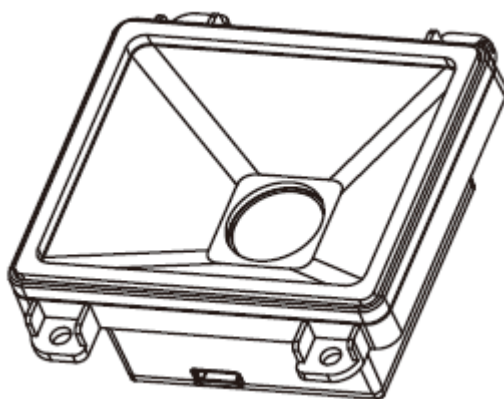




Embedded Barcode Scanner Module

HE-1218WA-000R



User Manual

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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.

Do 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 do 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

Rev.	Date	Description
1.0	2019.04	--

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Chapter 1 Introduction

HE-1218WA-000R barcode reading engine uses the intelligent image recognition technology and initiate a new era of an image of 2D barcode recognizing engine.

2D decoding chip combines the advanced image recognition algorithm with the advanced chip design and manufacturing technology perfectly that greatly simplifies the 2D barcode recognizing product design difficulty and establish an excellent benchmark for high performance, high reliability, low power consumption of 2D imaging products.

HE-1218WA-000R can recognize a variety of 1D barcodes and standard 2D barcodes (PDF 417, QR Code Model 1/2, Micro QR and Data Matrix). It also supports the recognizing of GS1-DataBar™ (RSS) barcodes, including Limited, Stacked, Expanded, and other versions.

LED

It has white LED that provide exposure to auxiliary lighting. Lighting functions can be turned on or off by setting.

Aiming

HE-1218WA-000R do no provided aiming instructions, if the barcode can be recognized in the recognizing angle and depth of field.

Chapter 2 Installation

2.1 General requirements

Electro-Static discharge (ESD)

The HE-1218WA-000R has been designed to electro-static protection and used an anti-static packaging. But it is necessary to pay attention to anti-static measures during the unpacking and use, such as grounding wristband and working area grounding.

Dust-proof and antifoul

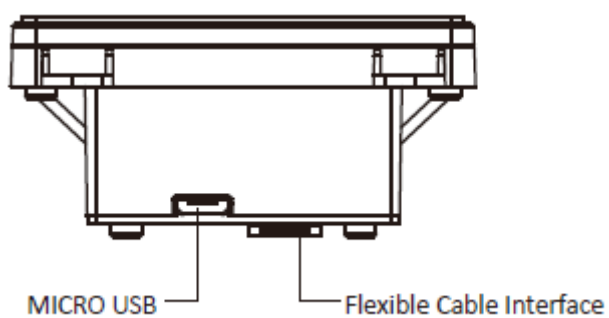
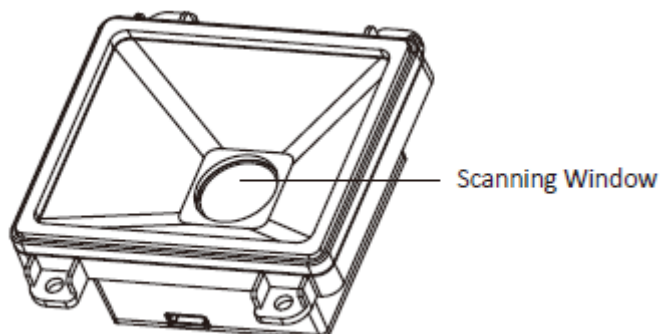
The HE-1218WA-000R must be sealed sufficiently during storage and use to prevent dust, particles or others from aggregating on lenses, circuit boards, and other components. Dust particles or contaminants can degrade engine performance and even affect engine use.

Cooling design

The HE-1218WA-000R emits heat at work. Under the condition at full speed for a long time, accumulation heat will increase the temperature of CIS chip and decoder chip. Although it can be adapted to work in a high temperature environment, it will increase the image noise of CIS and reduce the image quality and recognizing performance in high temperature environment. When using it in a high temperature environment, it is recommended to test whether the recognizing performance degradation is within acceptable range, and then to determine whether proper heat dissipation design is carried out.

- Space is reserved for HE-1218WA-000R to form natural or forced convection at design.
- Avoid using insulation materials such as rubber to wrap HE-1218WA-000R.

Mounting orientation



2.2 Optical correlation

Window placement

The window is made of transparent media installed in front of the HE-1218WA-000R engine, which is used to separate the internal and external parts of the product and retain the barcode-aware light path for the HE-1218WA-000R. The window should be placed as far as possible to shoot lighting and aiming beams are ejected and reflection is prevented from entering the engine. If the illumination is reflected into the engine that will reduce the recognizing performance of the engine.

The installation of the window is recommended close to the front of the HE-1218WA-000R engine and parallel to the front plane of the HE-1218WA-000R so that can achieve a good recognizing performance. Avoid the light of the HE-1218WA-000R entering the engine through the window reflection, so the thickness of the window material should be reduced as much as possible.

If the window needs to be tilted, it is required to be the same as the parallel installation, and the tilt angle should be guaranteed that there is no light that can be reflected back to the lens to ensure the recognition performance.

Window materials and color

The selection of the material and color of the window should take the responsive wavelength of the light of HE-1218WA-000R CIS into account (mainly the white light band) to make the light transmittance as high as possible and ensure low ambiguity, uniform refractive index at the same time. Usually PMMA or optical glass can be used. The white light transmittance of window material is more than 90% and the ambiguity is less than 1%. Whether the transmittance coating is used on the window material depends on the specific material and application.

Window scraping and coating

The scratches on the window will reduce the recognizing performance of HE-1218WA-000R. It is recommended that the window anti-fouling and select high abrasion resistant materials or use a wear-resistant coating on the window should be considered in the design.

Ambient light

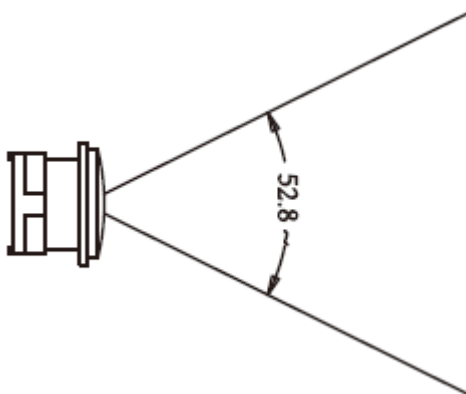
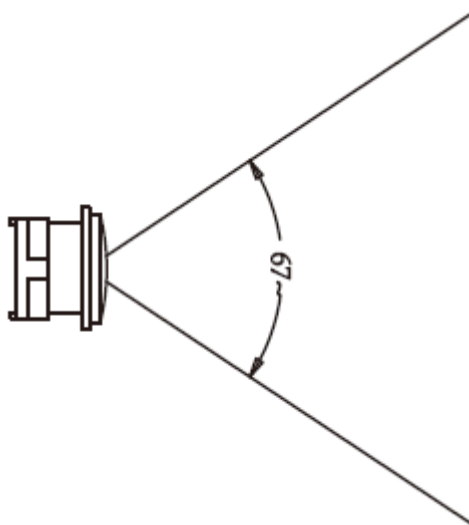
HE-1218WA-000R can achieve better performance when there is ambient light, and it can be well adapted to the alternating current flicker of 50~60Hz lighting. However, when used in high-frequency pulsed flash environments, which performance may be reduced due to interference.

Human eye safety

The HE-1218WA-000R uses light-emitting diode (LED) to form aiming indication graphics and lighting. The range of wavelengths generated by the LED in the usual way of use is safe. However, you should still avoid looking directly at the LED or shooting the light into the eye to avoid discomfort.

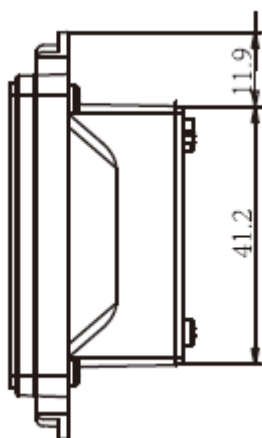
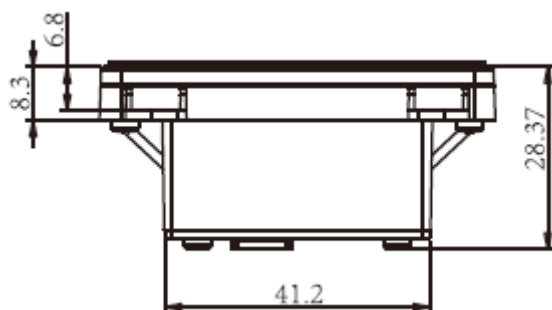
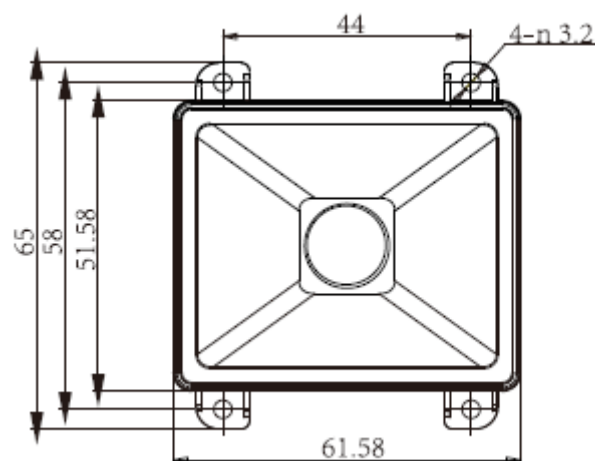
Window size

The size of the window is designed to ensure that the area of the field of view is not obscured, on the basis of which the illumination area is not obscured as far as possible. The size design of the window may refer to the following optical area diagrams.



2.3 Inlay

When integrating HE-1218WA-000R into application, you can refer to the following physical size specifications. The structure is designed to other components cannot oppress HE-1218WA-000R devices.



Chapter 3 Electrical characteristics

3.1 Electrical requirements

Power input must be allowed only after the HE-1218WA-000R is connected. If the cable is plugged or out of the HE-1218WA-000R (with an electric) when it is charged that may damage the HE-1218WA-000R electronic parts. Please make sure that the power is cut off when the cable is plugged in.

Bad power connection, too short interval power off operation, or too large voltage drop pulse may cause it to not be in a stable and normal working state, so it is necessary to keep the power input stable. After the power input is turned off, it takes more than 2 seconds to turn on the power input again.

Ripple noise

Because the power input of HE-1218WA-000R is provided directly to the image sensor and the decoding chip. The power input with low ripple noise is required to ensure stable operation. It is recommended that the ripple noise be controlled within 30mV (Peak-to-peak), at least no more than 50mV (Peak-to-peak).

3.2 Direct-current characteristic

Working voltage $T_a=25^{\circ}\text{C}$, $V_{cc}=5\text{V}$

Paramet	Describe	Minimum	Standard	Maximum	Unit
V_{cc}	Volt Current Condenser	3.8	5	6.3	V
V_{IH}	Voltage Input High	$0.55V_{cc}$	-	-	V
V_{IL}	Voltage Input Low	-	-	0.5	V
V_{OH}	Voltage Onput High	$0.6V_{cc}$	-	-	V
V_{OL}	Voltage Onput Low	$0.6V_{cc}$	-	0.3	V

Working voltage $T_a=25^{\circ}\text{C}$, $V_{cc}=5\text{V}$

Working voltage Standby current	
200mA	145mA

Chapter 4 Scanning Setting

4.1 Use the Setting Barcode

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

4.2 Restore Factory Defaults

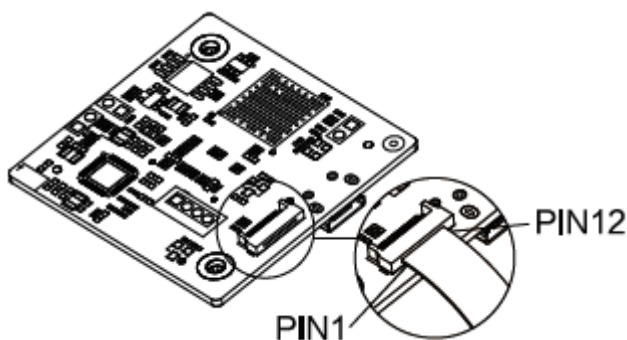
Note: Please use the "Restore Factory defaults" feature with caution, and when you scan this setup barcode, the current parameter settings will be lost and replaced with the factory default values.



Chapter 5 Interfaces

HE-1218WA-000R embedded scanner module provides RS-232 serial interface and USB interface (optional function) to connect to host computer. It can receive the recognizing data, control the scanner command, and change the function parameters of the scanner through the communication interface.

5.1 Signal Interface Description



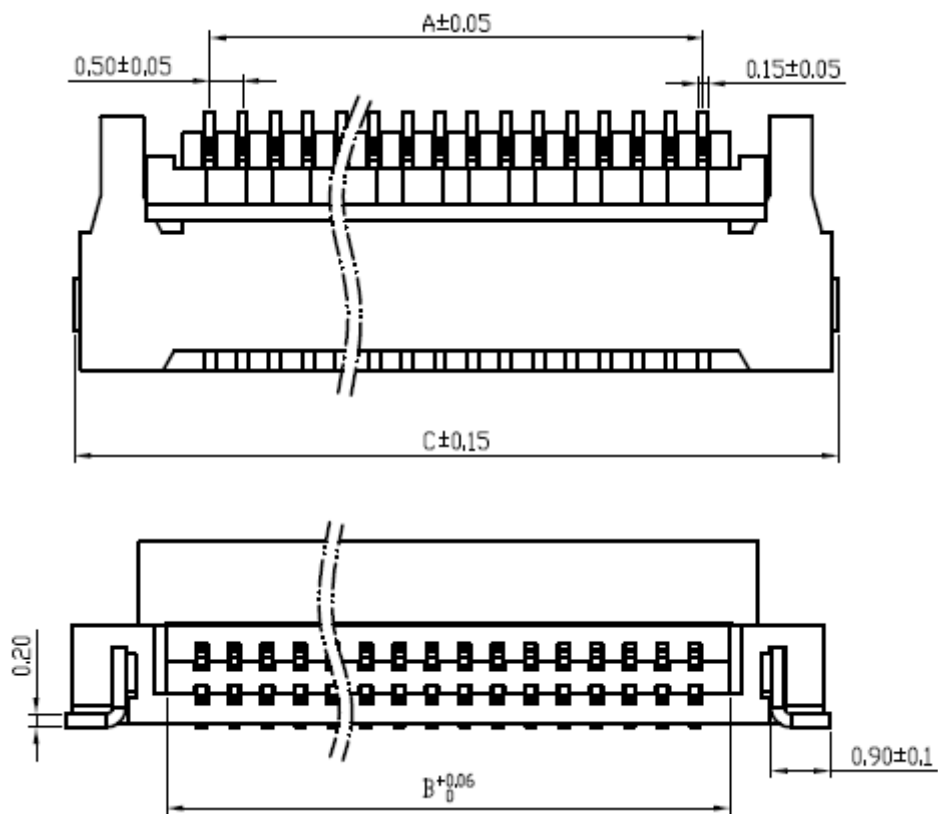
PIN#	Signal Name	Input (I) Output (O)	function
1	NC	-	Input power supply
2	VCC	-	Grounding
3	GND	-	TTL-232 reception
4	RX	I	TTL-232 send
5	TX	O	Input power supply
6	D-	I/O	USB communication D- differential signal
7	D+	I/O	USB communication D+ differential signal
8	NC	O	-
9	BUZ	O	Buzzer output, detailed information refers to the buzzer driver circuit "External circuit design" section
10	LED1	O	Indicator signal output, detailed information refers to

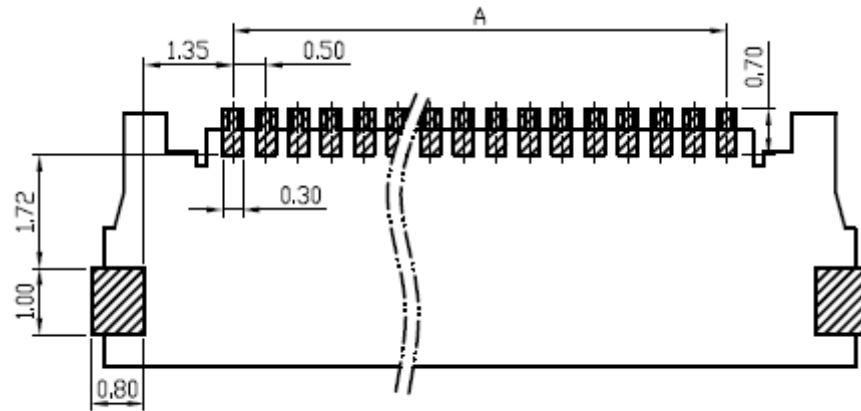
			the buzzer driver circuit "External circuit design" section
11	LED2	O	Indicator signal output, detailed information refers to the buzzer driver circuit "External circuit design" section
12	TRIG	I	Trigger signal input, keep low level 10ms above trigger read code

5.2 Connector

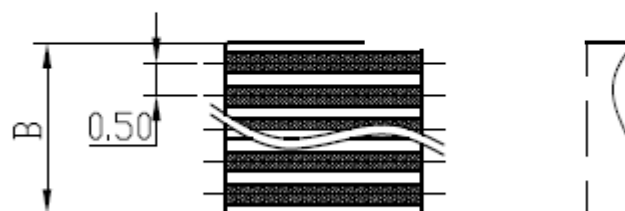
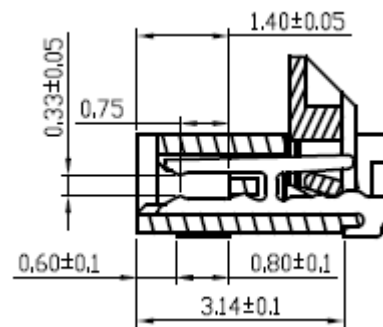
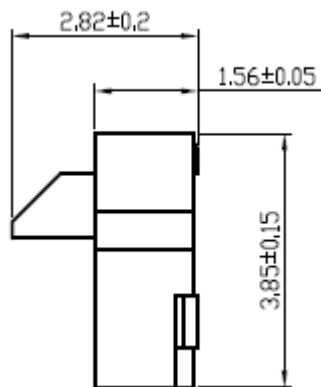
The connector on HE-1218WA-000R has 12PIN-FPC and Micro USB.

12 PIN-FPC



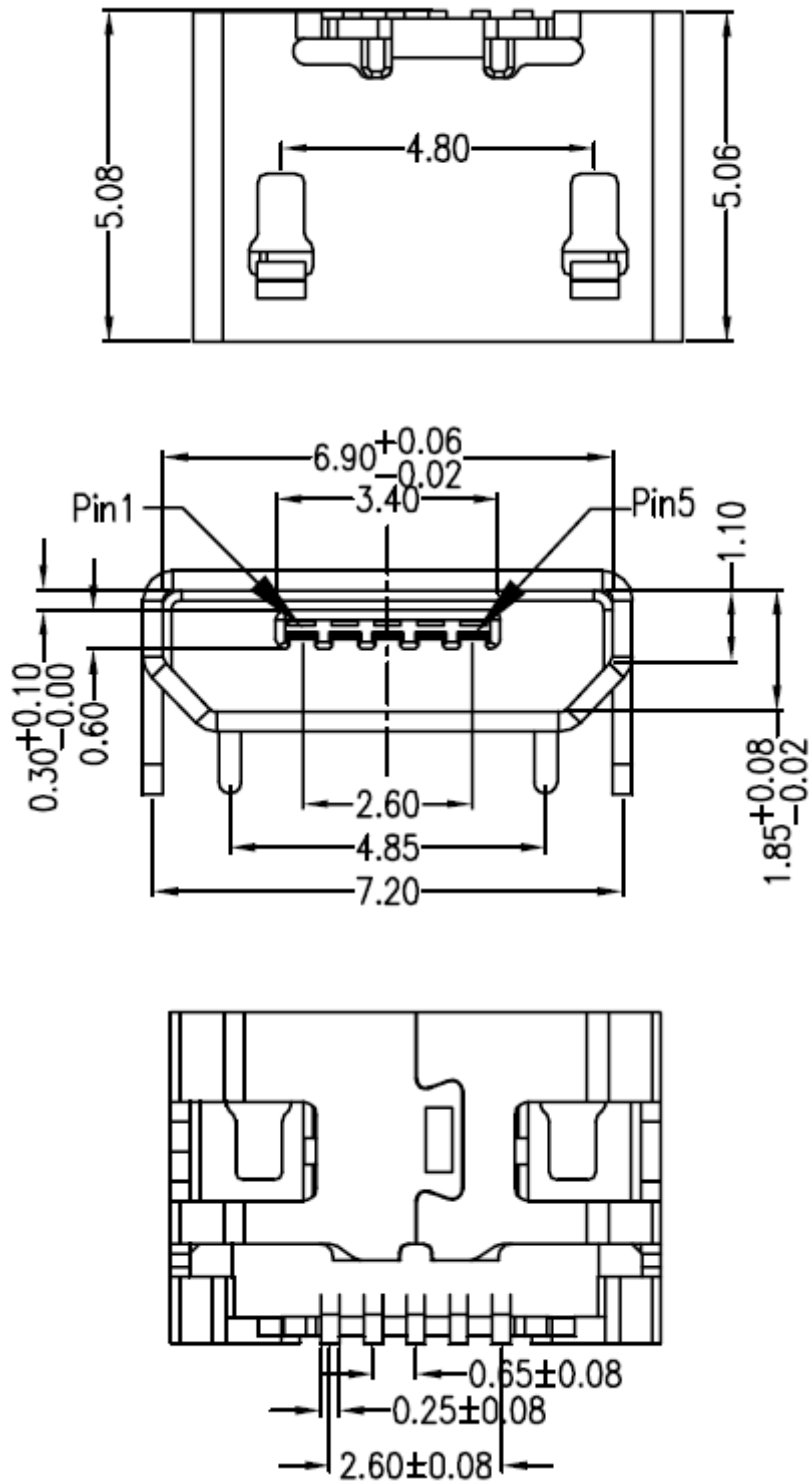


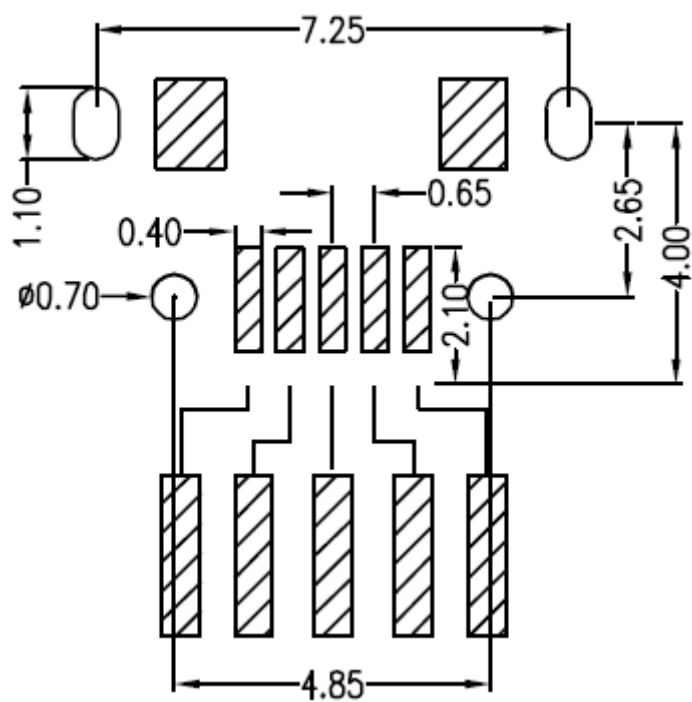
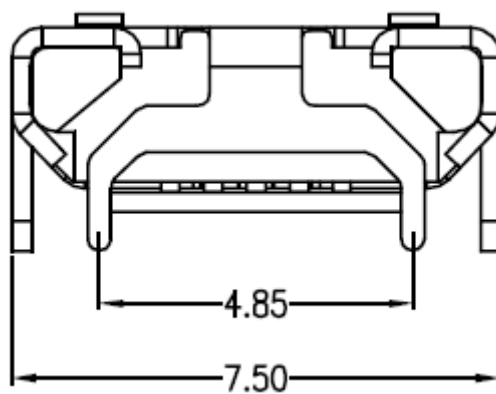
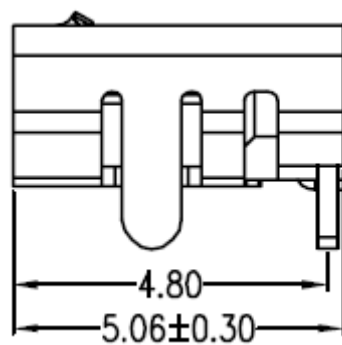
RECOMMENDED PCB LAYOUT



APPLICABLE FPC

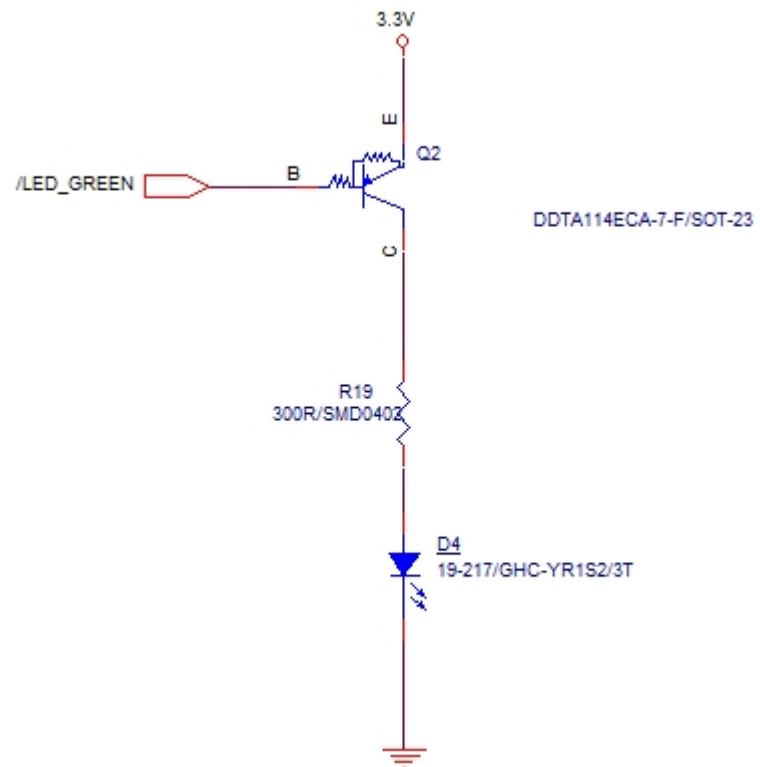
Micro USB



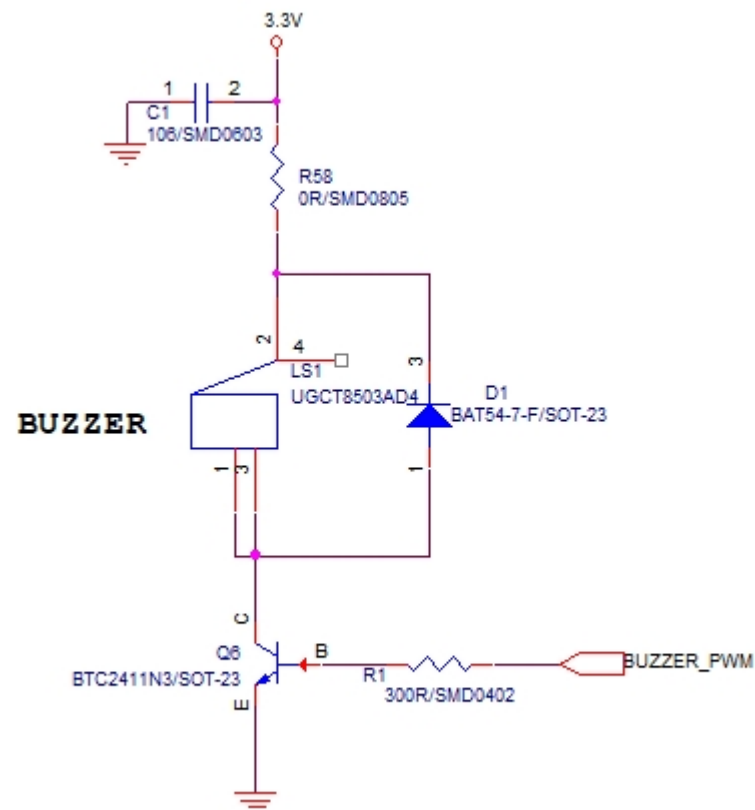


5.3 External circuit design

■ Recognizing successful LED prompt reference circuit



■ Buzzer circuit



Chapter 6 Communication Interface

6.1 Serial Interface

Serial interface is a common way to connect the scanner to the host (e.g. PC, POS devices). HE-1218WA-000 provides RS-232 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, so as 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 Recognition 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



Baud Rate

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

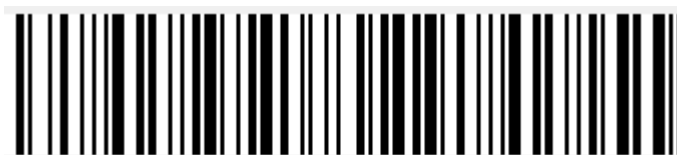
115200



38400



19200



9600



4800



2400



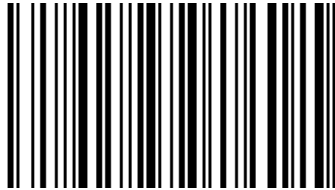
1200



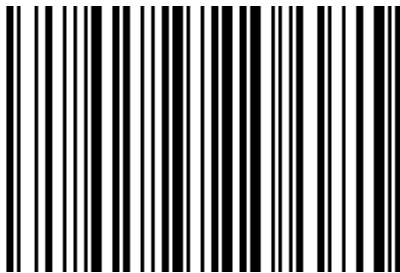
6.2 USB Interface

6.2.1 HID Virtual Keyboard

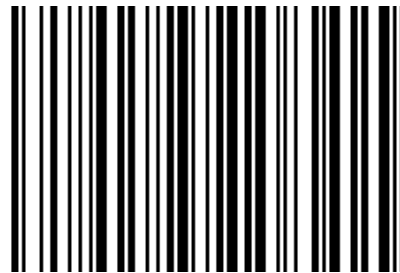
When using USB interface, the scanner can be simulated as a HID-KBW device. In this mode, the scanner would be a virtual keyboard that output the data to the host.



6.2.2 USB International Keyboard Setting



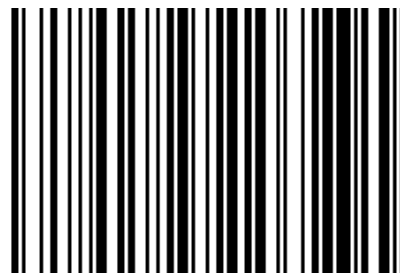
USA(Default)



Belgian



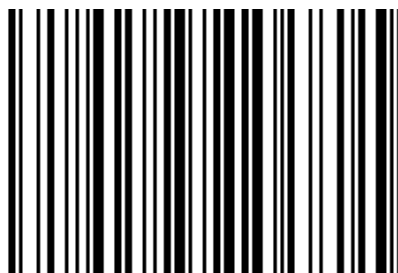
Finnish (Swedish)



French



German



Italian



Swiss (German)



British



Danish



Norwegian



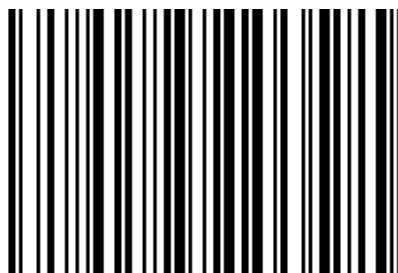
Spanish



Dutch



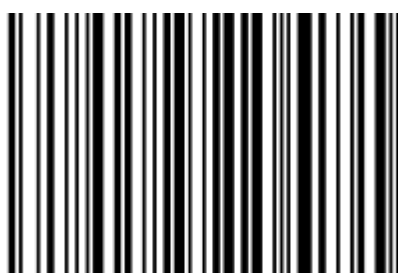
Hebrew



Portuguese



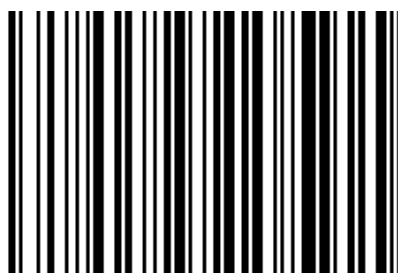
Latin(America)



Czech_DEC



Brazilian



Greek_DEC



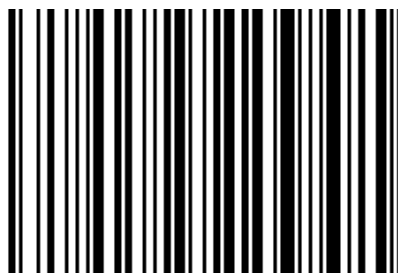
Canadian (French)



Hungarian



Polish



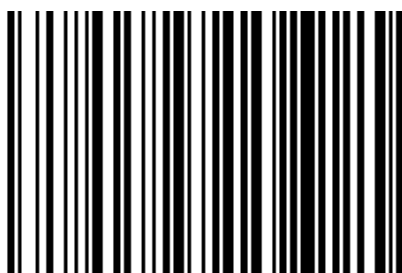
SCS



Slovakian_DEC



Swedish



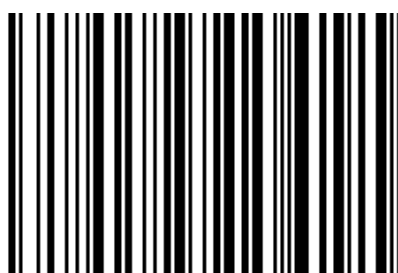
Turkish_Q



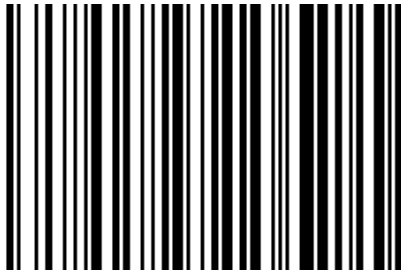
Romanian



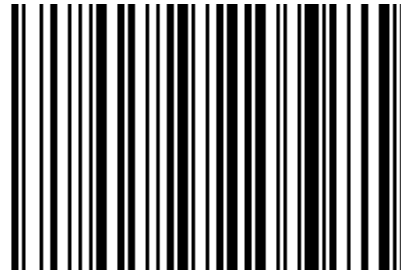
Russian



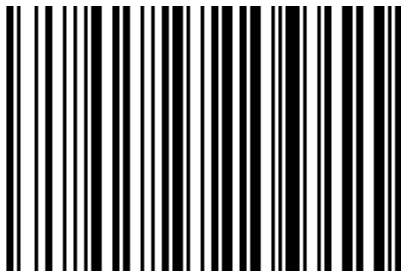
Turkis_F



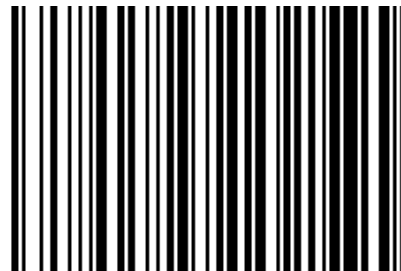
Japanese(ASCII)



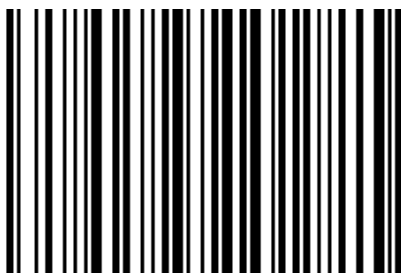
Swiss(French)



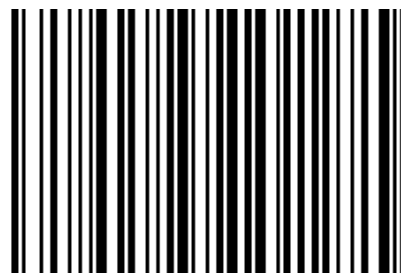
USA(International)



Slovenian



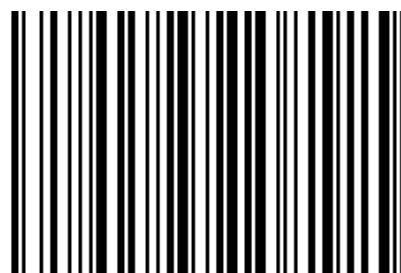
Croatian



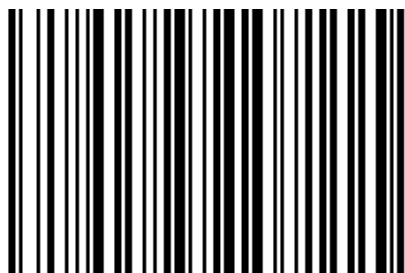
Bosnian



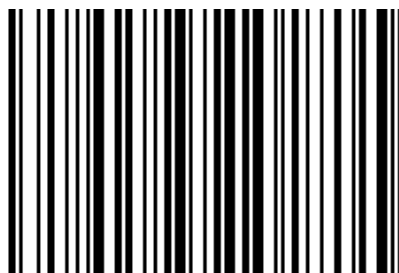
Macedonian



Albanian



Serbian(Latin)



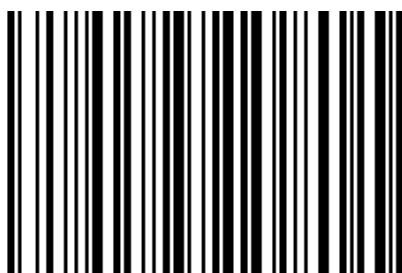
Serbian(Cyrillic)



Czech_QWERTZ



Czech_QWERTY



Czech(Programmers)



Estonian



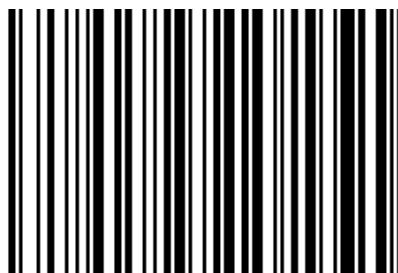
Latvian



Latvian_QWERT



Lithuania



Lithuanian (IBM)



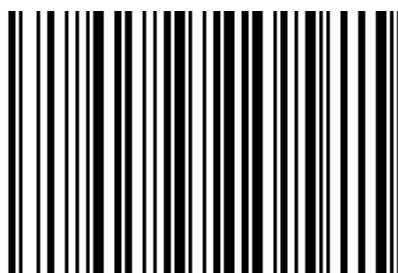
Slovakian_QWERTZ



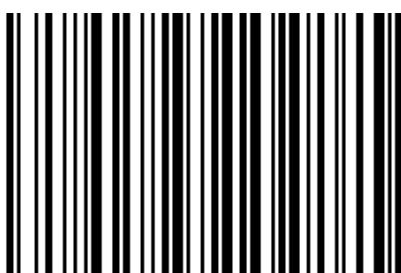
Slovakian_QWERTY



Hungarian_101_Key



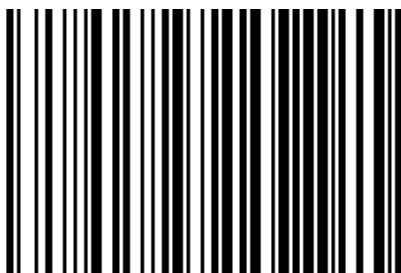
Spanish(Variation)



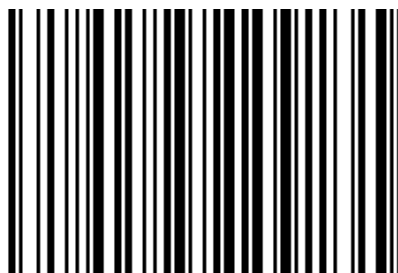
Bulgarian(Cyrillic)



Bulgarian(Latin)



Canadian(French_Legacy)



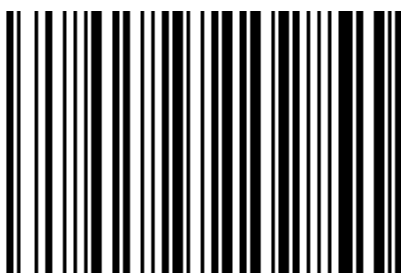
Canadian(Multilingual)



Italian_142



Polish_214



Polish_Programmers



Brazilian_MS



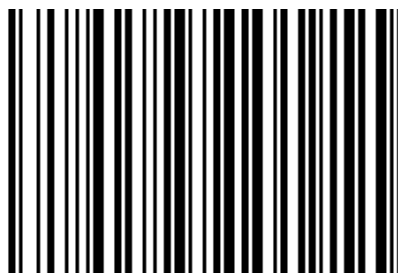
Greek_Polytonic



Greek_220



Greek_319



Greek_Latin



Greek_220_Latin



Greek_319_Latin



Greek_MS



Russia_MS



Russian(Typewriter)



Thai(Pattachote)



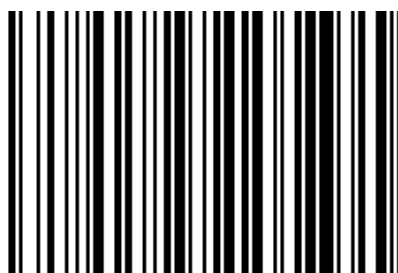
Thai(Kedmanee)



Irish



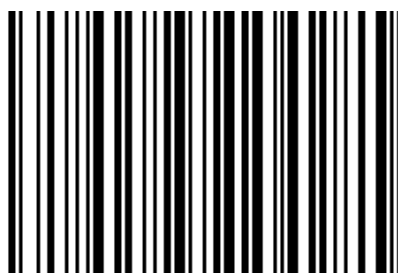
Maltese



Icelandic



Ukrainian



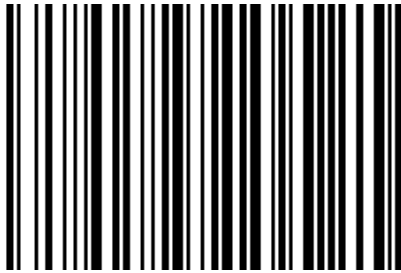
Uzbek(Cyrillic)



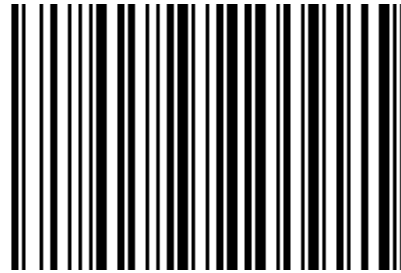
Kazakh



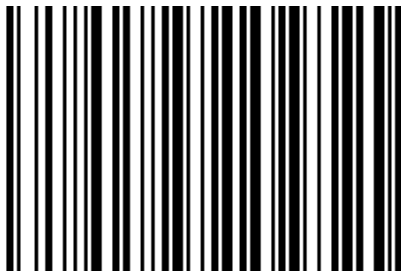
Kyrgyz(Cyrillic)



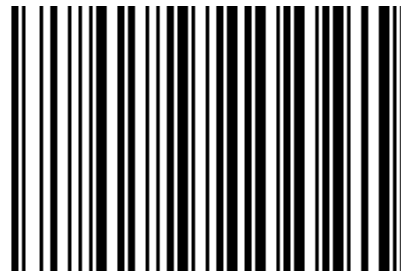
Azeri(Latin)



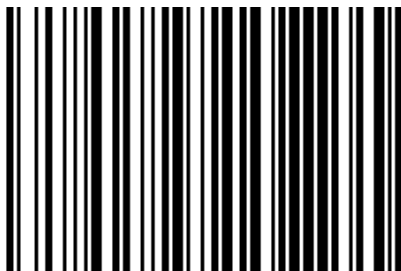
Azeri(Cyrillic)



Belarusian



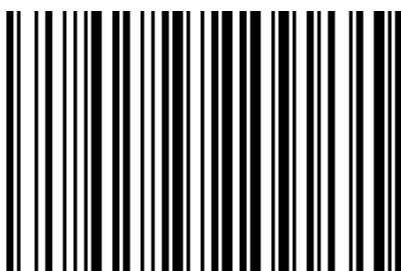
Faeroese



Gaelic



Tatar



Mongolian(Cyrillic)

6.2.3 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 a USB virtual serial port. This feature requires that the appropriate driver be installed on the host.



6.3 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. VID is 1EAB (Hex). The second number is PID (Device ID), and each interface type assigns a PID number.

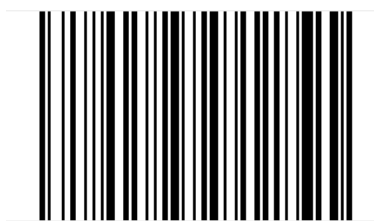
Device Name	Interface Type	PID (Hex)	PID (Decimal)
HE-1218WA-000R	USB virtual serial interface	1f3a	1009
	USB virtual keyboard	1f3a	100b

Chapter 7 Recognition Mode

7.1 Manual Mode (Need to match the development Board)

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

Key

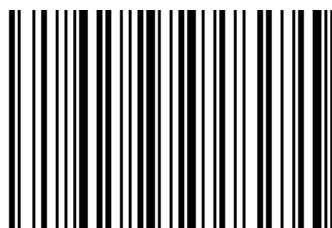


7.2 Sensing Mode

In automatic sensing mode, the scanner will monitor the images being taken. When the scene changes, it will recognition within the limited time of “once recognition time”. After recognizing the output information successfully or the recognizing times out, it will re-enter the state of monitoring scene changes.

When the scanner work in this mode, it can also according to the trigger electrical level to enter the recognizing state. After the trigger electrical level is canceled or recognizing times out, it will re-enter the state of monitoring scene changes. 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



✧ Once Recognizing Time

In sensing recognizing mode, the parameter indicates the maximum time of allowing recognizing engine to continuously collect and identify barcode before recognizing successfully. After recognizing successfully or once recognition timeout, the recognizing engine will enter the interval of not collecting the recognition. The range of once recognition time is 0.1~9.9s, step length is 0.1s. When set to 0, the recognition does not wait. Default time is 1s.

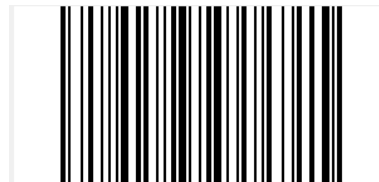


5s

7.3 Continuous Mode

Continuous mode is that the scanner continuously shoots, recognize and output the information. In this mode, the same barcode can not be output.

Continuous light



✧ Once Recognizing Time

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



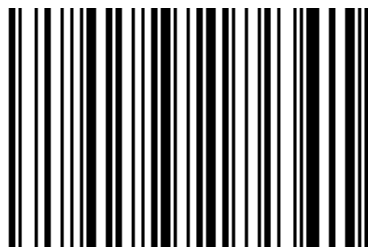
5s

7.4 Command Trigger Recognizing Mode

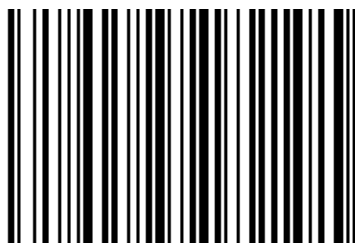
In this mode state, scanner needs the upper computer to trigger and decode the barcode. The scanner can set the length of the recognizing time. The recognizing code time can be set to 0.1~9.9s. When it be set to 0 that indicates no waiting.

Chapter 8 LED Light

LED ON



LED OFF



Chapter 9 Other Functions

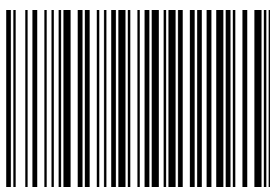
9.1 Recognition Successful Sound (Need to match the development Board)

After recognizing successfully, the scanner can output the PWM signal to drive the external buzzer circuit to make sounds. The following setup barcode can be set accordingly.

Turn On



Turn OFF



9.2 Barcode Symbol Parameters

Each type of barcode has its own unique properties, and the recognition of scanner can be adjusted to adapt to these property changes through the set barcode in this chapter. You can also prevent the recognizing function from recognizing the type of barcode that will not to be used so that it can improve the performance of the recognizing function.

✧ Enable/disable recognize EAN-8

Enable



Disable



✧ **Enable/disable recognize EAN-13****Enable****Disable**✧ **Enable/disable recognize ISSN****Enable****Disable**✧ **Enable/disable recognize UPC-E****Enable****Disable**

✧ **Enable/disable recognize UPC-A****Enable****Disable**✧ **Enable/disable recognize Interleaved 2 of 5****Enable****Disable**✧ **Enable/disable recognize Matrix 2 of 5****Enable****Disable**

Check Setting

Matrix 2 of 5 barcode data is not forced to contain a check character. If there is a check that is the last 1 character of the data. The check character is a value calculated based on all data to check that if the data is correct.

- Therefore, when set to "no check" character, the recognizing function can transmit all barcode data normally.

- Set to "Check but do not transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes, the normal data except the check character will be transmitted. If the check fails, the code will fail to be recognized.

- Set to "Check and transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes, the check bit can be transmitted together as the last 1 bits of normal data. If the check fails, the code will fail to be recognized.

Set whether to transmit check character

The check characters are not forced to be contained in Standard 25 barcode data. If there is a checksum that is the last 1 characters of the data. The check character is a value calculated on the base of all data to check that if the data is correct.

- Set to "Do not check", and the chip will transmit all barcode data normally.

- Set to "Check but do not transfer check bit", the chip will be based on the last 1-bit data of the barcode to do the check. If the check passes, the normal data except the check character will be transmitted. If the check fails, the barcode content will fail to be sent.

- Set to "Check and transmit the check character", the chip will be based on the last 1-bit data of the barcode to do the check. If the check passes, the check bit can be transmitted together as the last 1 bits of normal data. If the check fails, the barcode content will fail to be sent.

✧ Enable/disable recognize Code 39

Enable



Disable



Set whether to transmit Starters and Terminators

Code 39 barcode data before and after each has a character "*" as a Starter and Terminator, you can set whether the Starter and Terminator are transmitted with the barcode data after the success of the recognizing code.

Check Setting

The check characters are not forced to be contained in Code 39 barcode data. If there is a checksum that is the last 1 characters of the data. The check character is a value calculated based on all data to check that if the data is correct.

- Therefore, when set to no check character, the recognizing function can transmit all barcode data normally.

- Set to "Check but do not transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes, the normal data except the check character will be transmitted. If the check fails, the code will fail to be recognized.

- Set to "Check and transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes, the check bit can be transmitted together as the last 1 bits of normal data. If the check fails, the code will fail to be recognized.

ASCII code recognize range setting

Code 39 barcode includes all ASCII characters, but the recognizing function only recognizes part of the ASCII character by default. You can turn on the ability to recognize the full ASCII character by setting.

✧ Enable/disable recognize Codabar

Enable



Disable



Check Setting

The check characters are not forced to be contained in Codabar barcode data. If there is a checksum that is the last 1 character of the data. The check character is a value calculated based on all data to check that if the data is correct.

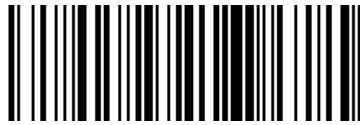
- Therefore, when set to no check character, the recognizing function can transmit all barcode data normally.

- Set to "Check but do not transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes, the normal data except the check character will be transmitted. If the check fails, the code will fail to be recognized.

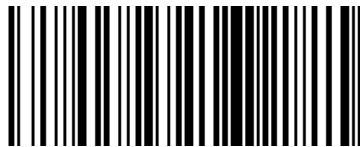
- Set to "Check and transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes, the check bit can be transmitted together as the last 1 bits of normal data. If the check fails, the barcode content will fail to be recognized.

✧ **Enable/disable recognize Code 93**

Enable



Disable



Check Setting

The check characters are not forced to be contained in Code 93 barcode data. If there is a check that is the last 1 character of the data. The check character is a value calculated based on all data to check that if the data is correct.

- Therefore, when set to no check character, the recognizing function can transmit all barcode data normally.

- Set to "Check but do not transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes and the normal data except the check character will be transmitted. If the check fails, the code will fail to be recognized.

- Set to "Check and transmit the check character", the recognizing function will be based on the last 1-bit data of the barcode to do the check. If the check passes, the check bit can be transmitted together as the last 1 bits of normal data. If the check fails, the code will fail to be recognized.

✧ Enable/disable recognize Code 11

Enable



Disable



Check Setting

The check characters are not forced to be contained in Code 11 barcode data. If there is a check bit, it can be the last 1 or 2 characters of the data. The check bit is a value calculated based on all data to check that if the data is correct.

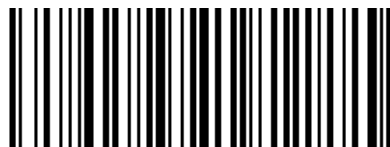
- Therefore, when set to “no check character”, the recognizing function can transmit all barcode data normally.

✧ Enable/disable recognize PDF417

Enable



Disable



✧ Enable/disable recognize Data Matrix

Enable



Disable



✧ Enable/disable recognize QR

Enable



Disable



✧ Set Enable/disable recognize Micro QR

This setting is only valid when recognizing QR is allowed.

Enable



Disable



Chapter 10 Troubleshooting

Q: There are some barcodes can not 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: Bar code can be recognized 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 LED are not bright.

A:

- a) Check whether the device is powered on.
- b) Re-plug the data cable.

Appendix

Scanner Setting

■ 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: which includes: 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 to: 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

■ Global settings (default HID once scan mode)

❖ Host mode (CDC、HID、BT、COM)

Operand: 0x41

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

Set scanner interface mode

❖ Trigger mode (scanning once, 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 recognizing, if the barcode is not recognized, it will stop recognizing the code time.

❖ Data prefix setting

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 setting

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*.

❖ LED light (ON/OFF)

Operand: 0x46

	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.

When it is 10, it means the maximum.

❖ Sighting device (ON/OFF)

Operand: 0x47

	ON	OFF
Data	0x01(Default)	0x00

❖ 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.

❖ Virtual serial port check bit

Operand: 0x49

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

Set the check method of serial port.

❖ The number of multiple codes setting

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.

❖ **The sensitivity of the multiple codes setting**

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 setting**

Operand: 0x4D

	Enable	Disable
Data	0x01 (Default)	0x00

❖ **The transmit rate in HID mode setting**

Operand: 0x4E

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

❖ **Same barcode timeout setting in non-scanning 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.

❖ Mobile performance setting

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.

❖ Center sighting 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.



The image shows a software window for generating a barcode. It is divided into two main sections: 'User Information' on the left and 'Barcode Image' on the right.

User Information:

- Value to Encode:** A text box containing '15'.
- Generate label:** An unchecked checkbox.
- Encoding:** A dropdown menu showing 'Code 128'.
- HEX:** A checked checkbox.
- Buttons:** 'Encode', 'Save As', and 'Print'.
- Encoded Value:** A text box showing the binary representation: '110100001001001111001010011110' and '0101100011101011'.
- Foreground Color:** A black color swatch.
- Background Color:** A white color swatch.
- Width:** A text box containing '150'.
- Height:** A text box containing '150'.
- Encoding Type:** A label at the bottom left indicating 'CODE128'.

Barcode Image:

- A large area on the right displaying the generated barcode, which consists of vertical black bars of varying widths on a white background.

■ 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 transfer mode

Operand: 0xEE

Data:

1: Barcode Transfer Mode is pack mode

0: Barcode Output Mode is normal mode

Set LED prompt switch

Operand: 0xEB

Data:

1: ON

0: OFF

■ 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 open

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	Enable
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
EAN-8/JAN-8 Expand	44	0x2C	0	Disable
Code 32	45	0x2D	1	Enable
Code 39 Full ASCII	46	0x2E	1	Enable
UCC Coupon Extended	47	0x2F	0	Disable
Codabar Prefix	48	0x30	1	Enable
Code 32 Prefix	49	0x31	1	Enable
Code 128 FNC4	50	0x32	0	Disable