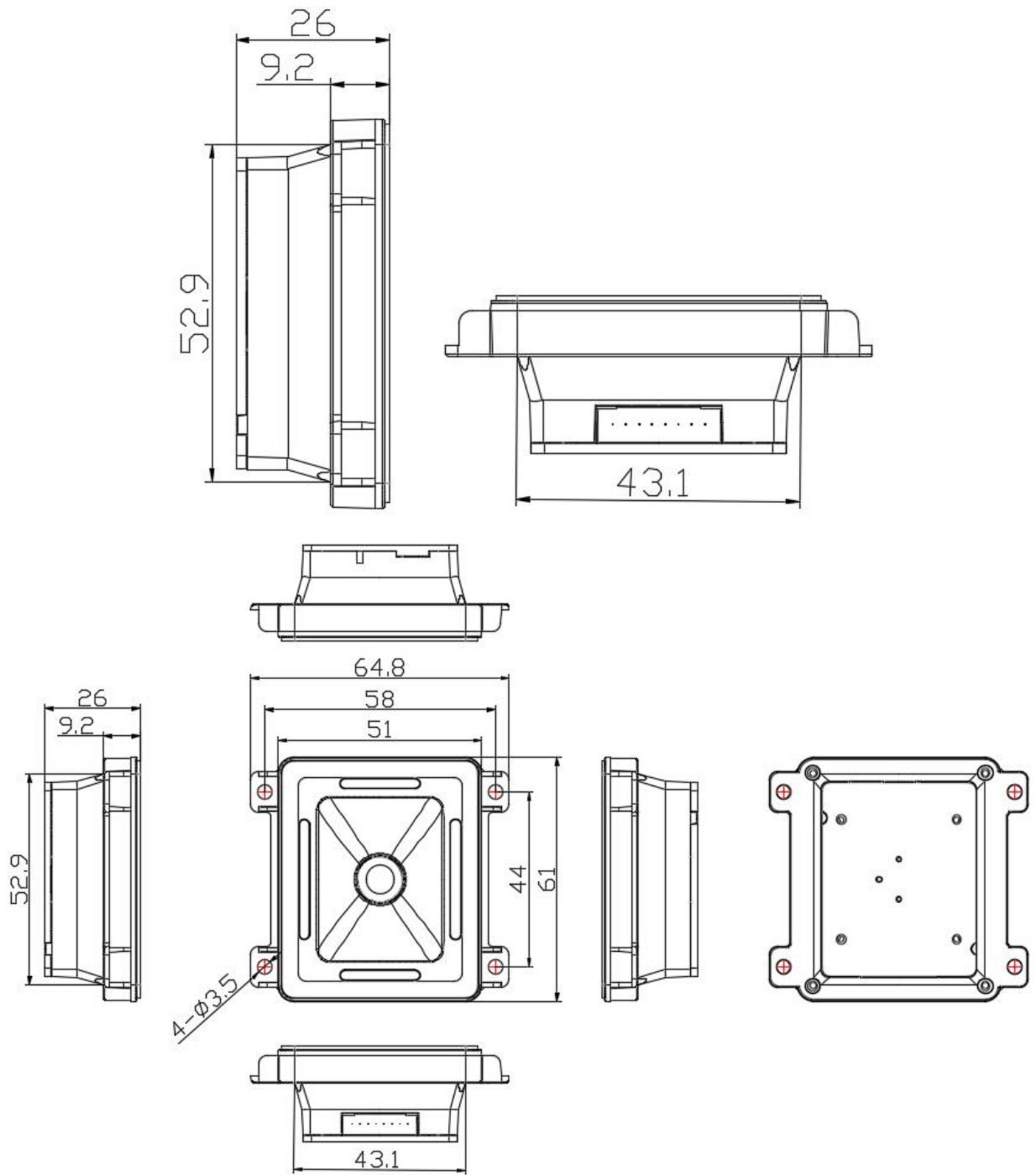
- 1 Cmos sensor
- 4 IlluminationLED
- 4 Indicator LED

## Dimension

Front View



Side View

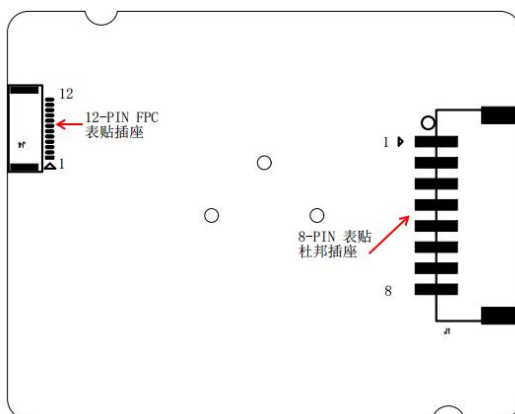


## Interface

The physical interface of the FM700 consists of a 12-pin FPC connector and two 8-pin box connectors:

- 12-pin FPC connector can be used as TTL-232 interface or USB interface.

One 8-pin box connector can be used as standard USB interface and the other as RS-232 interface



### 12-pin FPC Connector

PIN#	Signal Name	I/O	Function
1	WG-DATA0	O	Wiegand data 0
2	DLED	O	Good Read LED Output
3	NC		Reserved
4	Buzz	O	Beeper Output
5	FLED-PWM	O	LED Output
6	WG-DATA1	O	Wiegand data 1
7	GND		Power Supply Ground
8	USB-D+	I/O	USB D+ Signal
9	USB-D--	I/O	USB D- Signal

10	RS232-RXD/ TTL-232-RXD/RS	I	RS232 receive data/TTL232 receive data/ RS485 data B
11	RS232-TXD/ TTL-232-TXD/RS 485A-	O	RS232-TXD/TTL-232-TXD/RS485A -
12	POW_IN	-	5V Power Supply

### 8-PIN Box Connector

PIN#	Signal	I/O	Function
1	POW_IN		5V Power Supply Input
2	GND		Power Supply Ground
3	RS232-RXD/TTL- 232-RXD/RS485B-	I	RS232-RXD/TTL-232-RXD/RS485B-
4	RS232-TXD/TTL- 232-TXD/RS485A-	O-	RS232-TXD/TTL-232-TXD/RS485A-
5	USB_D+	I/O	USB_D+ Signal
6	USB_D-	I/O	USB_D- Signal
7	WG_DATA1	O	Wiegand 1
8	WG-DATA0	O	Wiegand 0



# Chapter2 System Setting

## Introduction

The FM700 can be configured by scanning programming barcodes. All user programmable features/options are described along with their programming barcodes/commands in the following sections. This programming method is most straightforward.

## Programming Barcode



The figure above is an example that shows you the programming barcode:

1. The programming barcode
2. The description of feature/option.

## Use of Programming Barcode

Scanning the **Enter Setup** barcode can enable the scanner to enter the setup mode. Then you can scan a number of programming barcodes to configure your scanner. To exit the setup mode, scan the **Exit Setup** barcode or a non-programing barcode, or reboot the scanner



Enter Setup (default)



Exit Setup

---

## Restore to Factory Default



Restore to factory default

## Query Firmware Version



Query Firmware Version

## User Preference

User can set up his/her preference of the scanner.



Save User Preference



Restore to User Preference

---

## Reread Timeout

Reread Timeout can avoid undesired rereading of same barcode in a given period of time.

This feature is only applicable to

the Sense and Continuous modes.

It's programmable as 500ms, 750ms, 1s and 2s, 500ms is the default value.



500ms (default)



750ms



1s



2s

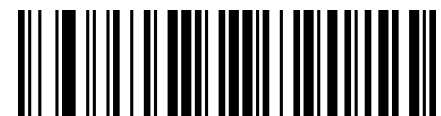
## Beeper

### Beeper Volume

This setting is only for "Good Read Beep Volume" and "Error Beep Volume"



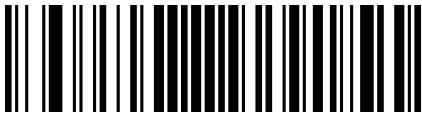
High Volume (default)



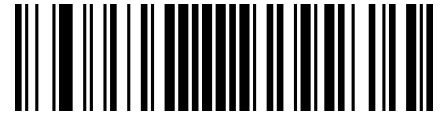
Low Volume

---

## Power on Beep



On (default)



Off

## Enable/Disable Beeper

This setting is only for "Good Read Beep" and "Error Beep"



Enable (default)



Disable

## Good Read Beep Frequency



Low (default)



Medium

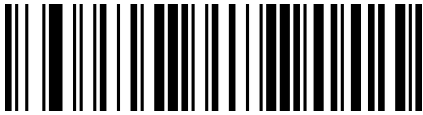


High

---

## Beep Duration

This setting is only for Good Read Beep and Error Beep.



Short

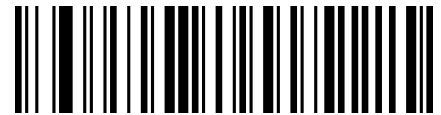


Long (default)

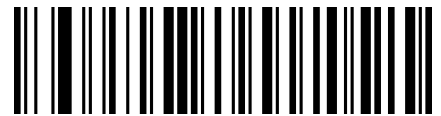
## Error Beep Frequency



Medium



Low (default)



High

## Command-Setup Beep



Enable (default)



Disable

---

## Illumination LED



Normal (default)



Always on

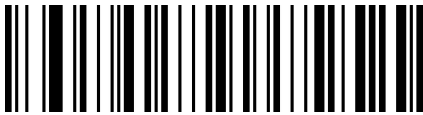


Always Off

## Decode Indicator LED



On (default)



Off

---

## System Upgrade

Please connect the scanner with a USB cable for firmware upgrade.



Firmware Upgrade

Steps to upgrade firmware:

1. Plug the scanner with a USB cable;
2. Scan **Firmware Upgrade** barcode to enter USB driver mode and wait for USB driver showing up on the computer;
3. Copy the firmware file into the USB driver;
4. Eject the USB driver and replug the usb cable to restart up the scanner and the scanner will start the firmware upgrade procedure.
5. The scanner beeps after firmware upgrading.

### Example

If the upgrade is successful, the factory settings will be restored, and users can reset the scanner according to their needs.

### ATT

If the upgrade fails, you need to re-power on and restart the scanner and perform the above upgrade steps again.

## Chapter 3 Scan Mode

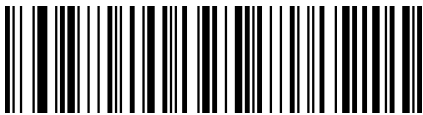
### Sense Mode

#### Sense Mode

The scanner activates a decode session every time it detects a barcode presented to it.

The decode session continues until a barcode is decoded or the decode session

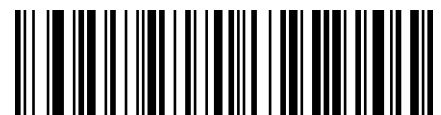
timeout expires. Reread Timeout can avoid undesired rereading of same barcode in a given period of time.



Sense Mode

#### Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. The Short, Medium, Long represent 3s, 7s, 10s. The default value is 3s.



Short (default)



Medium



Long



Enable Custom Decode Session Timeout



---

## Set Custom Decode Session Timeout

It's programmable in 0.1s increments from 1 to 999. The default setting is 3s.



Set Custom Decode Session Timeout

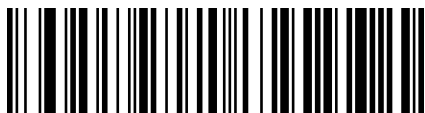
### Example

Set the decode session timeout to 10s:

- 1、 Scan **Set Custom Decode Session Timeout** Barcode
- 2、 Scan the numeric barcodes: "1"0" from the "Digital barcodes" section in Appendix1.
- 3、 Scan the **Save** barocde in Appendix1

## Good Read Illumination LED Duration

This parameter sets the amount of time that the Good Read LED to remain on following a good read. The **Short**, **Medium**, **Long** represent 3s, 7s, 10s.



Short



Medium



Long



Enable Custom Duration

---

## Set Custom Good Read Illumination LED Duration

This parameter sets the amount of custom time that the Good Read LED to remain on following a good read. It is programmable in 0.1s increments from 1 to 999.



Set Custom Good Read LED Duration

### Example

Set the custom duration as 10s:

- 1、 Scan **Set Custom Good Read LED Duration** Barcode.
- 2、 Scan numeric barcode "1" "0" from the "Digital Barcodes" section in Appendix1
- 3、 Scan **Save** barcode in Appendix 1

## Continuous Scan (default)

The scanner automatically starts one decode session after another. Reread Timeout can avoid undesired rereading of same barcode in a given period of time



Continuous Scan (default)

# Chapter 4 Interface

## USB Interface

USB HID (default)



USB HID

USB HID Transmission Method



Please assure USB HID mode is enable before set up this function.



USB-HID

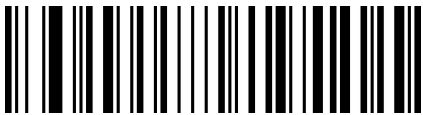


USB-Keyboard (default)



上位机和键盘上传同时上传

## Function Key Mapping

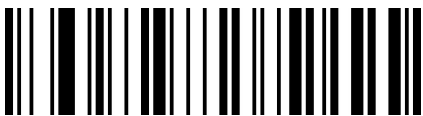


Enable

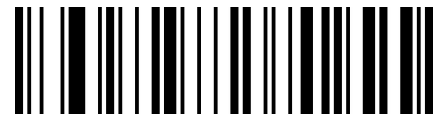


Disable (default)

## GS Characters Replace



Do Not Replace (default)



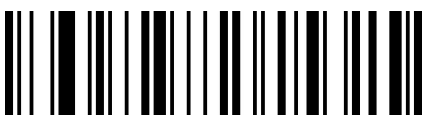
Replace with Ç



Replace with |



Replace with ^]



Replace with ]



Replace with <GS>

---

## Virtual Keyboard

Virtual keyboard Enable (mode one): The characters between 0x20 ~ 0xFF are output using the virtual keyboard which is not supported under the current keyboard layout, and the characters between 0x00 ~ 0x1F are output according to the definition of control characters.

Virtual keyboard Enable (mode two): All characters between 0x20 and 0xFF are output using virtual keyboard, and characters between 0x00 and 0x1F are output according to the definition of control characters.

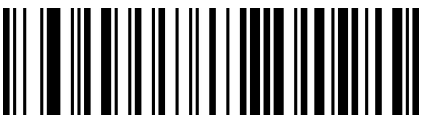
Virtual keyboard Enable (mode three): All characters used between 0x00 and 0xFF are output using virtual keyboard.



Disable Virtual Keyboard (default)



Enable Virtual Keyboard (Mode1)



Enable Virtual Keyboard (Mode2)



Enable Virtual Keyboard (Mode3)

---

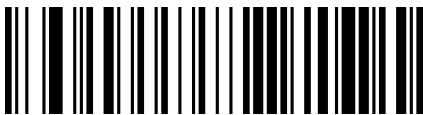
## USB Keyboard Transmission Speed



Low



Medium



High (default)



Set Custom Speed

## USB Countries Keyboard



America (English) (default)



Italian(Italy)



Spanish(Brazil)



Portuguese (Portugal)



Portuguese (Brazil)



German(Austria)



Franch(French)



Turkish Q



Turkish F



English(UK)



Japanese(Japan)



German(Switzerland)



"?"and "/" can't be outputted under Portuguese(Brazil) keyboard.

## USB CDC

If your engine is connected to the USB port on a host device, the USB CDC feature allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature. You may download it from our website at [www.chinayoko.com](http://www.chinayoko.com)

o



USB CDC

## RS232

### RS-232

When the scanner is connected to the RS-232 port of a host device, you need to set communication parameters (including baud rate, parity check, data bit and stop bit) on the scanner to match the host device so that two devices can communicate with each other.



RS-232

### RS-485

Switch to RS-485 Interface



RS-485

### RS-485- Device ID

Default device ID value is 0x00.



Set Device ID

### Example

Set RS485 Device ID as 0x01:

2.Scan **Set Device ID** barocde.



---

3. Scan numeric barcode "0" "1" from the Digit Barcodes in appendix 1.

4. Scan **Save** barcode in appendix 1.

## Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the baud rate to match the host requirements.



Baud Rate 4800



Baud Rate 19200



Baud Rate 57600



Baud Rate 9600 (default)



Baud Rate 38400



Baud Rate 115200

## Parity Check

Set the parity type to match the host requirements.

**Odd Parity:** If the data contains an odd number of 1 bits, the parity bit value is set to 0.

**Even Parity:** If the data contains an even number of 1 bits, the parity bit value is set to 0.

---

**None:** Select this option when no parity bit is required.

The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the

receiving device for the next character in the serial data stream. Set the number of stop bits to match the host requirements.



Data Bit8, Stop Bit1, No Parity (default)



Data Bit8, Stop Bit1, Odd Parity



Data Bit8, Stop Bit1, Even Parity



Data Bit8, Stop Bit2, 不校验



Data Bit8, Stop Bit2, Odd Parity



Data Bit8, Stop Bit2, Even Parity

### RS232- Decode Standard



Original Format(default)



GBK



UTF-8

---

## Wiegand

Scanner of wiegand interface only decode barcode between 0~100000000000000000

numeric characters



Wiegand Interface

### Wiegand Format



Wiegand 26 (default)



Wiegand 34

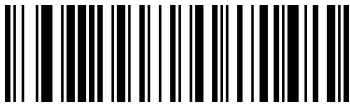
# Chapter5 Data Format

## Custom Prefix

### Enable/Disable Custom Prefix

If custom prefix is enabled, you are allowed to append to the data a user-defined prefix that cannot exceed 10 characters.

For example, if the custom prefix is "AB" and the barcode data is "123", the Host will receive "AB123".



Enable Custom Prefix



Disable Custom Prefix (default)



Clean All Custom Prefix

---

## Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired prefix then the **Save** barcode.



Set Custom Prefix

### Example

Set the custom prefix (HEX:0x61) to "a" for all symbolgoies(Code ID: 0x99)

- 1.Scan **Set Custom Prefix** barcode.
- 2.Scan numeric barcode "9"9"6"1" from the digit barcode section in appendix 1.
- 3.Scan **Save** barcode in the appendix 1.
- 4.Scan **Enable Custom Prefix** barcode.

## Custom Suffix

### Enable/Disable Custom Suffix

If custom suffix is enabled, you are allowed to append to the data a user-defined suffix that cannot exceed 10 characters.

For example, if the custom suffix is "AB" and the barcode data is "123", the Host will receive "123AB".



Enable Custom Suffix

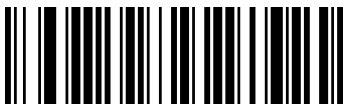


Disable Custom Suffix (default)



Clean All Custom Suffix

Set Custom Suffix



Set Custom Suffix

### Example

Set the custom suffix (HEX:0x61) to "a" for all symbolgoies(Code ID: 0x99)

- 1.Scan **Set Custom Suffix** barcode.
- 2.Scan numeric barcode **"9"9"6"1"** from the digit barcode section in appendix 1.
- 3.Scan **Save** barcode in the appendix 1.
- 4.Scan **Enable Custom Suffix** barcode.

## Code ID

Code ID can also be used to identify barcode type. Code ID can only consist of one letters.

---

## Code ID Prefix/Suffix



Disable Code ID (default)



Code ID Prefix



Code ID Suffix

## Clean All Code ID Configuration



Clean All Code ID

## Set Custom Code ID



Set Custom Code ID

### Example

Set Codabar (Code ID:0x61) Code ID to "Y" (Hex: 0x59) :

1. Scan **Set Custom Code ID** barcode.
2. Scan numeric barcode **"6"1"5"9"** from the digit barcodes section in the appendix 1
3. Scan **Save** barcode in the appendix 1

## AIM ID

AIM (Automatic Identification Manufacturers) ID defines symbology identifier (For the details, see the "AIM ID Table"



---

section in Appendix). If AIM ID prefix or suffix is enabled, the engine will add the symbology identifier before or after the scanned data after decoding.



Disable AIM ID (default)



AIM ID Suffix



AIM ID Prefix

## Start Symbol



No Start Symbol (default)



Set Start Symbol as STX

## Terminator Suffix



Set Terminator Suffix to CR (default)  
(Carriage Return)



Set Terminator Suffix to LF  
(Line Feed)



Set Terminator Suffix to CRLF  
(Carriage Return+Line Feed)



Set Terminator Suffix to TAB



Set Terminator Suffix to ETX



Disable Terminator Suffix

## Barcode Data Sequence

### Prefix Sequence



Start Symbol+Code ID+AIM ID+Custom Prefix (default)



Start Symbol+Custom Prefix+Code ID+AIM ID

### Suffix Sequence



Custom Suffix+Code ID+AIM ID+Terminator Suffix (default)



Code ID+AIM ID+Custom Suffix+Terminator Suffix

## Convert Case



No Case Conversion (default)



Convert All to Upper Case



Convert the Case



Convert All to Lower Case

# Chapter 6 Symbologies

## Introduction

Every symbology (barcode type) has its own unique attributes. This chapter provides programming barcodes for configuring the engine so that it can identify various symbologies. It is recommended to disable those that are rarely used to increase the efficiency of the scanner.

## Enable/Disable

If the **Disable All Symbologies** feature is enabled, the engine will not be able to read any non-programming barcodes except the programming barcodes.



Enable All Symbologies



Disable All Symbologies

## Enable/Disable All 1D Barcodes



Enable All 1D Barcodes



Disable All 1D Barcodes

---

## Enable/Disable All 2D Symbologies



Enable All 2D Symbologies



Disable All 2D Symbologies

## Inverse Barcode



Only Decode Regular Barcode (default)



Decode Regular and Inverser Barcode

## Codabar

Enable/Disable Codabar



Enable (default)



Disable

Codabar Start/Ending Character



Enable Start/Ending Character



Disable Start/Ending Character (default)

## Set Length Range for Codabar

**ATT**

Any 1D barcode can't exceed 127 characters



Set the Minimum Length (1~127 characters)



Set the Maximum Length (1~127 characters)

**Example**

Set the scanner to decode Codabar containing between 8 and 12 characters:

1. Scan **Set the Minimum Length** barcode.
2. Scan numeric barcode "8" from the digit barcode in the appendix 1.
3. Scan **Save** barcode in the appendix 1.
4. Scan **Set the Maximum Length** barcode.
5. Scan numeric barcodes "1" "2" from the Digit Barcode in the appendix 1.
6. Scan **Save** barcode in the appendix 1.

## Code 39

Enable/Disable Codo 39



Enable (default)



Disable

### Code 39 Check Character



Disable Check Character (default)



Enable but Do Not Transmit Check Character



Enable and Transmit Check Character

### Code 39 Full ASCII



Disable (default)



Enable

---

## Set Length Range for Code 39



Set the Minimum Length (1~127 Characters)



Set the Maximum Length (1~127 Characters)

### Example

Set the scanner to decode Codabar containing between 8 and 12 characters:

1. Scan **Set the Minimum Length** barcode.
2. Scan numeric barcode "8" from the digit barcode in the appendix 1.
3. Scan **Save** barcode in the appendix 1.
4. Scan **Set the Maximum Length** barcode.
5. Scan numeric barcodes "1" "2" from the Digit Barcode in the appendix 1.
6. Scan **Save** barcode in the appendix 1.

## Code 32



Enable (default)



Disable

## Interleaved 2 of 5 (ITF5)

Enable/Disable Interleaved 2 of 5 (ITF5)





---

Enable (default)



Disable

### Interleaved 2 of 5 (ITF5) Check Character



Disable Check Character (default)



Enable and Do not Transmit Check Character



Enable and Transmit Check Character

### Set Length Range for Interleaved 2 of 5 (ITF5)



Any (4-128 位) (default)



6 Characters



8 Characters



10 Characters



12 Characters





16 Characters



20 Characters



24 Characters



Set Custom Length Range

14 Characters



18 Characters



22 Characters

---

## Set Length Range for Interleaved 2 of 5



Set the Minimum Length Range (4~128 characters)



Set the Maximum Length Range (4~128 Characters)

## Industrial 2 of 5

### Enable/Disable Industrial 2 of 5



Enable (default)



Disable

### Set Length Range for Industrial 2 of 5



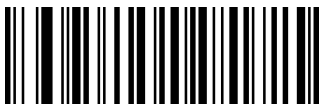
Set the Minimum Length (4~128 Characters)



Set the Maximum Length (4~128 Characters)

## Matrix 2 of 5

### Enable/Disable Matrix 2 of 5



Enable (default)



Disable

---

## Set Length Range for Matrix 2 of 5



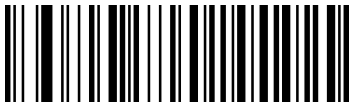
Set the Minimum Length (4~128 Characters)



Set the Maximum Length (4~128 Characters)

## Code 93

### Enable/Disable Code 93



Enable (default)



Disable

### Set Length Range for Code 93



Set the Minimum Length (1~127 Characters)



Set the Maximum Length (1~127 Characters)

## Code 11

### Enable/Disable Code 11



Enable



Disable (default)

## Code 11 Check Character Transmission



Transmit Check Character



Do not Transmit Check Character (default)

## Code 11 Check Character



Disable Check Character (default)



1 Character



2 Characters



If you select a check character algorithm and the **Do Not Transmit Check Character** option, Code 11 barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded. (For example, when the **One Check Character, MOD11** and **Do Not Transmit Check Character** options are enabled and the minimum length is set to 4, Code 11 barcodes with a total length of 4 characters including the check character cannot be read.)

---

## Set Length Range for Code 11



Set the Minimum Length (1~127 Characters)



Set the Maximum Length (1~127 Characters)

## Code 128

### Enable/Disable Code 128



Enable (default)



Disable

### Set Length Range for Code 128



Set the Minimum Length (1~127 Characters)



Set the Maximum Length (1~127 Characters)

## GS1-128



Enable (default)



Disable

## UPC-A

Enable/Disable UPC-A



Enable (default)



Disable

UPC-A Check Character



Transmit Check Character (default)



Do not Transmit Check Character

Convert UPC-A to EAN-13



Convert UPC-A to EAN-13



Do not Convert UPC-A to EAN-13 (default)

---

## UPC-E

Enable/Disable UPC-E



Enable (default)



Disable

UPC-E Check Character



Transmit Check Character (default)



Do not Transmit Check Character

Convert UPC-E to UPC-A



Convert UPC-A to UPC-A



Dot not Convert UPC-A to UPC-A (default)

## EAN/JAN-8



Enable (default)



Disable



---

## EAN/JAN-13

Enable/Disable EAN/JAN-13

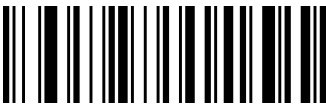


Enable (default)



Disable

Convert EAN13 to ISBN

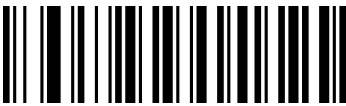


Convert EAN13 to ISBN



Do not Convert EAN13 to ISBN (default)

Convert EAN13 to ISSN



Convert EAN13 to ISSN



Do not Convert EAN13 to ISSN

## UPC/EAN/JAN Supplemental



Ignore UPC/EAN/JAN Supplemental (default)



Decode UPC/EAN/JAN Supplemental



Autodiscriminate UPC/EAN/JAN Supplemental

## GS1 DataBar (RSS14) (Stacked)

Enable/Disable GS1 DataBar



Enable (default)

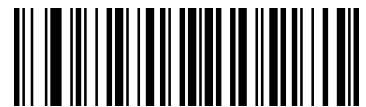


Disable

Enable/Disable GS1 DataBar Limited



Enable (default)



Disable

Enable/Disable GS1 DataBar Expanded



Enable (default)



Disable

---

## PDF417

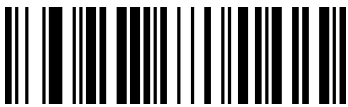


Enable (default)

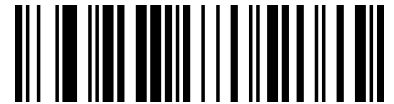


Disable

## Micro PDF417



Enable (default)



Disable

## QR

Enable/Disable QR Code



Enable (default)



Disable

---

## Enable/Disable QR with URL



Enable



Disable (default)

## Micro QR

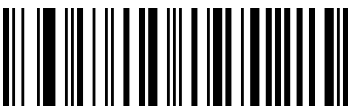


Enable (default)



Disable

## Data Matrix



Enable (default)



Disable

## Aztec



Enable (default)



Disable

---

## Msiplessey

Enable/Disable Msiplessey



Enable (default)



Disable

Msiplessey Check Character



Disable



MOD10 (default)



MOD10/MOD10



MOD10/MOD11

---

## Set Length Range for msiplessey



Set the Minimum Length (1~127 characters)



Set the Maximum Length (1~127 characters)

## Hanxi code











Enable













Disable (default)

# Appendix



## Appendix 1 Data and Digit Barcodes

	
	0
	
1	
	
	2
	
3	
	
	4
	
5	
	
	6
	
7	

	
	8
	
9	
	
	A
	
B	
	
	C
	
D	
	
	E
	
F	
	
	Cancel Last String
	
Cancel Current Setting	



---

	
	Cancel Last Scanning
	
Save	

## Appendix 2 Symbologies Table

Symbologies	Code ID		AIM ID
	HEX	Cha	ID
All Symbologies	0x99		
Codabar	0x61	a	]F0
Code 11	0x68	h	]H1
Code 128(Including GS1 128)、GS1-128	0x6A	j	]C0
ISBT 128	0x6A	j	]C0
Code 32	0x3C	<	]X0
Code 39	0x62	b	]A0
Code 93	0x69	i	]G0
EAN			
EAN-13(including ISBN)	0x64	d	]E0
EAN-8	0x44	D	]E4
GS1			
GS1 DataBar	0x79	y	]e0
GS1 DataBar Limited	0x7B	{	]e0
GS1 DataBar Expanded	0x7D	}	]e0
2 of 5			
Interleaved 2 of 5	0x65	e	]I0
Matrix 2 of 5	0x6D	m	]X0
Straight 2 of 5 Industrial	0x66	f	]S0

MSI	0x67	g	]M1
UPC			
UPC-A	0x63	c	]E0
UPC-E	0x45	E	]E0
Aztec Code	0x7A	z	]z0
Han Xin	0x48	H	]X0
Codablock F	0x6A	j	]C0
Data Matrix	0x77	w	]d1
PDF417、 Micro PDF417	0x72	r	]L0
QR、 Micro QR	0x73	s	]Q1

## Appendix 3 Command Format Description

Head	Dev. ID	CM D	CMD Status	Pack age No.	Length	Data	CRC16	End	
2byte	1 byte	3 byte	1 byte	2 byte	2 byte	N byte	2 byte	2 byte	
0x0057								0x4150	
Description	1.For multi-byte data types, the low byte is before the high byte (little endian mode), (for example, the data length of 2 bytes is 0x0001, and the actual sending order is 01 00 instead of 00 01). The maximum length of the command is 64byte. If a command with a length greater than 64byte is sent, it will be sent in packets.								
	2.head: The Master is 0x57 0x00, and the Slave is 0x31 0x00.								
	3.DEV ID: The default value is 0x00, which is used to distinguish different devices in the 485 serial port multi-machine communication								
	4.Command	[2 3:16]							
		[1 5:8]							
		7: 0]							
	5.Command Status:	[7:4]	When the value is 0x0, the Command is a Programming Command。						
			When the value is 0x1, the Command is a Inquiry Command。						
		[3:0]	When the value is 0x0, Command is normal.						
			When the value is 0x1, Command is abnormal.						
6.Package No.: Initial value is 0x00, and it will increase with the number of packets sent during sub-packet									

transmission.

7. Data length: the length of the data segment in the current command. If the total length of the last command is set to 64byte, the packet label needs to be increased by 1 and then a supplementary command with a data length of 0byte is used to determine that the communication has ended. . If the get status command gets 64bytes, the packet label number needs to be increased by 1 and then another get command is issued to determine whether the communication has ended.

8. Data: The data content is determined by the corresponding instruction number. When the data length is 0byte, there is no need to fill in the content of this section.

9.CRC16 : CRC16 check is to perform CRC16 check on all data between the beginning of the packet header and before the CRC16 check. The verification is carried out in byte order starting from the packet header.

Online calculation of CRC check: <https://www.lammertbies.nl/comm/info/crc-calculation>, check data type is Hex, parameter model select CRC-16/IBM

10.End of packet: 0x50 0x41, used to determine the end of the command transmission.

## Appendix 4 ASCII Character Table

ASCII Character	ASCII Value	Function Key	Key Value	Keystroke
NUL (Null char.)	0x00	Null	0x00	Ctrl+2
SOH (Start of Header)	0x01	Keypad Enter	0x58	Ctrl+A
STX (Start of Text)	0x02	Caps Lock	0x39	Ctrl+B
ETX (End of Text)	0x03	Null	0x00	Ctrl+C
EOT (End of Transmission)	0x04	Null	0x00	Ctrl+D
ENQ (Enquiry)	0x05	Null	0x00	Ctrl+E
ACK (Acknowledgment)	0x06	Null	0x00	Ctrl+F
BEL (Bell)	0x07	Enter	0x28	Ctrl+G
BS (Backspace)	0x08	Left Arrow	0x50	Ctrl+H
HT (Horizontal Tab)	0x09	Horizontal Tab	0x2b	Ctrl+I
LF (Line Feed)	0x0a	Down Arrow	0x51	Ctrl+J
VT (Vertical Tab)	0x0b	Vertical Tab	0x2b	Ctrl+K
FF (Form Feed)	0x0c	Backspace	0x2a	Ctrl+L
CR (Carriage Return)	0x0d	Enter	0x28	Ctrl+M
SO (Shift Out)	0x0e	Insert	0x49	Ctrl+N
SI (Shift In)	0x0f	Esc	0x29	Ctrl+O
DLE (Data Link Escape)	0x10	F11	0x44	Ctrl+P

DC1 (XON) (Device Control 1)	0x11	Home	0x4a	Ctrl+Q
DC2 (Device Control 2)	0x12	Print Screen	0x46	Ctrl+R
DC3 (XOFF) (Device Control 3)	0x13	Delete	0x4c	Ctrl+S
DC4 (Device Control 4)	0x14	tab+shift	0x2b,0xe1	Ctrl+T
NAK (Negative Acknowledgement)	0x15	F12	0x45	Ctrl+U
SYN (Synchronous Idle)	0x16	F1	0x3a	Ctrl+V
ETB (End of Trans. Block)	0x17	F2	0x3b	Ctrl+W
CAN (Cancel)	0x18	F3	0x3c	Ctrl+X
EM (End of Medium)	0x19	F4	0x3d	Ctrl+Y
SUB (Substitute)	0x1a	F5	0x3e	Ctrl+Z
ESC (Escape)	0x1b	F6	0x3f	Ctrl+[
FS (File Separator)	0x1c	F7	0x40	Ctrl+\
GS (Group Separator)	0x1d	F8	0x41	Ctrl+]
RS (Request to Send)	0x1e	F9	0x42	Ctrl+6
US (Unit Separator)	0x1f	F10	0x43	Ctrl+-

---

## Appendix 5 ASCII Character Description

Bit	Dec	Hex	Cha/Description
0	0	0	NUL (NULL)
1	1	1	SOH (Start Of Headling)
10	2	2	STX (Start Of Text)
11	3	3	ETX (End Of Text)
100	4	4	EOT (End Of Transmission)
101	5	5	ENQ (Enquiry)
110	6	6	ACK (Acknowledge)
111	7	7	BEL (Bell)
1000	8	8	BS (Backspace)
1001	9	9	HT (Horizontal Tab)
1010	10	0A	LF/NL(Line Feed/New Line)
1011	11	0B	VT (Vertical Tab)
1100	12	0C	FF/NP (Form Feed/New Page)
1101	13	0D	CR (Carriage Return)
1110	14	0E	SO (Shift Out)
1111	15	0F	SI (Shift In)
10000	16	10	DLE (Data Link Escape)



10001	17	11	DC1/XON
			(Device Control 1/Transmission On)
10010	18	12	DC2 (Device Control 2)
10011	19	13	DC3/XOFF
			(Device Control 3/Transmission Off)
10100	20	14	DC4 (Device Control 4)
10101	21	15	NAK (Negative Acknowledge)
10110	22	16	SYN (Synchronous Idle)
10111	23	17	ETB (End of Transmission Block)
11000	24	18	CAN (Cancel)
11001	25	19	EM (End of Medium)
11010	26	1A	SUB (Substitute)
11011	27	1B	ESC (Escape)
11100	28	1C	FS (File Separator)
11101	29	1D	GS (Group Separator)
11110	30	1E	RS (Record Separator)
11111	31	1F	US (Unit Separator)

100000	32	20	(Space)
100001	33	21	!
100010	34	22	"
100011	35	23	#
100100	36	24	\$
100101	37	25	%
100110	38	26	&
100111	39	27	'
101000	40	28	(
101001	41	29	)
101010	42	2A	*
101011	43	2B	+
101100	44	2C	,
101101	45	2D	-
101110	46	2E	.
101111	47	2F	/
110000	48	30	0
110001	49	31	1
110010	50	32	2
110011	51	33	3
110100	52	34	4
110101	53	35	5

---

110110	54	36	6
110111	55	37	7
111000	56	38	8
111001	57	39	9
111010	58	3A	:
111011	59	3B	;
111100	60	3C	<
111101	61	3D	=
111110	62	3E	>
111111	63	3F	?
1000000	64	40	@
1000001	65	41	A
1000010	66	42	B
1000011	67	43	C
1000100	68	44	D
1000101	69	45	E
1000110	70	46	F
1000111	71	47	G
1001000	72	48	H
1001001	73	49	I
1001010	74	4A	J
1001011	75	4B	K

---

---

1001100	76	4C	L
1001101	77	4D	M
1001110	78	4E	N
1001111	79	4F	O
1010000	80	50	P
1010001	81	51	Q
1010010	82	52	R
1010011	83	53	S
1010100	84	54	T
1010101	85	55	U
1010110	86	56	V
1010111	87	57	W
1011000	88	58	X
1011001	89	59	Y
1011010	90	5A	Z
1011011	91	5B	[
1011100	92	5C	\
1011101	93	5D	]
1011110	94	5E	^
1011111	95	5F	_
1100000	96	60	`
1100001	97	61	a

---

---

1100010	98	62	b
1100011	99	63	c
1100100	100	64	d
1100101	101	65	e
1100110	102	66	f
1100111	103	67	g
1101000	104	68	h
1101001	105	69	i
1101010	106	6A	j
1101011	107	6B	k
1101100	108	6C	l
1101101	109	6D	m
1101110	110	6E	n
1101111	111	6F	o
1110000	112	70	p
1110001	113	71	q
1110010	114	72	r
1110011	115	73	s
1110100	116	74	t
1110101	117	75	u
1110110	118	76	v
1110111	119	77	w

---

---

1111000	120	78	x
1111001	121	79	y
1111010	122	7A	z
1111011	123	7B	{
1111100	124	7C	
1111101	125	7D	}
1111110	126	7E	~
1111111	127	7F	DEL (Delete)