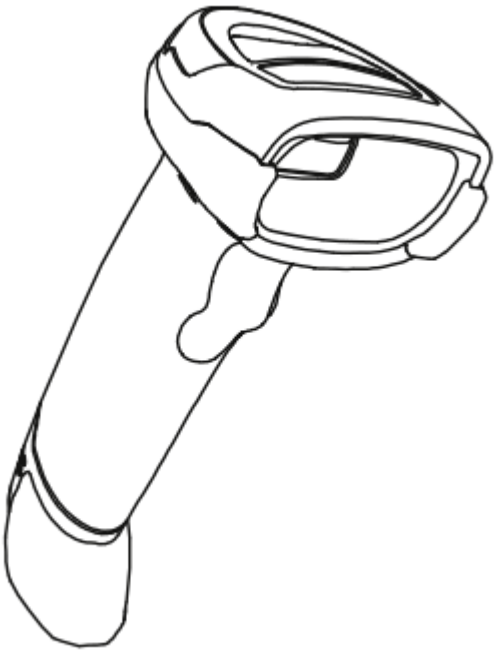
Handheld Barcode Scanner

N100



User Manual

Disclaimer

Please read all the contents of the manual carefully before using the products described in this manual to ensure the safe and effective use of the products. After reading, please keep this manual properly for the next time you use it.

Not disassemble or tear the sealed bidding of the scanner on your own, otherwise our company shall not assume the responsibility of warranty or replacement of the scanner.

The images in this manual are for reference only. If there are some pictures that Not match the actual product, please refer to the actual product. For the improvement and renewal of this product, our company reserves the right to modify the document at any time without notice.

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Change Record

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1.2	2019.02.28	Add multiple national keyboard barcodes
1.3	2019.07.03	Add barcode settings
1.4	2020.02.18	Add barcode settings

CONTENT

Chapter 1 Introduction 1
Appearance 2
Dimension 3
Scanner Data Cable Interface Definition 5
Interface 6
USB Cable Connection 7
RS-232 Cable Connection 8
Power on, Power off and Restart 9
Maintenance 9
Barcode Read 9
Use the Setting Barcode 10
Restore Factory Defaults 10
Chapter 2 Communication Interface 11
Serial Interface 11
RS232 General Serial Interface 11
Baud Rate 12
USB Interface 13
HID Virtual Keyboard 13
USB International Keyboard Setting 13
USB Virtual Serial Port 19
VID & PID Table 19
Chapter 3 Scanning Mode 20
Manual Mode 20
Sense Mode 20
Sensitivity 21
Continuous Mode 21
Command Programming 22
Chapter 4 Illumination and Aiming 23
Aiming 23
Illumination 23
Read success prompt tone 23
Chapter 5 Symbologies 24
1D Barcode Setting 24
ENA-8 24

Enable/Disable EAN-8 24
Enable/Disable 2/5-bit Add-On code 24
Convert EAN-8 to EAN-13 24
ENA-13 25
Enable/Disable EAN-13 25
Enable/Disable 2/5-bit Add-On code 25
UPC-E 25
Enable/Disable UPC-E 25
Transmit check character 25
Enable/Disable 2/5-bit Add-On code 26
Convert UPC-E to UPC-A 26
System character transmit 26
UPC-E1 27
Enable/Disable 2/5 Add-On code 27
UPC-A 27
Enable/Disable UPC-A 27
Transmit check character 28
Enable/Disable 2/5-bit Add-On code 28
Transfer system character 28
Code 39 29
Enable/Disable Code 39 29
Check character verification and transmit 29
Enable/Disable code 39 Full ASCII 29
Convert Code 39 to Code32 30
Code 32 prefix 30
Code 93 30
Enable/Disable code 93 30
Code 11 30
Enable/Disable code 11 30
Transmit check character 31
Code 128 31
Enable/Disable code 128 31
Code 128 <FNC4> 31
Codabar 32
Enable/Disable Codabar 32
Start and stop characters 32
MSI 32
Enable/Disable MSI 32

Check bit algorithm 33
Transmit check character 33
Interleaved 2 of 5 33
Enable/Disable Interleaved 2 of 5 33
Check and transmit character 33
Convert I 2 of 5 to EAN-13 34
Matrix 2 of 5 34
Enable/Disable Matrix 2 of 5 34
Check and transmit character 34
Industrial 2 of 5 35
Enable/Disable Industrial 2 of 5 35
Standard 25 35
Enable/Disable Standard 25 35
ISSN 35
ISBN 36
Data bit setting 36
ISBT 128 36
Enable/Disable ISBT 128 36
GS1 128 36
Enable/Disable GS1 128 36
Gs1-128 emulation mode for UCC/EAN composite code 36
GS1 DataBar 37
Enable/Disable GS1 DataBar 37
Convert GS1 DataBar to UPC/ENA 37
GS1 DataBar Limited 37
Enable/Disable GS1 DataBar Limited 37
GS1 DataBar Expanded 37
Enable/Disable GS1 DataBar Expanded 37
1D Barcode Inverse 38
1D Barcode Anti-color 38
2D Barcode Setting 39
PDF417 39
Enable/Disable PDF417 39
Data Matrix 39
Anti-color 39
Enable/Disable Data Matrix 39
Mirror Images 39
Inverse 40

QR....40
Enable/Disable QR....40
Enable/Disable Micro QR code....40
Inverse....40
Anti-color....41
Aztec....41
Inverse....41
Anti-color....41
Han Xin....42
Anti-color....42
Inverse....42
Chapter 7 Troubleshooting....43
Chapter 8 Scanner Settings....44
Serial Port Command Format....44
Barcode Setting Format....44
Version number——HYRS_RE....44
General settings (default HID single scan mode)....45
Host mode (CDC, HID, BT, COM）....45
Trigger mode (Single scanning, scanning continuously, auto sensing)....45
Default parameters (Restore factory settings)....45
Decoding timeout（0.1s~9s）....45
Data prefix....46
Data suffix....46
Aiming device (ON/OFF)....46
Illumination light (ON/OFF)....46
Baud rate of virtual serial port....47
Check bit of virtual serial port....47
Multi code quantity....47
Multi code sensitivity....47
Buzzer enable....47
The convert rate in HID mode....48
Timeout setting of the same barcode in non-single scan mode....48
Sensitivity....48
Center aiming decode setting....48
Virtual serial port mode command settings....50
Barcode function settings....51
ITF cut the first few bits of data....51
Convert grouping character to space....51

Remove zero data at the beginning of barcode 51
Remove or reduce space 51
Skip the number of characters before barcode data 52
Skip the number of characters after barcode data 52
Barcode data case conversion 52
Insert characters into barcode data 53
Compound command parameters 53
Common suffix 53
Appendix I Barcode Enabling Settings 54
Appendix II Data code prefix（0~9, A~F） 56
Appendix III Data code suffix（0~9, A~F） 57
Appendix IV ASCII Code Table 58

Chapter 1 Introduction

N100 uses the international leading chip intelligent image read technology, and it mainly uses for image-based 2D scanner.

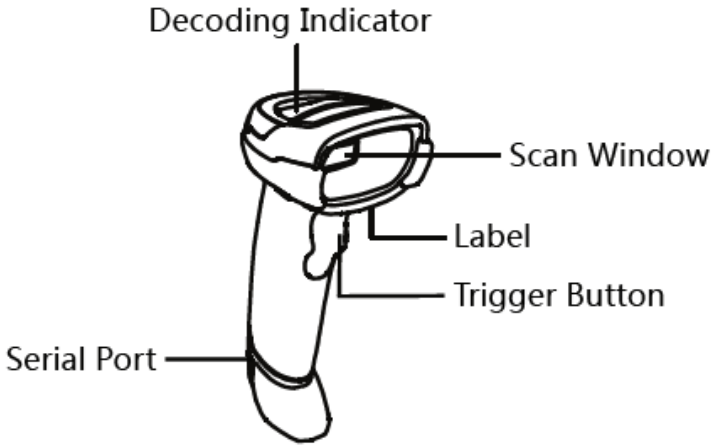
2D decoding chip combines the advanced image read algorithm with advanced chip design and manufacturing technology that greatly simplifies the design difficulty of 2D barcode to scan products, and establishes an excellent benchmark for high performance, high reliability and low power consumption of 2D l image products.

N100 can read all kinds of 1D barcodes and standard 2D barcodes (various versions of PDF417, QR code, and Data matrix) can easily scan paper, plastic cards, LCD and other barcode printed media. Its fully integrated design makes it easy to embed in a wide range of product applications.

About Manual

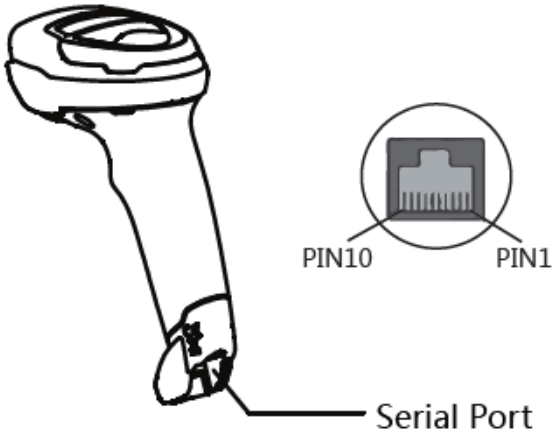
This guide mainly provides various functional setup instructions for N100. By scanning the setup barcodes in this guide, you can change the functional parameters of N100, such as communication interface parameters, scanning mode, prompt mode, data processing and output, etc. N100 provides parameter configurations that are suitable for most used functions at the factory. And in most cases users can put them into use without making adjustment. In most cases, users can put it into use without making adjustment.

Appearance

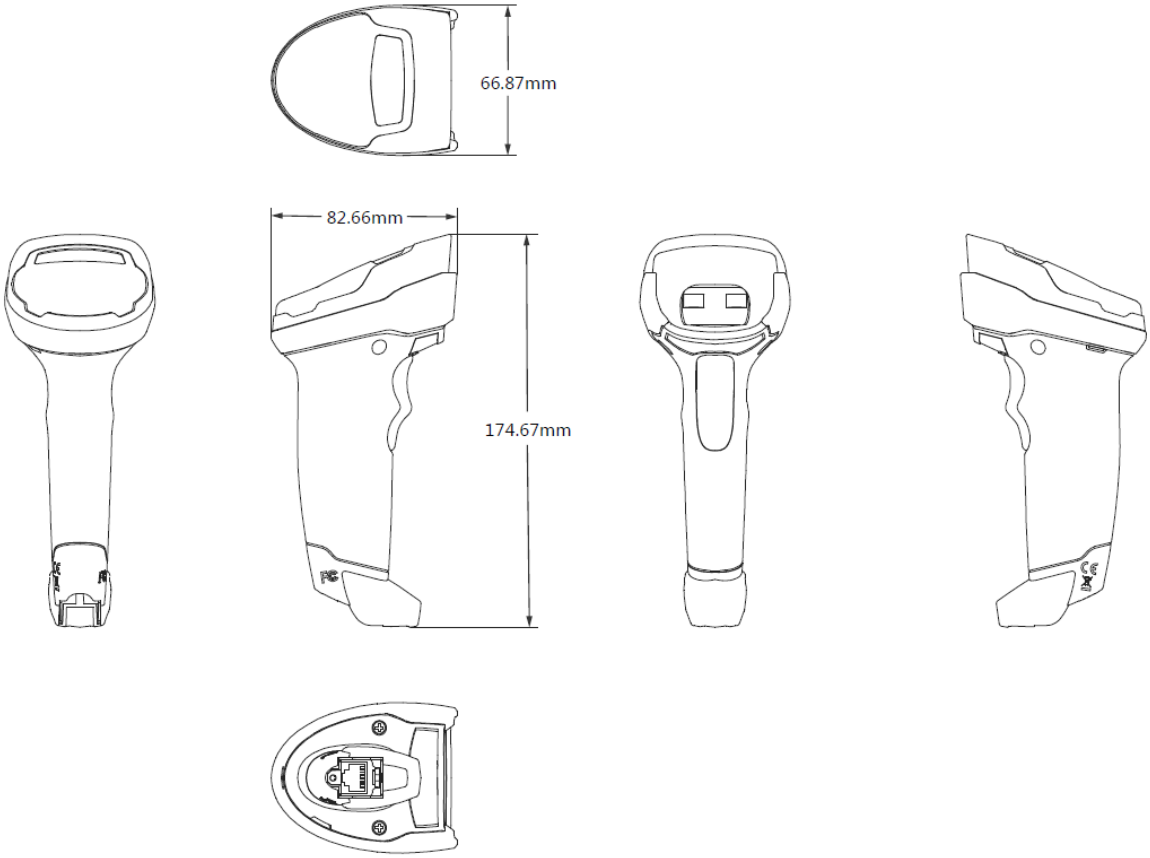


Illumination Definition

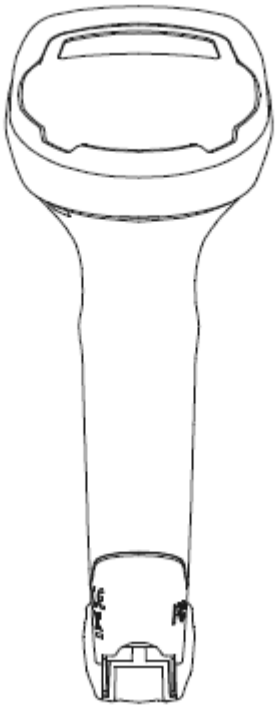
Green: decoding successfully



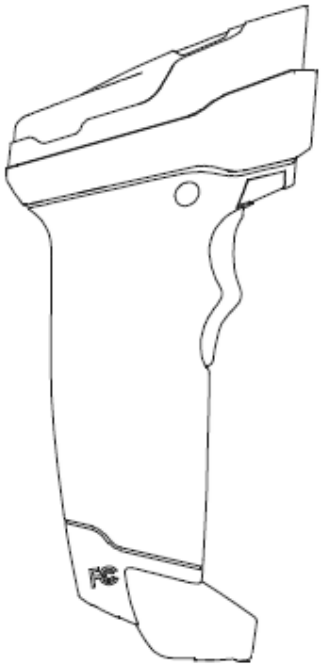
Dimension



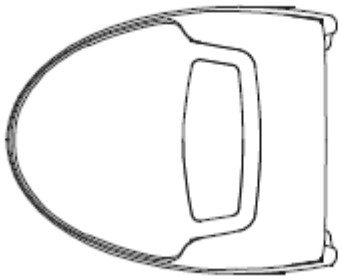
- **Left View**



- **Front View**



■ **Top View**



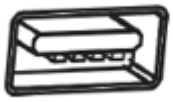
Scanner Data Cable Interface Definition

PIN	Define	Input / Output	Function
1	USB_DP	I/O	USB Signal
2	USB_DM	I/O	USB Signal
3	GND	POWER	Ground Wire
4	VBUS	POWER	Power, +5V
5	NC	NC	NC
6	GND	POWER	Ground Wire
7	CTS	I	RS232 Clear to Send
8	RTS	O	RS232 Request to Send
9	RXD	I	RS232 Receive
10	TXD	O	RS232 Send

Interface

The scanner must be connected to a Host in actual application, such as PC, POS or any intelligent terminal with USB orRS-232 port.

USB

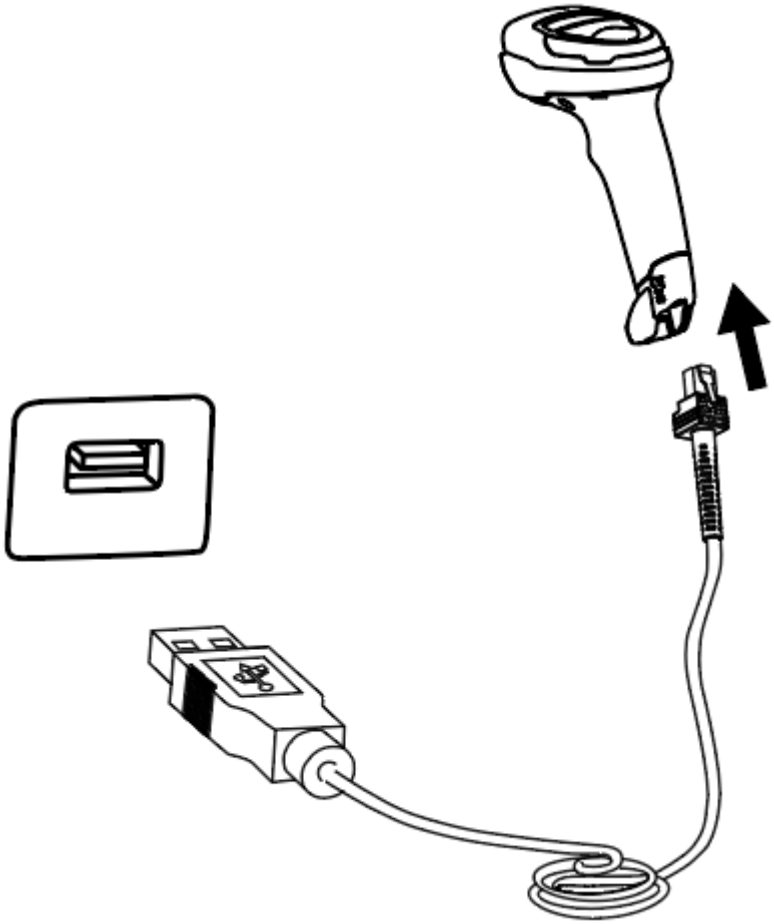


RS-232



Connect N100 to Host

USB Cable Connection

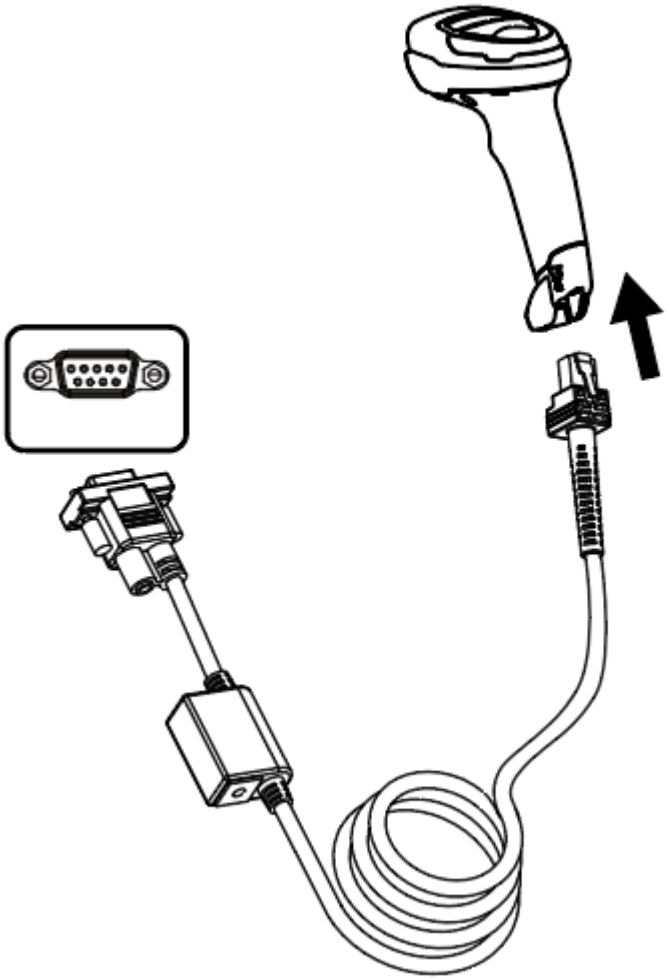


Connect the scanner to a Host through a USB cable with RJ45 and USB connectors:

1) Plug the RJ45 connector into the serial port on the scanner.

2) Plug the USB connector into the USB port on the Host.

RS-232 Cable Connection



Connect the scanner to a Host through an RS-232 cable with RJ45 and RS-232 connectors and a power jack:

1) Plug the RJ45 connector into the serial port on the scanner.

2) Plug the RS-232 connector into the RS-232 port on the Host.

3) Plug the supplied power adapter into the power jack on the RS-232 cable.

Power on, Power off and Restart

Power on: power on automatically when the scanner is connected to the host.

Power off: unplug the data cable.

Restart: if the scanner stops responding to input or runs abnormally please re-plug the data cable.

Maintenance

✧ The reading window must be kept clean. Supplier is exempt from warranty liability for damage caused by improper maintenance.

✧ Avoid hard and rough objects to scratch the reading window.

✧ Remove the stains from widow with a brush.

✧ Please use a soft cloth to clean the window, such as glasses cloth.

✧ Not spray any liquid on the window.

✧ Not use any cleaner other than cleaning water.

Barcode Read

In manual read mode, the procedure for scanning barcodes is as follows:

(1) Make sure that the scanner, data cable, data receiving host, and power supply are properly connected and turned on.

(2) Hold down the trigger to activate the light.

(3) Align the aiming line to the center of the barcode, move the scanner and adjust the distance between it and the barcode to find the optimal scanning distance.

(4) When hear the prompt sound, the infrared light goes out and the barcode reading successfully, then the scanner will decode the data to the host.

(5) All set barcodes are saved by power outage.

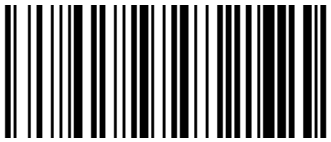
▲Note: For the same batch of barcodes, the scanner keeps a very high success ratio in certain distance which is regarded as the optimal scanning distance.

Use the Setting Barcode

Set the parameter to a special barcode whose barcode type is barcode128. When it scans to a barcode software that matches the setting type of setting, it will automatically enter the setting and does not send the results on the host. All set barcodes are saved by power outage. (except to restore factory settings)

Restore Factory Defaults

Note: Please use the "Restore Factory Defaults" function carefully, and when you scan this setup barcode, the current parameter settings will be lost and replaced with the factory default values.



Restore Factory defaults

Chapter 2 Communication Interface

N100 Handheld Barcode Scanner provides RS-232 serial interface and USB interface (optional) to connect to the host. Through communication interfaces, it can receive and read the data, control the scanner by sending the commands, and modify the parameter of scanner, etc.

Serial Interface

Serial interface is a common way to connect the scanner to the host (e.g. PC, POS devices). N100 handheld scanner provides RS-232 electrical level interface, which can directly connect to PC's serial interface. When using serial interface, the scanner and the host should be completely match with each other on communication parameter configuration, to ensure fluent communication and correct content.

The default serial interface parameter is as below shown, when it is inconsistent with the host, it can be modified by Read Setting Barcode.

Parameter	Default
Type of Serial Interface	USB virtual serial interface
Baud Rate	9600
Parity Type	None
Data Bits	8
Stop Bits	1
Hardware Flow Control	None

RS232 General Serial Interface



None (Default)



Odd parity



Even parity

Baud Rate

The unit of Baud Rate is bps: bits per second, the optional configuration parameter is as below shown:



115200



38400



19200



9600 (Default)



4800



2400



1200

USB Interface

HID Virtual Keyboard

When using USB interface, the scanner can be simulated as a HID-KBW device. In this mode, the scanner would be a virtual keyboard that output the data to the host.



HID Virtual Keyboard Setting

USB International Keyboard Setting



USA (Default)



Belgian



Finnish (Swedish)



French



German



Italian



Swiss (German)



British



Danish



Norwegian



Spanish



Dutch



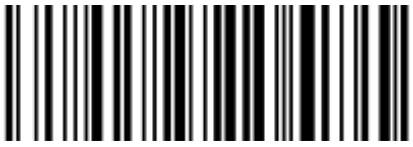
Hebrew



Portuguese



Latin(America)



Czech_DEC



Brazilian



Greek_DEC



Canadian (French)



Hungarian



Polish



SCS



Slovakian_DEC



Swedish



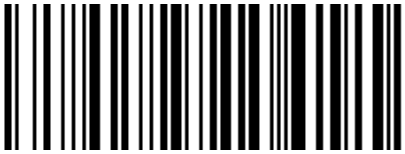
Turkish_Q



Romanian



Russian



Turkis_F

Japanese(ASCII)

Swiss(French)

USA(International)

Slovenian

Croatian

Bosnian

Macedonian

Albanian

Serbian(Latin)

Serbian(Cyrillic)

Czech_QWERTZ

Czech_QWERTY

Czech(Programmers)

Estonian

Latvian

Latvian_QWERT



Lithuania



Lithuanian (IBM)



Slovakian_QWERTZ



Slovakian_QWERTY



Hungarian_101_Key



Spanish(Variation)



Bulgarian(Cyrillic)



Bulgarian(Latin)



Canadian(French_Legacy)



Canadian(Multilingual)



Italian_142



Polish_214



Polish_Programmers



Brazilian_MS



Greek_Polytonic



Greek_220



Greek_319



Greek_Latin



Greek_220_Latin



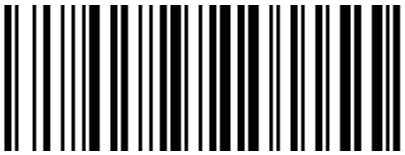
Greek_319_Latin



Greek_MS



Russia_MS



Russian(Typewriter)



Thai(Pattachote)



Thai(Kedmanee)



Irish



Maltese



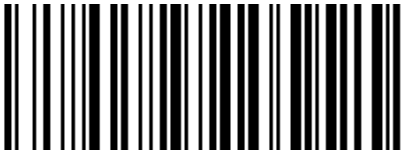
Icelandic



Ukrainian



Uzbek(Cyrillic)



Kazakh



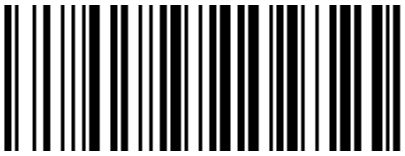
Kyrgyz(Cyrillic)



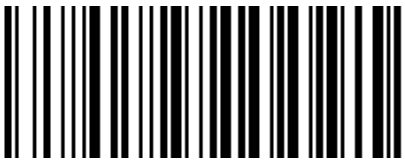
Azeri(Latin)



Azeri(Cyrillic)



Belarusian



Faeroese



Gaelic



Tatar



Mongolian(Cyrillic)

USB Virtual Serial Port

When the scanner uses a USB communication interface, but the host application uses serial communication to receive data, you can set the scanner to the USB virtual serial port. This function requires that be installed the appropriate driver on the host.



USB Virtual Serial Port Setting

VID & PID Table

USB uses 2 numbers to identify the device and find the correct device. The first number is VID (Supplier ID), designated by USB Implementers Forum. The second number is PID (Device ID), and each interface type assigns a PID number.

Device Name	Interface Type	PID（Hex）	PID（Decimal）
Scanner	USB virtual serial interface	1f3a	1009
	USB virtual keyboard	1f3a	100b

Chapter 3 Scanning Mode

Manual Mode

In manual mode, when the trigger control interface of the scanner changes into trigger electrical level, the scanner will start to shoot and read. In the limited time of “single reading time”, the scanner will continuously shoot and read until it is successful. When trigger electrical level is canceled, or read is over the single read time limit, shooting and reading will be stopped. When read is successful, the scanner will output the editing content through communication interface. When start a new trigger read, the host needs to cancel the trigger electrical level at first, and then send the trigger electrical level after 20ms.



Manual Mode

Sense Mode

In automatic sensing mode, the scanner will monitor the images being taken. When the scene is changed, it will read within the limited time of “single read time”. After reading the output information successfully or time out, it will re-enter the state of monitoring scene change.

When the scanner works in this mode, it can also according to the trigger electrical level to enter the reading state. After the trigger electrical level is canceled or reading times out, it will re-enter the state of monitoring scene change. Before re-entering the monitoring state, the trigger electrical level needs to be canceled, then it will be switched to the sensing mode.



Sensing Automatically

Sensitivity



Normal (Default)



Fast



Ultra-fast

✧ Single Reading Time

In sensing reading mode, the parameter indicates the maximum time of allowing reading engine to continuously collect and identify barcode before reading successfully. After reading successfully or single read timeout, the reading engine will enter the interval of not collecting the read. The range of single read time is 0.1~9.9s, step length is 0.1s. When set to 0, the read does not wait. Default time is 1s. Please refer to the Chapter 7 for the setting method.

Continuous Mode

Continuous mode means that the scanner continuously shoots, reads and output the information. In this mode, the same barcode cannot be output.



Continuous

✧ Single Reading Time Limit

In continuous mode, it indicates the maximum time of scanner continuously collect and identify barcode before reading successfully. If it times out, it will enter the interval of not collecting and reading according to the setting. The code reading time is 100ms in units, which can be set to 0.1~9.9s. When it be set to 0 that indicates no waiting. Please refer to chapter 7 of the setting method.

Command Programming

In this mode, scanner needs the host to trigger and decode the barcode. The scanner can set the length of the reading time. The reading code time can be set to 0.1~9.9s. When it be set to 0 that indicates no wait. Please refer to chapter 7 of the setting method.

Chapter 4 Illumination and Aiming

Aiming

There is a projecting device on the scanner that is used to project a special image when reading, which characterizes the center of the scene image taken by the scanner. When the scanner is used for shooting, the image is projected on the reading target, and the scanner aims at the reading target, which makes it easier to read the target.

Normal: The aiming device will light up and project the image during the reading process, and the other times goes out.
No aiming: the aiming device is off and not projected.



Aiming OFF



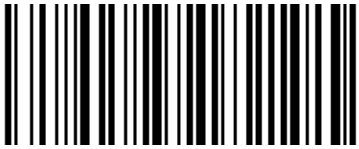
Aiming ON

Illumination

There is a fill illuminating device on the scanner that is used to illuminate the reading area when reading. It can be set to turn off and fill illuminating level. (Please refer to Chapter 8 for the lighting level setting)



Illumination ON



Illumination OFF

Read success prompt tone

After reading successfully, the scanner can output PWM signal to drive the external buzzer circuit to make sound. The sound signal can be turned on or off by setting. The corresponding settings can be made through the following setting codes.



Turn on



Turn off

Chapter 5 Symbologies

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

1D Barcode Setting

ENA-8

Enable/Disable EAN-8


Enable (Default)


Disable

Enable/Disable 2/5-bit Add-On code

The 2/5-digit Add-On code refers to the 2/5-digit digital barcode added after the ordinary barcode.


Enable (Default)


Disable


Auto

Convert EAN-8 to EAN-13

The result is converted to EAN-13, i.e. the barcode data of EAN-8 is filled with 5 bits of 0 before transmission.


Convert EAN-8 to EAN-13 (Default)


Disable

ENA-13

Enable/Disable EAN-13



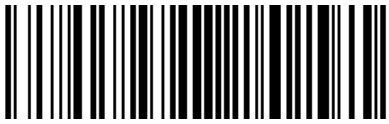
Enable (Default)



Disable

Enable/Disable 2/5-bit Add-On code

The 2/5-digit Add-On code refers to the 2/5-digit digital barcode added after the ordinary barcode.



Enable (Default)



Disable



Auto

UPC-E

Enable/Disable UPC-E



Enable (Default)



Disable

Transmit check character

UPC-E barcode data is fixed to 8 characters, and the eighth character is the check bit, which is used to check the correctness of all 8 characters.



Transmit check character (Default)



Disable

Enable/Disable 2/5-bit Add-On code

The 2/5-digit Add-On code refers to the 2/5-digit digital barcode added after the ordinary barcode.



Enable (Default)



Disable



Auto

Convert UPC-E to UPC-A

The chip can convert the decoding results of UPC-E type barcodes to UPC-A type barcodes according to standard algorithms.



Convert UPC-E to UPC-A



Disable (Default)

System character transmit

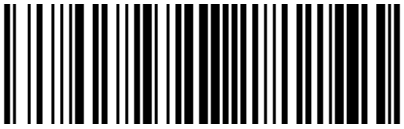


Transmit system character (Default)



Transmit system character and country code

("0" only for USA)



Disable

UPC-E1



Transmit system character (Default)



Transmit system character and country code

("0" only for USA)



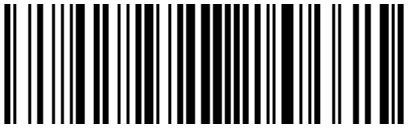
Not transmit preamble

Enable/Disable 2/5 Add-On code

The 2/5-digit Add-On code refers to the 2/5-digit digital barcode added after the ordinary barcode.



Enable (Default)



Disable



Auto

UPC-A

Enable/Disable UPC-A



Enable (Default)



Disable

Transmit check character

UPC-A bar code data is fixed to 13 characters, and the 13th character is check bit, which is used to check the correctness of all 13 characters.



Transmit check character (Default)



Disable

Enable/Disable 2/5-bit Add-On code

The 2/5-digit Add-On code refers to the 2/5-digit digital barcode added after the ordinary barcode.



Enable (Default)



Disable



Auto

Transfer system character



Transmit system character (Default)



Transmit system character and country cod
(“0” only for USA)



Disable

Code 39

Enable/Disable Code 39



Enable (Default)



Disable

Check character verification and transmit

Code 39 barcode data does not contain a check character. If there is a check character, it is the last character of the data. A check character is a value calculated from all data to verify that the data is correct.



Not check (Default)



Check

Transmit check character



Transmit check character



Disable (Default)

Enable/Disable code 39 Full ASCII

Code 39 data can include all ASCII characters, but the reader can only read part of ASCII characters by default. Through setting, the function of reading full ASCII characters can be turned on.



Disable (Default)



Enable

Convert Code 39 to Code32



Enable



Disable (Default)

Code 32 prefix



Enable add prefix character "a"



Disable (Default)

Code 93

Enable/Disable code 93



Enable (Default)



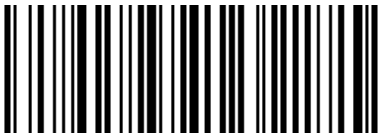
Disable

Code 11

Enable/Disable code 11



Enable



Disable (Default)

Check Setting

Code 11 barcode data does not contain the check digit. If there is a check digit, it can be the last one or two characters of the data. The check bit is the value calculated from all data to check whether the data is correct. Therefore, if it is set to "Not check", the reader will normally transmit all barcode data.



Not check (Default)



1-bit check



2-bit check

Transmit check character



Transmit check character



Disable (Default)

Code 128

Enable/Disable code 128



Enable (Default)



Disable

Note: if this barcode is set to disable, the scanner will not be able to scan and switch the corresponding function settings.

Code 128 <FNC4>



Disable (Default)



Enable

Codabar

Enable/Disable Codabar



Enable (Default)



Disable

Start and stop characters



Enable CLSI



Disable CLSI (Default)

Enable this parameter to remove the start and stop characters, and insert spaces after the first, fifth and tenth characters of the 14-character Codabar barcode.



Enable NOTIS



Disable NOTIS (Default)

Enable this parameter to remove the start and stop characters.

MSI

Enable/Disable MSI



Enable



Disable (Default)

Check Setting

MSI barcode data does not contain the check digit. If there is a check digit, it can be the last one or two characters of the data. The check bit is the value calculated from all data to check whether the data is correct. Therefore, if it is set to "Not check", the reader will normally transmit all barcode data.



1-bit check



2-bit check

Check bit algorithm



1 MSI MOD10/MOD10 (Default)



2 MSI MOD10/MOD11

Transmit check character



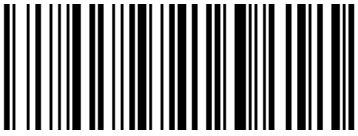
Transmit check character



Disable (Default)

Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5



Enable (Default)



Disable

Check and transmit character

Interleaved 2 of 5 barcode data does not contain the check digit. If there is a check digit, it can be the last one or two characters of the data. The check bit is the value calculated from all data to check whether the data is correct. Therefore, if it is set to "Not check", the reader will normally transmit all barcode data.



Not check (Default)

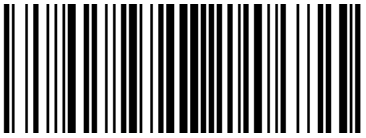


USS check

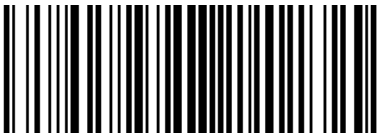


OPCC check

Transmit check character:



Transmit check character



Disable (Default)

Convert I 2 of 5 to EAN-13



Convert I 2 of 5 to EAN-13



Disable (Default)

Matrix 2 of 5

Enable/Disable Matrix 2 of 5



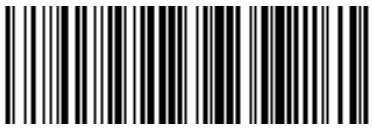
Enable



Disable (Default)

Check and transmit character

Matrix 2 of 5 barcode data does not contain the check digit. If there is a check digit, it can be the last one or two characters of the data. The check bit is the value calculated from all data to check whether the data is correct. Therefore, if it is set to "Not check", the reader will normally transmit all barcode data.



Not check (Default)



Check

Transmit check character



Transmit check character



Disable (Default)

Industrial 2 of 5

Enable/Disable Industrial 2 of 5



Enable



Disable (Default)

Standard 25

Enable/Disable Standard 25



Enable



Disable (Default)

ISSN



Enable



Disable (Default)

ISBN



Enable



Disable (Default)

Data bit setting



Use 13 bits (Default)



Use 10 bits

ISBT 128

Enable/Disable ISBT 128



Enable (Default)



Disable

GS1 128

Enable/Disable GS1 128



Enable (Default)



Disable

Gs1-128 emulation mode for UCC/EAN composite code



Disable (Default)



Enable

GS1 DataBar

Enable/Disable GS1 DataBar



Enable (Default)



Disable

Convert GS1 DataBar to UPC/ENA



Convert DataBar to UPC/ENA



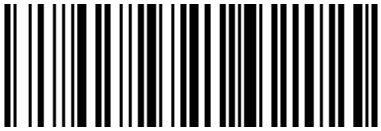
Disable (Default)

GS1 DataBar Limited

Enable/Disable GS1 DataBar Limited



Enable



Disable (Default)

GS1 DataBar Expanded

Enable/Disable GS1 DataBar Expanded



Enable



Disable (Default)

1D Barcode Inverse



Disable(Default)



Enable



Automatic detection

1D Barcode Anti-color



Auto (Default)



Disable

2D Barcode Setting

PDF417

Enable/Disable PDF417



Enable (Default)



Disable

Data Matrix

Anti-color



Auto (Default)



Disable



Only read Anti-color color

Enable/Disable Data Matrix



Enable (Default)



Disable

Mirror Images



Auto (Default)



Enable



Disable

Inverse



Disable (Default)



Enable



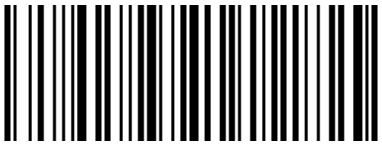
Auto

QR

Enable/Disable QR



Enable (Default)



Disable

Enable/Disable Micro QR code

(this setting is only valid when enable QR)



Enable (Default)



Disable

Inverse



Disable (Default)



Enable



Auto

Anti-color



Auto (Default)



Only read Anti-color color



Disable

Aztec

Inverse



Disable (Default)



Enable



Auto

Anti-color



Auto (Default)



Only read Anti-color color



Disable

Han Xin

Anti-color



Auto (Default)



Only read Anti-color color



Disable

Inverse



Disable (Default)



Enable



Auto

Chapter 7 Troubleshooting

Q: There are some barcodes cannot be scanned.

A: Check the barcode type, open the barcode function; if it is verified, try to turn off.

Q: The barcode data is incorrect.

A: Check the error display of barcodes (all barcodes errors or specific barcode error)

Q: Barcode can be read but not displayed.

A: Firstly, confirm the working mode of the scanner. If it is in RS-232 serial port mode, you need to connect with serial cable; if it is in USB virtual serial port mode, you need to connect with USB cable, and the host accepts with serial port tool. Both modes need to ensure that the serial port attribute of the serial port tool on the host is consistent with the serial port attribute of the device. If it is connected to a HID virtual keyboard, then directly connected by a USB cable.

Q: Aiming Light and Illumination are not bright.

A: Check whether the device is powered on.

Re-plug the data cable.

Chapter 8 Scanner Settings

Serial Port Command Format

Length	Operand	Host/Slave	Permanent Command	Data	Checksum
Length	Operand	H/D	Status	Data	CRC
1 BYTE	1 BYTE	1 BYTE	1 BYTE	1 BYTE~250BYTE	1 BYTE

Length	operands + H/D + permanent command + data
Operand	The operand is the following command data
Host/Slave	Indicates whether this command is sent from the host or from the slave Host: 0x04 / Slave: 0x00
Permanent command	Indicates whether this command requires power-down save 0x08 requires power-down save 0x00 does not require power-down save
Data	Indicates parameter data carried by this command
Checksum	Check and algorithm: After all the previous data are added and reversed, take a low byte of 8 bits

Barcode Setting Format

Prefix	Operand	Data
5 BYTES	1 BYTE	1BYTE~250BYTE

Set barcode	Code 128 type Barcode
Prefix	Fixed prefix: +N+S-
Operand	The operand is the following command data
Data	Indicates parameter data carried by this command

Version number——HYRS_RE



General settings (default HID single scan mode)

Host mode (CDC, HID, BT, COM）

Operand: 0x41

	USB Virtual Serial Port	USB Virtual Keyboard	BT	General Serial Port
Data	0x02	0x01	0x03	0x04

Set scanner interface mode

Trigger mode (Single scanning, scanning continuously, auto sensing)

Operand: 0x42

	Button Trigger	Light continuously	Auto sensing
Data	0x00(Default)	0x01	0x02

Set the scanning mode of the scanner

Default parameters (Restore factory settings)

Operand: 0x43

Data: 0x00

Restore to default parameters of factory settings.

Decoding timeout（0.1s~9s）

Operand: 0x44

	0.1s	0.2s	.....	9.7s	9.8s	9.9s
Data	0x01	0x02	.....	0x61	0x62	0x63(Default)

When setting barcode reading, if the barcode is not read, it will stop reading the code time.

Data prefix

Operand: 0x52

	Disable	Custom Define
Data0	0x00(Default)	0x01~0xfd
Data1	0x00	0x01~0xfd

Note:

1. If the character set to be *0x20*, you need to set the *data = 0xFE*.
2. If only one character is set, you need to set another to *0x00 Disable.*

Data suffix

Operand: 0x45

	Disable	Custom Define
Data0	0x00(Default)	0x01~0xfd
Data1	0x00	0x01~0xfd

Note:

1. If the character set to be *0x20*, you need to set the *data = 0xFE*.
2. If only one character is set, you need to set another to *0x00 Disable.*
3. The default of *Data1* is *0x0a.*

Aiming device (ON/OFF)

Operand: 0x46

	ON	OFF
Data	0x01(Default)	0x00

Illumination light (ON/OFF)

Operand: 0x47

	OFF	Level 1	Level 2	.....	Level 9	Level 10
Data	0x00	0x01	0x02	.....	0x09	0x0A

Data: When the fill light is 0, it is closed.

Baud rate of virtual serial port

Operand: 0x48

	115200	38400	19200	9600	4800	2400	1200
Data	0x00	0x01	0x02	0x03(Default)	0x04	0x05	0x06

Set serial port baud rate, this setting applies to USB virtual serial port and normal serial port only.

Check bit of virtual serial port

Operand: 0x49

	Non-Check	Odd Check	Even Check
Data	0x00(Default)	0x01	0x02

Set the check method of serial port.

Multi code quantity

Operand: 0x4B

	OFF	2	3	.....	6	7
Data	0x00	0x02	0x03	.....	0x06	0x07

Set whether to start scanning multiple barcode modes at the same time and set the number of scanning barcodes simultaneously.

Multi code sensitivity

Operand: 0x4C

	Level 1	2	3	.....	9	10
Data	0x00	0x01	0x03	.....	0x09	0x0A

Note: the higher the level, the stronger the ability to decode the double code, but the corresponding time to decode the single code will be longer.

Buzzer enable

Operand: 0x4D

	Enable	Disable
Data	0x01 (Default)	0x00

The convert rate in HID mode

Operand: 0x4E

	Fast	Normal	Slow
Data	0x01	0x02 (Default)	0x0a

Timeout setting of the same barcode in non-single scan mode

Operand: 0x4F

	Variable
Data	0x00~0x63

Data:

0x00 indicates that there is no Timeout Invalid. If there is a barcode, it can still output.

0x01 indicates the timeout of 100ms.

0x63 indicates the timeout 9.9s.

Sensitivity

Operand: 0x51

	Normal	Fast	Ultra-Fast
Data	0x00(Default)	0x01	0x02

Note: Ultra-fast mode in auto-sensing mode, the sensing distance of the scanning paper barcode will be reduced significantly.



Normal (Default)



Fast



Ultra-fast

Center aiming decode setting

Operand: 0x53

	Enable	Disable
Data	0x01(Default)	0x00

■ Commands that support only barcodes

Set F1~F12 (only analog key output is supported)

Set the barcode content as follows:

Name	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
Value	0x16	0x17	0x18	0x19	0x1A	0x1B	0x1C	0x1D	0x1E	0x1	0x10	0x15

Users can directly write the appropriate data to generate the appropriate barcode, then scan the barcode can achieve the function of virtual key output.

Take the F12 function barcode as an example, write the following data to generate barcode.



Virtual serial port mode command settings

Start scanning

Operand: 0xE4

Data: 0x00

This feature only supports serial mode.

Stop scanning

Operand: 0xE5

Data: 0x00

This feature only supports serial mode.

Setting barcode convert mode

Operand: 0xEE

Data:

1: Barcode Convert Mode is pack mode

0: Barcode Output Mode is normal mode

Set Illumination prompt switch

Operand: 0xEB

Data:

1: ON

0: OFF

Barcode function settings

ITF cut the first few bits of data

Operand: 0x55

	Enable	Disable
Data	0x01 (Default)	0x02~0x32

Note: 0x02 indicates cutting the first data;

0x32 indicates cutting 49 data from the front.



Disable



Cut the first data



Cut the top 5 data

Convert grouping character to space



Disable

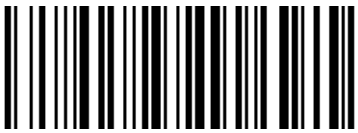


Enable

Remove zero data at the beginning of barcode



Disable



Enable

Remove or reduce space



Disable



Remove or reduce spaces



Reduce multiple consecutive spaces to one space

Skip the number of characters before barcode data

Operand: 0x59

data: *0: Do not skip barcode data

1-31: skip the number of characters before barcode data



*Not skip barcode data



Skip 1 character before barcode data



Skip 5 character before barcode data

Skip the number of characters after barcode data

operand: 0x5A

data: *0: Do not skip barcode data

1-31: skip the number of characters after barcode data



*Not skip barcode data



Skip 1 character after barcode data



Skip 5 character after barcode data

Barcode data case conversion



*Disable case conversion



Convert barcode data into upper case



Convert barcode data into lower case

Insert characters into barcode data

(up to 8 characters)

Operand: 0x5C

Data:

Data0 ~ data1: the position of the inserted data in the barcode data

Data2: data inserted in corresponding position (range: 0x01 ~ 0x7F)

Note: Data0 ~ data1

Calculation method: data0 = (x/64) +0x20 data1 = (x%64) +0x20, where x is the position of the character to be inserted (range: 1 ~ 6143).

When Data0 = 0x00, data1 = 0x00, clear all inserted data.

When Data0 = 0x00, data1 = 0x01~0x08, the insertion data of corresponding coordinates shall be cleared, and the coordinates shall be arranged in ascending order.

Compound command parameters

Operand: 0x5D

Data: Data0~dataN (range: 0 ~ N, N is any number)

Note: QR code is used for barcode type setting. Specific restart commands are not supported for composite commands, such as setting interface mode and restoring factory settings.

Specific command format:

Data0: specific command length, including command and command data

Data1: specific command

Data2 or data2 ~ data3: there are multiple command data setting commands in the specific command. Each specific command needs to be written according to the specific command format.

Common suffix



Add suffix LF



Add suffix CR



Add suffix LF+CR



Add suffix TAB

Appendix I Barcode Enabling Settings

Operand: 0x40

Data: 2BYTE data

Set the barcode enabling parameter, DATA 0 is the barcode parameter, DATA 1 is the barcode parameter variable.

The following is the parameter default value. 0 is OFF, 1 is ON

Barcode Type	Barcode Parameter		Parameter Variable	Default Status
	Decimal	HEX		
UPC-A	1	0x01	1	Enable
UPC-E	2	0x02	1	Enable
UPC-E1	3	0x03	0	Disable
EAN-8/JAN	4	0x04	1	Enable
EAN-13/JAN	5	0x05	1	Enable
Bookland EAN	6	0x06	0	Disable
ISSN EAN	7	0x07	0	Disable
code 128	8	0x08	1	Enable
GS1-128	9	0x09	1	Enable
ISBT 128	10	0x0A	1	Enable
Code 39	11	0x0B	1	Enable
Trioptic Code 39	12	0x0C	0	Disable
Code 93	13	0x0D	1	Enable
Code 11	14	0x0E	0	Disable
Interleaved 2 of 5	15	0x0F	1	Enable
Discrete 2 of 5	16	0x10	0	Disable
Chinese 2 of 5	17	0x11	0	Disable
Korean 3 of 5	18	0x12	0	Disable
Matrix 2 of 5	19	0x13	0	Disable
Codabar	20	0x14	1	Enable
MSI	21	0x15	0	Disable
US Postnet	22	0x16	1	Enable
US Planet	23	0x17	1	Enable
UK Postal	24	0x18	1	Enable
Japan Postal	25	0x19	1	Enable
Australia Post	26	0x1A	1	Enable

Netherlands KIX Code	27	0x1B	1	Enable
USPS 4CB	28	0x1C	0	Disable
UPU FICS Postal	29	0x1D	0	Disable
GS1 DataBar-14	30	0x1E	1	Enable
GS1 DataBar Limited	31	0x1F	0	Disable
GS1 DataBar Expanded	32	0x20	0	Disable
Composlte CC-C	33	0x21	0	Disable
Composlte CC-A/B	34	0x22	0	Disable
Composlte TLC-39	35	0x23	0	Disable
PDF417	36	0x24	1	Enable
MicroPDF417	37	0x25	1	Enable
Data Matrix	38	0x26	1	Enable
Maxicode	39	0x27	1	Enable
QR Code	40	0x28	1	Enable
MicroQR	41	0x29	1	Enable
Aztec	42	0x2A	1	Enable
Han Xin	43	0x2B	1	Enable
Convert UPC-E to A	44	0x2C	0	Disable
Convert UPC-E1 to A	45	0x2D	1	Enable
EAN-8/JAN-8 Extend	46	0x2E	1	Enable
UCC Coupon Extended Code	47	0x2F	0	Disable
ISBT Concatenation	48	0x30	1	Enable
Convert Code 39 to Code 32	49	0x31	1	Enable
Convert I 2 of 5 to EAN 13	50	0x32	0	Disable
Convert GS1 DataBar to UPC/EAN	51	0x33	0	Disable
Code 128 Emulation	52	0x34	0	Disable

Appendix II Data code prefix（0~9, A~F）



Clear



1



2



3



4



5



6



7



8



9



A



B



C



D



E



F

Appendix III Data code suffix（0~9, A~F）



Clear



1



2



3



4



5



6



7



8



9



A



B



C



D



E



F

Appendix IV ASCII Code Table

Hexadecimal	Decimal	Character
00	0	NUL （Null char.）
01	1	SOH （Start of Header）
02	2	STX （Start of Text）
03	3	ETX （End of Text）
04	4	EOT （End of Transmission)
05	5	ENQ （Enquiry）
06	6	ACK （Acknowledgment）
07	7	BEL （Bell）
08	8	BS （Backspace）
09	9	HT （Horizontal Tab）
0a	10	LF （Line Feed）
0b	11	VT （Vertical Tab）
0c	12	FF （Form Feed）
0d	13	CR （Carriage Return）
0e	14	SO （Shift Out）
0f	15	SI （Shift In）
10	16	DLE （Data Link Escape）
11	17	DC1 （XON）（Device Control 1）
12	18	DC2 （Device Control 2）
13	19	DC3 （XOFF）（Device Control 3）
14	20	DC4 （Device Control 4）
15	21	NAK （Negative Acknowledgment）
16	22	SYN （Synchronous Idle）
17	23	ETB （End of Trans. Block）
18	24	CAN （Cancel）
19	25	EM （End of Medium）
1a	26	SUB （Substitute）
1b	27	ESC （Escape）
1c	28	FS （File Separator）
1d	29	GS （Group Separator）
1e	30	RS （Request to Send）
1f	31	US （Unit Separator）
20	32	SP （Space）

21	33	! （Exclamation Mark）
22	34	" （Double Quote）
23	35	# （Number Sign）
24	36	$ （Dollar Sign）
25	37	% （Percent）
26	38	& （Ampersand）
27	39	` （Single Quote）
28	40	(（Right / Closing Parenthesis）
29	41	) （Right / Closing Parenthesis）
2a	42	* （Asterisk）
2b	43	+ （Plus）
2c	44	, （Comma）
2d	45	- （Minus / Dash）
2e	46	. （Dot）
2f	47	/ （Forward Slash）
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	: （Colon）
3b	59	; （Semi-colon）
3c	60	< （Less Than）
3d	61	= （Equal Sign）
3e	62	> （Greater Than）
3f	63	? （Question Mark）
40	64	@ （AT Symbol）
41	65	A
42	66	B
43	67	C
44	68	D

45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[（Left / Opening Bracket）
5c	92	\ （Back Slash）
5d	93	] （Right / Closing Bracket）
5e	94	^ （Caret / Circumflex）
5f	95	_ （Underscore）
60	96	' （Grave Accent）
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e
66	102	f
67	103	g
68	104	h

69	105	i
6a	106	j
6b	107	k
6c	108	l
6d	109	m
6e	110	n
6f	111	o
70	112	p
71	113	q
72	114	r
73	115	s
74	116	t
75	117	u
76	118	v
77	119	w
78	120	x
79	121	y
7a	122	z
7b	123	{ （Left/ Opening Brace）
7c	124	| （Vertical Bar）
7d	125	} （Right/Closing Brace）
7e	126	~ （Tilde）
7f	127	DEL （Delete）