**SEENGREAT**

# Barcode Scanner Reader

Product Manual

Rev 1.0

2022/8/1

# Catalogue

# I Module Introduction



Figure 1-1 Product

## 1.1 Overview

Barcode Scanner Reader is a high performance and small size scanner, can read 1D bar code easily and read 2D bar code with high speed. It also wins high scan speed for linear code, even for bar code on paper or screen; the module has on-board UART (TTL level) and USB Type C interface, which is convenient for users to wire the computer or integrate into various device. The module is an advanced bar code decoding algorithm which developed on image recognition algorithm, can easily and accurately read bar code, and simplify the difficulty of development for barcode reading products.

## 1.2 Parameters

| DIMENSIONS | 55mm(Length)*21.4mm(Width) |
|---|---|
| STAND-BY CURRENT | 30mA |
| OPERATING | 160mA |

| CURRENT | |
|---|---|
| SLEEP CURRENT | 3mA |
| SIGNAL INTERFACE | UART/USB Type-C |
| SUPPLY VOLTAGE | 5V |
| AUXILIARY LIGHT SOURCE | White Light |
| CAPTURE LIGHT | Red light aiming |
| RECOGNITION ANGLE | 360°(Rotation),±65°(Inclination),±60°(Deflection) |
| RESOLUTION | 648x 488 |
| SCANNING ANGLE | 35°（Horizontal）, 28°（Vertical） |

## 1.3 Readable Barcode Type

| Type | Readable | Default Readable |
|---|---|---|
| Codabar | ✓ | ✓ |
| Code 11 | ✓ | ✕ |
| Code 39/Code 93 | ✓ | ✓ |
| UPC/EAN | ✓ | ✓ |
| Code 128/EAN128 | ✓ | ✓ |
| Interleaved 2 of 5 | ✓ | ✕ |
| Matrix 2 of 5 | ✓ | ✕ |
| MSI Code | ✓ | ✕ |
| Industrial 2 of 5 | ✓ | ✕ |
| GS1 Databar | ✓ | ✓ |
| QR code | ✓ | ✓ |
| Data Matrix | ✓ | ✓ |
| PDF417 | ✓ | ✓ |

## 1.4 Scanning Area

As shown in the figure below, the distance measurement is in an indoor environment (illumination about 250 lux), and the measurement results are shown in

the table
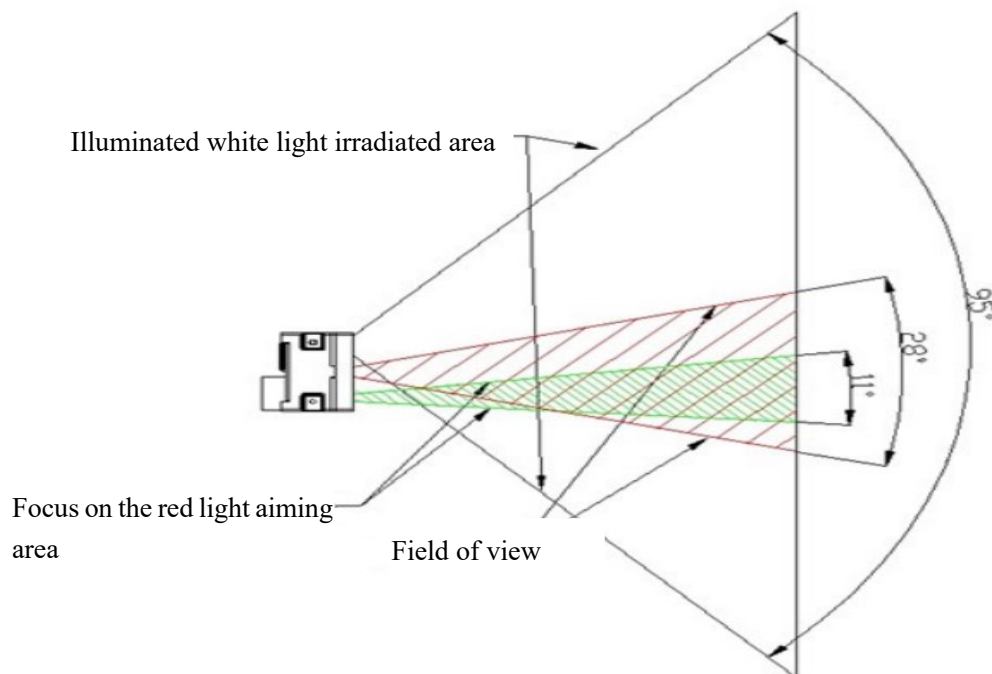


| Type of Bar Code | Density | Min. Distance | Max. Distance |
|---|---|---|---|
| | 0.125 mm (5 mils) | 4.0 cm | 9.0 cm |
| Code 39 | 0.375 mm (15 mils) | 4.0 cm | 25.0cm |
| UPC/EAN | 0.375 mm (15 mils) | 4.0 cm | 25.0cm |
| Code93 | 0.254 mm (10 mils) | 4.0 cm | 21.0cm |

## 1.5 Settings Switch of Code

Through being enabled the setting code function, the parameter configuration of the reading module can be performed by scanning the setting code.

**Note: When the configuration is modified through the setting code, the entire current zone bit list will be saved to the Flash, that is, the configuration configured through the serial port but not saved configuration will also be saved together.**

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**Setup Code on by Default**



**Setting Code off**



**Setting Code Content not Output by Default**



**Output Setting Code Content**

## 1.6 Save and Cancle

After reading the data code, scan the "Save" setting code to save the read data. If an error occurs while reading the data code, you can cancel reading the erroneous data.

For example, if a certain setting code is read, and the data "A", "B", "C", and "D" are read in sequence, at this time, if "Cancel the last one read data" is read, the last read data will be canceled. Number "D", if you read "Cancel the previous series of data", it will cancel the read data "ABCD", if you read "Cancel the modification setting", it will cancel the read data "ABCD" and exit the modification set up.



**Save**



**Cancel Last Byte**

**Cancel All Read Bytes**



**Cancel Changes**

## 1.7 Reset

All parameters of the reading module can be restored to the factory configuration by scanning the "Restore Factory Settings" barcode.



**Factory settings**

## 1.8 Dimension

55mm(Length)*21.4mm(Width)
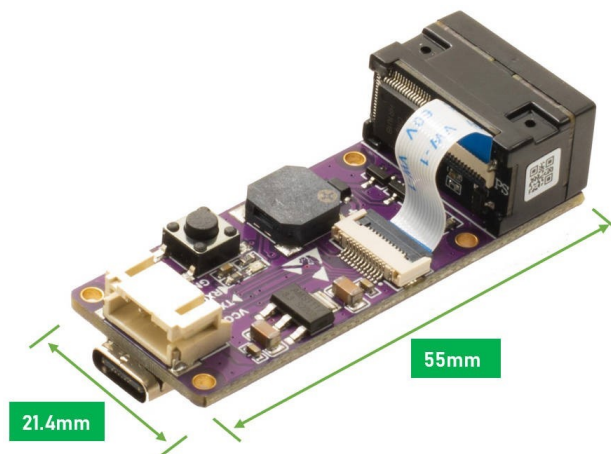


Figure 1-2 Module Dimensions

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# II Usage

## 2.1 Hardware Connectors Configuration

**USB keyboard output mode:**

The default configuration of the Barcode Scanner Reader module is USB PC output when it leaves the factory. If it needs to be changed to serial port output, it needs to scan the setting code.

Connect the USB Type-C cable to the module as shown below:
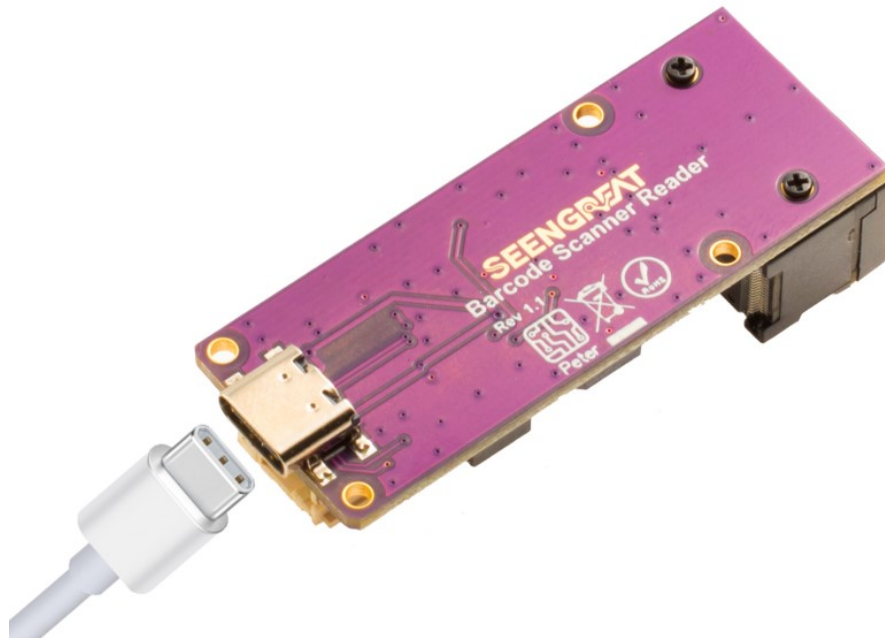


At this time, one more keyboard input device will appear in the device manager of the PC, as shown in the following figure:

If the new keyboard device is not recognized, please check whether the USB cable is in good condition.If not, the module may be in the serial output state, please scan the following QR code to set the module to the USB PC output mode.



**USB PC Keyboard Output**

**Serial output mode:**

The module defaults to the USB PC keyboard output mode.When using the serial port output mode, first scan the following setting code to set it as serial port output. The default serial port parameters of the setting code are 9600 and 8N1. Please refer to the following chapters for the modification of baud rate.

**Series Output**

The signal level output by the serial port is TTL. At this time, a TTL to USB module is required. When connecting, Vcc is connected to 5V, GND is connected to GND, RXD is connected to TX, and TXD is connected to Rx. Then connect the serial port module to the USB port of the PC, it can be seen that the device manager will add one more recognized serial port device.
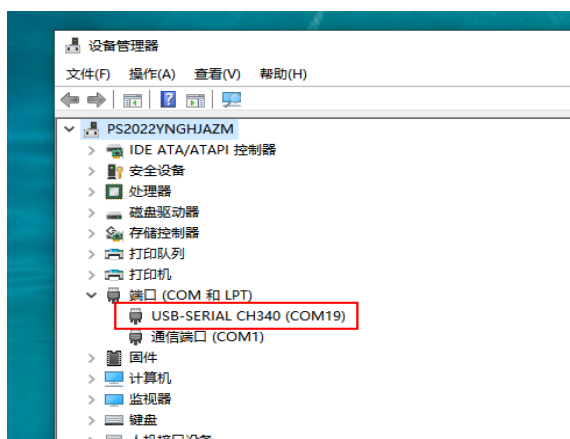


## 2.2 Scanning Code Test

USB PC output mode:

Create a new document on the PC and open it (either in Word or txt format), keep the document in the input state, and then scan the QR code in the following figure，the document will display the corresponding content.

Barcode Scanner Reader PC USB Test

UART serial output mode:

After downloading the serial port assistant software, double-click SEENGREAT.exe to open the serial port assistant software, click the  icon, and select the serial port identified by the device manager for the serial port number. If the serial port baud rate has not been modified, select 9600, click the "Open Port" button, then scan the QR code in the figure below, the serial port software data receiving area will display the corresponding content, as shown in the figure below.



Barcode Scanner Reader UART Test

# III Communication Interface

The Barcode Scanner Reader module provides TTL-232 series communication interface to communicate with the host. Through the communication interface, it can receive reading data, issue instructions to the reading module to control, and change the functional parameters of the reading module.

## 3.1 Series Communication Interface

The series communication interface is a common way to connect the reading module and mainframe device(such as PC, POS and other devices). When the reading module is connected with the mainframe using a serial cable, the system adopts the

serial communication mode by default. When using the series communication interface, the communication parameter configuration between the reading module and the mainframe device must be completely matched to ensure smooth communication and correct content.



**Series Output**

TTL level signal (TTL-232) is used for series communication interface of the reading module, which can adapt to most system architectures. If the system needs to use the structure of RS-232 form, it is necessary to increase the conversion circuit externally.

The default series communication parameters of the reading module are shown in Figure 3-1. The baud rate of the reading module can be modified through the serial port command, but other parameters cannot be modified.

Table 3-1 Default Series Communication Parameters

| Parameter | Default |
|---|---|
| Series communication interface | Standard TTL-232 |
| Baud rate | 9600 |
| Verification | N |
| Data bit | 8 |
| Stop bit | 1 |
| CTSRTS | N |

### 3.1.1 Baud Rate Setting

**1200bps**


**4800bps**
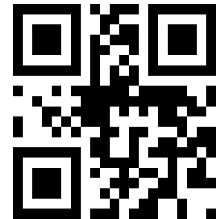

**9600bps（Default）**
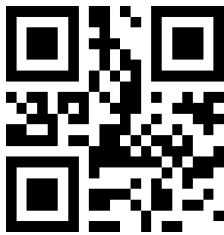

**14400bps**
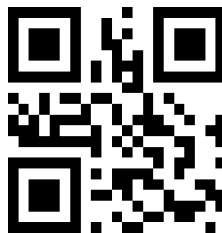

**19200bps**


**38400bps**


**57600bps**
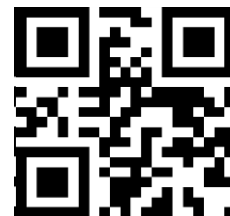

**115200bps**

### 3.1.2 Serial Port Check Bit Configuration

Modify the parity bit of the serial port by scanning the following configuration codes.


**\*NONE**


**ODD**


**EVEN**

### 3.1.3 Serial Port and Full Code Open Shortcut Configuration

In order to help customers quickly configure the serial port and full code open mode during the secondary development process, the quick configuration function can be realized by scanning the following configuration codes.



**Serial Port and Full Code Open Shortcut**

## 3.2、USB HID Interface

Scan the following code to become HID device when module connects PC by USB.
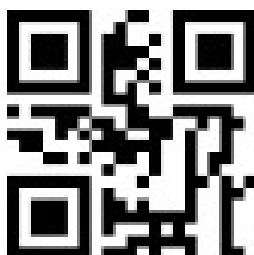


**USB HID device**

### 3.2.1、HID Type Device Selection

When the device is a HID type device, it can be 2 different types of devices. Configure with the following setting codes.



**\*HIDKBW**



**HIDPOS**

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### 3.2.2 HID Parameter Configuration

Scan the following code to modify the PC access cycle for HID devices


**\*1ms**


**3ms**


**5ms**


**10ms**

Modify the interval between the device from a valid message to a released message by scanning the following setup code.


**\*0ms**


**1ms**


**5ms**


**10ms**


**15ms**

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Modify the interval between the released message to the next valid message by scanning the following setting codes.

| | | |
|:---:|:---:|:---:|
|  |  |  |
| ***0ms** | **1ms** | **5ms** |

| | |
|:---:|:---:|
|  |  |
| **10ms** | **15ms** |

Modify the state of the CapsLock when it prints by scanning the following setup code.

| | |
|:---:|:---:|
|  |  |
| **\*Off** | **On** |

## 3.2.3 HID Lead Key Output

By scanning the following setup code to make HID output a leading message before each segment of data, so as to facilitate customer software development and positioning. The key value is ctrl+shift+r.
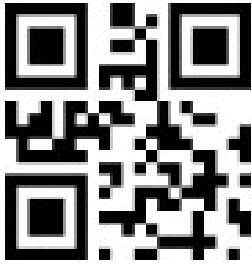
**\*HID Leading Forbid**



**HID leading Enable**

### 3.2.4 HID KBW Serial Output at the Same Time

By scanning the following setup code,while HID KBW is output, data is output

through serial port.



**\*Forbid**



**Allow**

### 3.2.5 HIDPOS HIDKBW Output at the Same Time

By scanning the following setup code to enable HIDKBW data output while HIDPOS output.



**\*Forbid**



**Allow**

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### 3.3 USB Virtual Serial Port

Scan the following code to configure the reading module to    virtual serial port output pattern when the reading module connects PC by USB.



**USB Virtual serial port**

# IV Read Mode

## 4.1 Continuous Mode

After setting, no trigger is required, the reading module read the code immediately. When the code reading successfully outputs information or the time for a single reading is over, the reading module waits for a period of time (can be set) and automatically starts the next code reading. If the following situations do not occur, the reading module will cycle working as above: During the reading process, the users can also click the toggle key to pause. Then click to continuous cycle read code.



**Default Continuous Mode**

**Time settlement for single read**

In continuous mode, the parameter refers to the longest time that the reading module is allowed to continue to collect and identify before the reading is

successful.After the reading is successful or the single code reading times out, the reading module will be into the interval period of no read time.

Single Read time: 0.1~25.5 s, step-size: 0.1s;

0 means infinite time interval.

Default time: 5.0s


**1000ms**
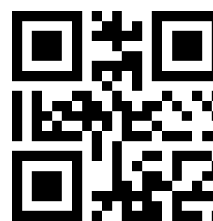

**Default 3000ms**


**5000ms**


**infinite time interval**

**Break time settlement**

This parameter refers to the interval between two consecutive readings, that is, after the reading module finishes the last reading (whether the reading is successful or not), it will not collect and read within the set interval until the interval ends. Then the next code reading will be performed.

Setting range of the read interval time:0~25.5 s, step size:0.1 seconds.

Default interval time: 1.0s

**No break**
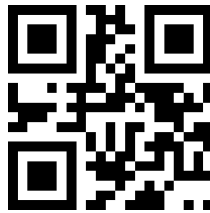

**500ms**
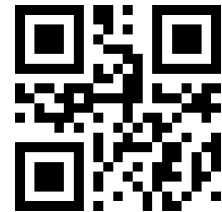

**Default 1000ms**
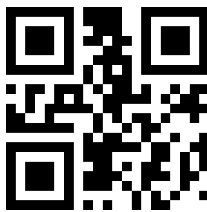

**1500ms**


**2000ms**

**Same barcode reading delay**

In order to prevent the same barcode from being read multiple times in succession, the reading module can be required to read the same barcode only if it fails to read the same barcode for a continuous period of time under this mode.

The same barcode reading delay refers to that after the module reads the same bar code, it will be compared with the last reading time,when the interval is longer than the reading delay, the same barcode is allowed to be read, otherwise the output is not allowed.


**Same barcode reading delay**


**\*Same bar code reading without delay**

**Same barcode reading delay time**

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When the same barcode reading delay is enabled,scan the following code to set same barcode reading delay time.


**Infinite delay**


**500ms**


**1000ms**


**3000ms**


**5000ms**

## 4.2 Induction Mode

After setting , no trigger is required, the reading module starts to monitor the brightness of the surrounding environment immediately. When scene changed, the reading module will begin to read until time of image stabilization over. After one successful output information or time out for single reading code, the reading module will monitor brightness again after some time (changeable).If the following situations do not occur, the reading module will cycle working as above: module can't find code between single read time, then it will automatically stop reading and jump to monitor brightness.On induction mode, the reading module can begin reading code by click the toggle key, and it will begin to monitor the brightness of the surrounding environment when successfully output information or release toggle key.


**Induction Mode**

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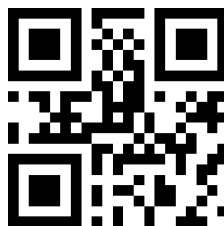
**Time settlement for single read**

In induction mode, the parameter refers to the longest time that the reading module is allowed to continue to collect and identify before the reading is successful.After one successful or time out for single reading code, the reading module will be into the interval period of no read time.

Single Read Time: 0.1~25.5s,step-size: 0.1s;

0 means infinite time interval.

Default time: 5s


**1000ms**
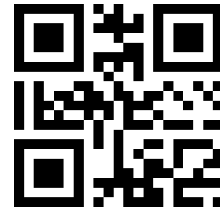

**3000ms**


**Default 5000ms**


**Infinite time interval**

**Break time settlement**

After one successful output information or time out for single reading code. The reading module will be into monitor after some time(changeable).

Setting range of the read interval time: 0~25.5s,step-size: 0.1s;

Default time: 1.0s


**No Break**
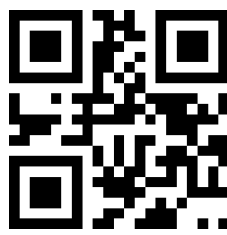

**500ms**


**Default 1000ms**

**1500ms**



**2000ms**

**Image stabilization time**

Image stabilization time refers to the time under the induction reading mode, that the reading module, which detects scene changes, needs to wait for the image to stabilize before reading the code. Time from 0s to 25.5s, step size 0.1s. Default 0.4s.



**0ms**



**100ms**
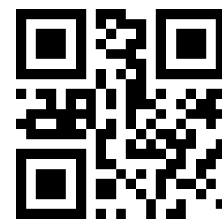


**Default 400ms**
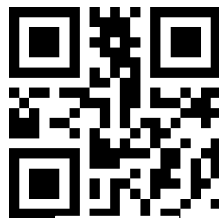


**1000ms**
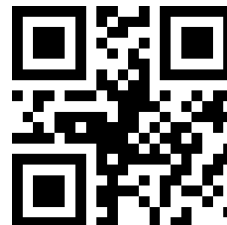


**2000ms**

**Sensitivity**

Detect the degree of change in the scene in inductive reading mode.When the reading module judges that the scene change degree meets the requirements, it will switch from the monitoring state to the reading state



**Ordinary sensitivity**



**Low sensitivity**

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**High sensitivity**



**Extra high sensitivity**

**Same barcode reading delay**

In order to prevent the same barcode from being read multiple times in succession, the reading module can be required to read the same barcode within a continuous period of time in this mode before the same barcode can be read.The setup code is the same as in Continuous Mode.

## 4.3 Manual Mode

Manual mode is default mode.In this mode, click toggle key begin to read, stop when output or release toggle key.



**Manual Mode**

Scan the following code to configuration edge trigger or level trigger.



**Level Trigger**



**Edge Trigger**

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Into sleep mode after not work for a while, can be settled by following code.



**Sleep mode on**



**Sleep mode off**

Come into sleep mode, can wake up by key. Module will restart after dropping out sleep mode.

When deep sleep is not enabled, you can set the idle time for light sleep by scanning the following Settings.



**0ms**



**\*500ms**



**3000ms**



**5000ms**

## 4.4 Command Triggered Mold

In this mode, the reading module begins to read when receive scan command from mainframe( bit0 of zone bit 0x0002 writes"1") , and stop at output or read timeout.

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**Command triggered mode**

Note: Under command triggered mode, command for serial port trigger is 7E 00 08 01 00 02 01 AB CD; after receiving command, model will output    seven bytes of response information and start scanning synchronously (response information content: 02 00 00 01 00 33 31)

**Time settlement for single read**

In the command-triggered reading mode, this parameter refers to the maximum duration that the reading module is allowed to continue to collect and identify before the reading is successful.The setting range of the single code reading time is from 0.1s to 25.5s, and the step size is 0.1s.When being set to 0, it means the reading time is infinite. The default duration is 5.0 seconds



**1000ms**



**3000ms**



**Default 5000ms**



**Infinite time interval**

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## 4.5 POS Mode

Users can quickly configure the module to work in POS mode by scanning the following code. Including the following main features:

☐ Read mode is command trigger mode；

☐ The communication interface is serial port；

☐ Turn off startup tone；

☐ Turn off ending character；



**POS Mode**

# V Read Area

For different applications, there will be some differences in the identifiable areas required by users, which can be set by scanning the following setting codes.

## 5.1 Full Width Area

When the read area is a full-width area, the module will scan the barcode around with the center as the priority, and the barcode can be located at any position of the screen.
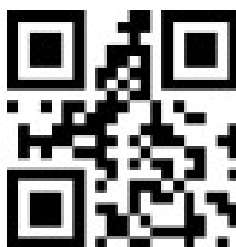


**\*Full Width Area**

## 5.2 Central Area only

When the reading area is the central area, the central position of the barcode must

be in the central area set. Bar codes are not within the scope of the region are not identified and output.



**Central Area only**

Set the size of the central area:

The central area is an area with the center of the whole image as the central point. The size of this area is set in proportion to the width or height of the whole image, and the value range is 1-100.If set to 20, it is located in an area 20% of the width * 20% of the height of the center.
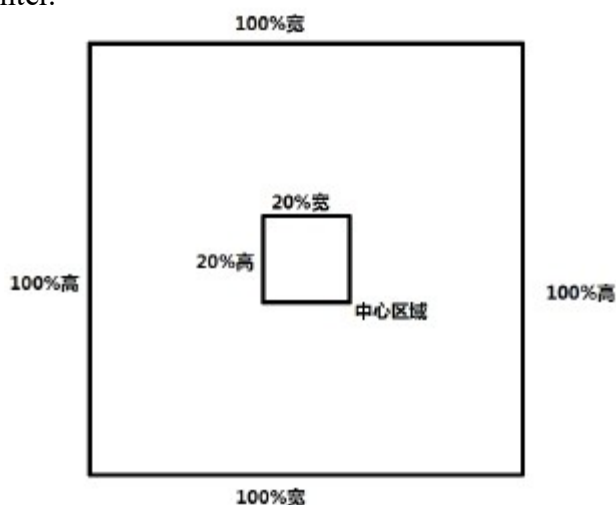


Modify the central area size

The common central area size can be set by scanning the following code:



**central area size-20%**



**central area size-40%**



**central area size-60%**

When the common central area size does not meet the needs, users can also scan the "modify the central area size" setting code to customize the configuration.



**modify the central area size**

Example: change the center area size to 50%

1.Check the character table to get the hexadecimal value of "50"characters: "32"

2.Confirm whether the setting code is on or not. If it is off, please scan the "open setting code" setting code (see section 1.5).

3.Scan the setting code of "modify the size of central area"

4.Scan data setting codes "3" and "2" successively (see appendix E)

5.Scan "save" setting code (see appendix F)


# VI Lighting and Collimate

## 6.1 Lighting

Lamp is used to additional lighting when read. The beam is irradiated on the reading target to improve the reading performance and the adaptability in weak ambient light. The user can set it to one of the following states according to the application environment:

**Normal(default):** Lamp will be on when read, others off.

**Normally on:** Always on after boot.

**OFF:** Lamp is always off.
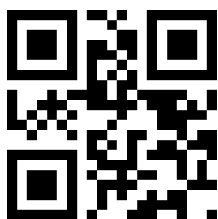
**Normal**



**Normally on**
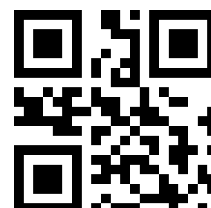


**Off**

## 6.2 Collimate

There will be a pointing light beam which can help user to find best distance. Users can choose any of the following modes according to the application environment.

**Normal(default):** pointing light beam shows when read

**Normally on:** pointing light beam shows after power on until power off

**No Collimation:** The aiming beam is extinguished under any circumstances.
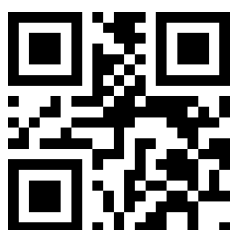


**Normal(default)**



**Normally on**
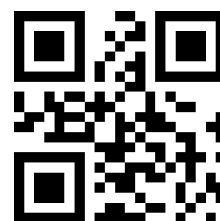


**No Collimation**

# VII Prompts

## 7.1 Prompts Tone

Read "buzzer drive frequency", the buzzer can be set to active/passive buzzer, the drive frequency of the passive buzzer can also be set.
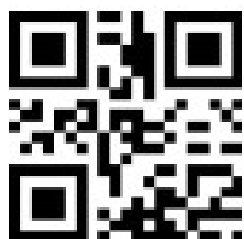


**Buzzer drive frequency
-passive low frequency**



**\*Buzzer drive frequency
-passive medium frequency**

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**Buzzer drive frequency -passive high frequency**



**Buzzer drive frequency - active drive**

In the active buzzer mode, scan "Buzzer working level - high" can be set to low level when free, high level when busy; scan "Buzzer working level - low"can be set to high level when free, low level when busy.



**\*Buzzer working level - high**



**\*Buzzer working level - low**

Scan "Open Start-up tone" can open start-up tone. Scan "Close Start-up tone" can close start-up tone



**\*Open Start-up tone**



**Close Start-up tone**

Scan "Silence on" to turn off all prompt tones. Scan "Silence off" to cancel the mute setting.



**Silence on**



**\*Silence off**

## 7.2 Read Code Successfully Tone

Scan "Close the tone of successful decoding" to prevent the tone of successful barcode reading. Scan the "Enable Decoding Success Prompt Tone" to restore the barcode reading success prompt.



**Default on**



**Close read code successfully tone**

Read "Prompt Tone Duration"to set the duration of the prompt tone for successful reading. The default is 60ms.



**Prompt tone duration-30ms**



**Prompt tone duration by default-60ms**

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## 7.3 Decoding Status Prompt

In order to let the host quickly know whether the current decoding is successful, you can enable this function. After reading "Output Decoding Status Prompt" to enable this function, if the reading is unsuccessful, the reading module will send a prompt character "F";

**Prompt tone duration-90ms**        **Prompt tone duration-120ms**

If the recognition is successful, the prompt character "S" will be added before the decoded data.
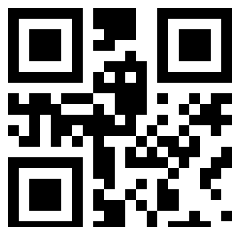
**No outputting decoding status prompt by default**        **Output decoding status prompt**

## 7.4 Data Code Format

It can be set by reading the "input data encoding format" to    enable the reading module to read the Chinese barcode of various encoding format

**Input Data Code Format GBK**        **Input Data Code Format UTF8**

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**\*Input Data Code Format AUTO**

To make the host print Chinese data in the specified encoding format, you can set it by reading "Output Data Encoding Format".

Note：

The GBK format can be used for Notepad.

The UTF-8 format can be used in WORD and input boxes for chat tools.

The BIG5 format supports traditional Chinese
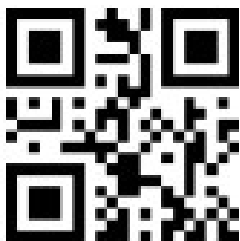


**\*Output Data Code Format GBK**
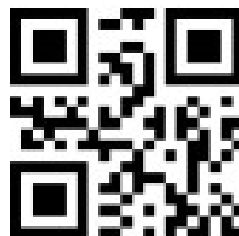


**Output Data Code Format UTF8**
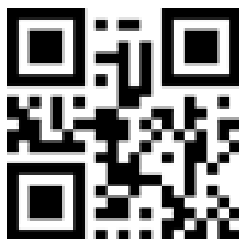


**Data Code Format BIG5**

## 7.5 Keyboard Settlement

To enable the hosts in different countries to use the device, set the device by scan the data codes of keyboard of the corresponding country.



**Default Keyboard- US**



**Keyboard- Czech**



**Keyboard- France**



**Keyboard- Turkey Q**



**Keyboard- Hungary**



**Keyboard- Italy**



**Keyboard- Japan**



**Keyboard- Spain**



**Keyboard- Turkey F**



**Keyboard-Germany**

## 7.6 Virtual Keyboard Allow

In order to be able to use in more areas, we also provide the virtual keyboard function, so that the virtual keyboard can be output in any keyboard mode, but it will relatively lose some output efficiency.In addition, when using a virtual keyboard, you must ensure that the numeric keys on the keypad are valid.Note that the virtual keyboard must be available at version 1.21 or above



**\*Standard Keyboard**



**Virtual Keyboard**

In order to adapt to different application scenarios, the virtual keyboard has two different output modes for control characters smaller than 0x20, and the user can switch by scanning the following code.



**Ctrl Mod**



**\*Alt Mod**

## 7.7 Invoice Mode Allow

In order to make the normal use of this module in the invoicing system, the user can realize the format conversion of invoice code and output by scanning the following configuration code.

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**Invoice Mode Disabled**



**\*Invoice Mode Enabled**

## 7.8 Image Flip

When meet flipped or mirror image, like:



Original Image          Image Flipping

When the barcode turns over, you can enter the mirror image turning mode by scanning the corresponding setup code



**Enter Mirror Flip Mode**



**Exit Mirror Flip Mode by default**

Note: In the mirror image flipping mode, only the barcode with mirror image flipping can be recognized. If you need to identify the normal barcode or setup code, please exit the mirror image flipping mode first.

**One dimensional barcode enable reverse color decoding**

## 7.9 Black and White Flip

In some special scenarios, the black and white of the barcode may be reversed. By scanning the following setting codes, the module can be configured to recognize both normal and inverted barcodes.



**\*One dimensional barcode energy forbidden reverse color decoding**



**Two dimensional barcode enable reverse color decoding**



**\*Two dimensional barcode energy forbidden reverse color decoding**

## VIII Data Edition

Sometimes we need to edit the data before output to make data separation and processing more easily

Data edition inclu：

- Add Prefix

- Add Suffix

- Cut data

- Output CodeID

- Output "RF" when fail to decode

- Add the ending character "Tail"

Output sequence after data edition:

【Prefix】【CodeID】【Data】【Suffix】【Tail】

## 8.1 Prefix

### Add prefix

Prefix is on the head of encoding Information , and can be self-defined. Scan the code to add prefix.



**Allow to add prefix**



**Default no prefix**

Change prefix

Scan "change prefix" and "setup code" code to change prefix. Use 2 base 16 to express each character. Max 15 characters. ASCII on appendix D.



change prefix

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E.G. Change prefix to "DATA"

1.   "DTAT" in base 16: "44", "41", "54", "41"

2.   Confirm open the " setup code", if not, find on 1.4

3.   Scan "change prefix"

4.   Successively scan "Code ID":"4"、"4"、"4"、"1"、"5"、"4"、"4"、"1"

5.   Scan the "Save" setting code

## 8.2 Suffix

Add Suffix

Suffixes are user-defined strings modified after decoding information, which can be added by scanning the setting code of "Allow adding suffix"



**Allow to add suffix**          **Default no suffix**

Change suffix

Scan " change suffix" and "setup code" code to change prefix. Use base 16 to express each character. Max 15 characters. ASCII on appendix D



Change Suffix

**E.G.: Change suffix to "DATA"**

1. "DTAT" in base 16: "44", "41", "54",

2. Confirm opening the "setup code", if not, find on 1.5

3. Scan "change suffix" code

4. Successively scan "Code ID": "4", "4", "4", "1", "5", "4","1"

5. Scan "save" code

## 8.3 CODE ID

**Add CODE ID**

Users can identify different types of bar code by CODE ID. CODE ID use one character to identify and can be self- define.



**Allow add CODE ID**



**Default close CODE ID**

**Default of    CODE ID**

Scan the "Code ID Default Value" setting code, and the code ID corresponding to each barcode can be restored to the default value. For the default code ID, refer to Appendix B



**all barcode back to default ID**

**Change CODE ID**

The CODE ID corresponding to each barcode can be modified freely by scanning the corresponding setting code and combining the scanning data setting code. The CODE ID characters corresponding to each barcode are represented by a hexadecimal value. For the hexadecimal conversion table of character values, refer to Appendix C

E.G.: change CODE ID of CODE 128 to "A"

1.  Find "A"="41" in base 16

2.  Confirm opening the "setup code", if not, find on 1.4

3.  Scan " change CODE 128"

4.  Successively scan "Code ID":"4", "1"

5.  Scan "save" code

**Change CODE ID LIST：**



Change CODE ID of EAN13
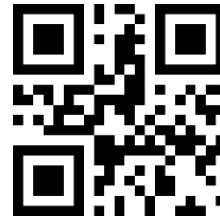


Change CODE ID of EAN8



Change CODE ID of UPCA



Change CODE ID of UPCE0



Change CODE ID of UPCE1



Change CODE ID of CODE 128

Change CODE ID of CODE 39
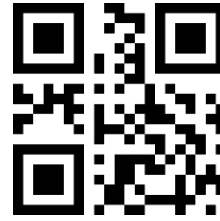
Change CODE ID of CODE 93

Change CODE ID of CODE BAR

Change CODE ID of Interleaved 2 of 5
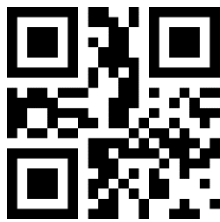
Change CODE ID of Industrial 25

Change CODE ID of Matrix 2 of 5

Change CODE ID of CODE 11

**Change CODE ID of MSI**

Change CODE ID of RSS



Change CODE ID of limited RSS



Change CODE ID of expended RSS
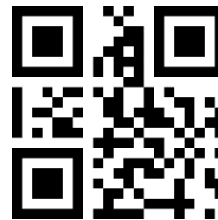


Change CODE ID of QR CODE
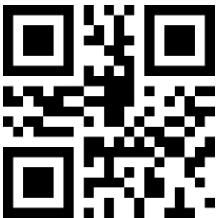


Change CODE ID of Data Matrix



Change CODE ID of limiited PDF417

## 8.4 Tail

Open this function to help system quickly distinguish current decoding results.

Scan "Add tail" to open this function, if read success, there will be tail on the end of decode data.



**Close tail**
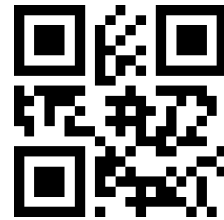


**\*Add tail "CR"**



**Add tail "TAB"**



**Add tail "CRLF"**

## 8.5 Cut Out Data

Open to output part of data.

[Data] is composed of [Start] + [Center] + [End]

Character length of "start" and "end" can be changed



**\*Output whole data**



**Output Start part**

**Output End Part**



**Output Center part**

**Change length of [Start]-M**

Scan " Change M" code and "data edition" code to change length of [Start], max 255 characters

Base 16 is used to express length. ASCII on appendix D.



**Change M**

**Change length of [End]-N**

Scan " Change N" code and "data edition" code to change length of [Start], max 255 characters

Base 16 is used to express length. ASCII on appendix D.



**Change N**

**Output Start part**

**E.G. Output "1234567890123" of whole decode information " 1234567890123ABC"**

1. "13" ="0D" in base 16

2.  Confirm opening the "setup code", if not, find on 1.4

3.  Scan" change length M"

4.  Successively scan "Code ID": "0", "D"

5.  Scan "save" code

6.  Scan" Output Start part"

**Output End Part**
**E.G. Output "ABC" of whole decode information " 1234567890123ABC"**

1."3" ="03" in base 16

2. Confirm opening the "setup code", if not, find on 1.4

3. Scan" change length N"

4. Successively scan "Code ID": "0", "3"

5. Scan "save" code

6. Scan" Output Start part"

**Output Center part**
**E.G.:Output "0123" of whole decode information " 1234567890123ABC"**

1.   " 10" ="0A"; "3"="03" in base16

2.   Confirm opening the "setup code", if not, find on 1.4

3.   Scan "change length N

4.   Successively scan "Code ID":"0", "3"

5.   Scan "save" code

6.   Scan" change length M"

7.   Successively scan :Code ID": "0", "A"

8.   Scan "save" code

9.   Scan" Output Start part"

## 8.6、RF Information

RF(Read Fail): Users can self- define output information when read fail.

**Output RF information**



**Default not output**

**Change RF information**

Scan"change RF information" and "data edition code" to change RF information.
Base 16 is used to express, max at 15 character. ASCII on appendix D.



**Change RF information**

**E.G.: change RF to "FAIL"**

1.  Find "FAIL" in base-16: "46", "41", "49", "4C"

2.  Confirm opening the "setup code", if not, find on 1.4

3.  Scan " change RF information"

4.  Successively scan"4"、"6"、"4"、"1"、"4"、"9"、"4"、"C"

5.  Scan "save" code

## 8.7 Output Protocol

The output format of the decoded result can be modified in serial/virtual serial mode by scanning the following Settings code.

The format output with protocol is as follows: <03>< length >< decoded data >.

Note: The protocol mode must adopt the UTF-8 encoding output format. Under other output encoding formats, no matter whether the protocol output is selected or not, only pure data can be output.

**\*Pure data**



**With the agreement**

## 8.8 UPCA Convert to EAN13

Scan the following code to set UPCA convert to EAN13.



**Allow**



**\*Forbid**

## 8.9 Commodity Code Check Output

Scan the following code to set commodity code check digit output (including EAN8 EAN13 / UPCE0 / UPCE1 / UPCA).



**Allow**



**\*Forbid**

# IX Bar Code Type Enables/Disable Configuration

## 9.1 All Types of Bar Code can be Decoded

After scan " Forbid read all bar code" , module will only support to scan setup code.

**Support all**



**Forbid read all bar code**



*Open default support types**

## 9.2 Strengthen the Reading Ability

The bar code reading ability is enhanced through configuration, which will improve the reading Angle of all bar codes, improve the equipment's support for angles above 45°, and improve the contrast and gradient code support.Disabling Angle hardening will increase decoding speed.



*Forbid to enhanced**



**Enhanced**

## 9.3 EAN13

Scan the following codes to set to allow/prohibit reading of EAN13

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**\*Allow reading EAN13**



**Forbid reading EAN13**

Scan the following codes to set to allow/prohibit reading of EAN13extra-code



**\* 2 bits extra-code Forbidden**



**2 bits extra-code Allow**



**\*5 bits extra-code Forbidden**



**5 bits extra-code Allow**

## 9.4 EAN8

Scan the following codes to set to allow/prohibit reading of EAN8

**\*Allow reading EAN8**
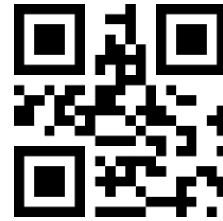


**Forbid reading EAN8**

Scan the following codes to set to allow/prohibit reading of EAN8 extra-code



**\* 2 bits extra-code Forbidden**



**2 bits extra-code Allow**



**\*5 bits extra-code Forbidden**



**5 bits extra-code Allow**

## 9.5 UPCA

Scan the following codes to set to allow/prohibit reading of UPCA



**\*Allow reading UPCA**



**Forbid reading UPCA**

Scan the following codes to set to allow/prohibit reading of EAN8 extra-code

**\* 2 bits extra-code Forbidden**



**2 bits extra-code Allow**



**\*5 bits extra-code Forbidden**



**5 bits extra-code Allow**

## 9.6 UPCE0

Scan the following codes to set to allow/prohibit reading of UPCEO



**\*Allow reading UPCE0**



**Forbid reading UPCE0**

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## 9.7 UPCE1

Scan the following codes to set to allow/prohibit reading of UPCE1



**\*Allow reading UPCE1**
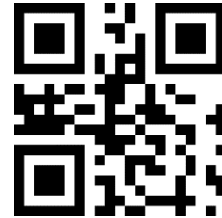


**Forbid reading UPCE1**

Scan the following codes to set to allow/prohibit reading of UPC-E1 extra-code



**\* 2 bits extra-code Forbidden**



**2 bits extra-code Allow**



**\*5 bits extra-code Forbidden**



**5 bits extra-code Allow**

## 9.8 Code128

Scan the following codes to set to allow/prohibit reading of Code128



**\*Allow reading Code128**



**Forbid reading Code128**

Scan following code to change min length of code 128



**Code128 min length at 0**



**\*Code128min length at 4**

Scan following code to change max length of code 128



**\*Code128 max length at 32**
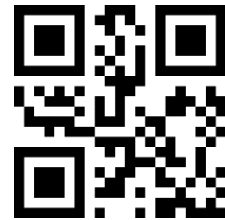


**Code128 max length at 255**

## 9.9 Code39

Scan the following codes to set to allow/prohibit reading of Code 39



**\*Allow reading Code39**



**Forbid reading Code39**

Scan following code to change min length of code39



**Code39 min length at 0**



**\*Code39 min length at 4**

Scan following code to change start character and tail output of code 39

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**\*Start character No Output**



**Start character Output**



**\*Tail No Output**



**Tail Output**

Scan following code to change max length of code39



**\*Code39 max length at 32**



**Code39 max length at 255**

Scan following code to configure whether Code39 supports Code32 mode and FullAsc mode



**\*Forbid Code32**



**Allow Code32**

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**\*Forbid FullAsc Mode**



**Allow FullAsc Mode**

**9.10 Code93**

Scan the following codes to set to allow/prohibit reading of Code 93



**Allow reading Code93**



**Forbid reading Code93**

Scan following code to change min length of code93



**Code93 min length at 0**



**\*Code93 min length at 4**

Scan following code to change max length of code93



**\*Code93max length at 32**



**Code93max length at 255**

## 9.11 CodeBar

Scan the following codes to set to allow/prohibit reading of CodeBar



**\*Allow reading CodeBar**



**Forbid reading CodeBar**

Scan following code to allow/forbid to send Start-stop operator
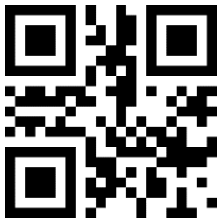


**Send CodeBar Start-stop operator**
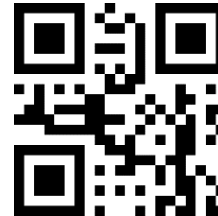


**\*Not send CodeBar Start-stop operator**

Scan following code to change min length of CodeBar



**CodeBar min length at 0**



**\*CodeBar min length at 4**

Scan following code to change max length of CodeBar



**\*CodeBar max length at 32**



**CodeBar max length at 255**

## 9.12 QR

Scan the following codes to set to allow/prohibit reading of QR



**\*Allow reading QR**



**Forbid reading QR**

## 9.13 Interleaved 2 of 5

Scan the following codes to set to allow/prohibit reading of Interleaved 2 of 5



**Allow reading Interleaved 2 of 5**



**Default Forbid reading Interleaved 2 of 5**

Scan following code to set min length of Interleaved 2 of 5



**Interleaved 2 of 5 minlength at 0**



**Default Interleaved 2 of 5 min length at 4**

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Scan following code to set max length of Interleaved 2 of 5



**\*Interleaved 2 of 5 max length at 32**



**Interleaved 2 of 5 max length at 255**

## 9.14 Industrial 25

Scan the following codes to set to allow/prohibit reading of Industrial 25



**Allow reading Industrial 25**



**\*Forbid reading Industrial 25**

Scan following code to set min length of Interleaved 25



**Industrial 25 min length at 0**
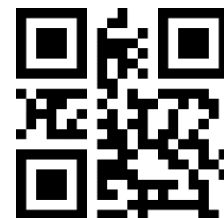


**\*Industrial 25 min length at 4**



**\*Industrial 25 max length at 32**



**Industrial 25 max length at 255**

## 9.15 Matrix 2 of 5

Scan the following codes to set to allow/prohibit reading of Matrix 2 of 5

**Allow reading Matrix 2 of 5**



**\*Forbid reading Matrix 2 of 5**

Scan following code to set min length of Matrix 2 of 5



**Matrix 2 of 5 min length at 0**



**\*Matrix 2 of 5 min length at 4**

Scan following code to set max length of Matrix 2 of 5



**\*Matrix 2 of 5 max length at 32**



**Matrix 2 of 5 max length at 255**

Scan following code to set the validation format of Matrix 2 of 5

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**Matrix 2 of 5 validation format Mod10**



**\*Matrix 2 of 5 validation format None**

## 9.16 Code11

Scan the following codes to set to allow/prohibit reading of Code11



**Allow reading Code 11**



**\*Forbid reading Code 11**

Scan following code to set min length of Code11



**Code11 min length at 0**



**\*Code11 min length at 4**

Scan following code to set max length of Code11



**\*Code11 max length at 32**



**Code11 max length at 255**

Scan following code to set the validation format of Code11



**Code11 use 1bit check**



**\*Code11 use 2bit check**

## 9.17 MSI

Scan the following codes to set to allow/prohibit reading of MSI



**Allow reading MSI**



**\*Forbid reading MSI**

Scan following code to set min length of MSI



**MSI min length at 0**



**\*MSI min length at 4**

Scan following code to set max length of MSI



**\*MSI max length at 32**



**MSI max length at 255**

## 9.18 RSS

Scan the following codes to set to allow/prohibit reading of RSS-14


**Allow reading RSS-14**


**\*Forbid reading RSS-14**

Scan the following codes to set to allow/prohibit reading of limited RSS


**Allow reading limited RSS**


**\*Forbid reading limited RSS**

Scan the following codes to set to allow/prohibit reading of expended RSS


**Allow reading expended RSS**


**\*Forbid reading expended RSS**

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Scan following code to set min length of RSS



**RSS minlength at 0**



**\*RSS minlength at 4**

Scan following code to set max length of RSS
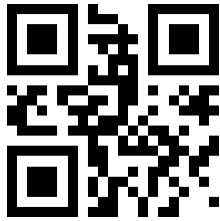


**\*RSS max length at 32**
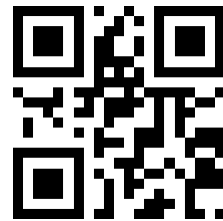


**RSS max length at 255**

## 9.19 DM

Scan the following codes to set to allow/prohibit reading of DM



**\*Allow reading DM**



**Forbid reading DM**

Scan following code to set whether the module supports decoding multiple DM barcodes simultaneously



**\*Forbid Read multiple DM barcodes simultaneously**



**Allow Read multiple DM barcodes Simultaneously**

## 9.20 DF417

Scan the following codes to set to allow/prohibit reading of DF417



**\*Allow reading PDF417**



**Forbid reading PDF417**

# X Serial Port Instruction

Users can settle the module by sending instruction from mainframe.
Please make sure communicate parameter complete matching between module and mainframe. Module default serial communicate parameter: **Baud rate 9600bps; No check; 8 bit data; 1 bit stop bit; No flow control.**

## 10.1 CRC Algorithm

CRC: CRC_CCITT check value (2bytes).
Suitable for Types、Lens、Address、Datas;
Characteristicpolynomial: $X16+X12+X5+1$, multinomial coefficient: 0x1021, original value:0;

For single byte, the highest bit will be calculated at first, output will be without negation.

Reference code of C:

```c
unsigned int crc_cal_by_bit(unsigned char* ptr, unsigned int len)
{
unsigned int crc = 0;
while(len-- != 0)
{
for(unsigned char i = 0x80; i != 0; i /= 2)
{
crc *= 2;
if((crc&0x10000) !=0)
crc ^= 0x11021;
if((*ptr&i) != 0)
crc ^= 0x1021;
}
ptr++;
}
return crc;
}
```

PS: when no need for checking CRC, CRC bite can be filled in 0xAB0xCD

## 10.2 Read Zone Bit

Max 256 bytes/time for zone bit reading.
Command Format:

**Input：{Head1}{Types}{Lens}{Address}{Datas}{CRC}**

PS: **Head1  ： 0x7E 0x00（2 bytes）**

**Types ： 0x07（1 byte）**

**Lens  ： 0x01（1 byte）**

**Address：0x0000~0x00FF（2 bytes），**address to start reading zone bit
**Datas  ： 0x00~0xFF（1byte）**， Numbers of zone bit for Sequential read
**CRC     ： CRC_CCITT** check value (2 bytes).Suitable for Types、Lens、Address、Datas;
The calculation method:**CRC_CCITT**;Characteristic polynomial : X16+X12+X5+1

;multinomial coefficient: 0x1021,original value:0,For single byte, the highest bit will be calculated at first, output will be without negation. The reference code of C is as follows:

```
unsigned int crc  cal  by  bit(unsigned char* ptr, unsigned int len)
{
unsigned int crc = 0;
while(len-- != 0)
{
for(unsigned char i = 0x80; i != 0; i /= 2)
{
crc *= 2;
if((crc&0x10000) !=0) //Last   CRC * 2, if the first one is 1, so divide 0x11021
crc ^= 0x11021;
if((*ptr&i) != 0) //If the standard is 1，so CRC =  last   CRC +  standard CRC_CCITT
crc ^= 0x1021;
}
ptr++;
}
return crc;
}
```

Note: users can fill 0xAB 0xCD at CRC byte when CRC validation is not required.

**Output：{Head2}{Types}{Lens}{Datas}{CRC}**

1）Read successfully and return data

PS:  **Head2：0x02 0x00**

      **Types** ： **0x00**（read succeed）
      **Lens** ： numbers of upload bytes
      **Datas** ： **0x00~0xFF**， means read data
**CRC** ： **CRC_CCITT** check value.Suitable for **Types、 Lens、 Datas**,the calculation method:**CRC_CCITT**，Characteristic polynomial : **X16+X12+X5+1**, multinomial coefficient:
**0x1021**，original value:0, For single byte, the highest bit will be calculated at first, output will be without negation. (The reference code is the same as above)

2）CRC failed
    No response command

3）Unknown command response

No response command

E.G.：

Read address 0x000A of Zone bit

1）Read successfully and return data is 0x3E.

Input：**0x7E 0x00 0x07 0x01 0x00 0x0A 0x01 0xEE 0x8A**

Output：**0x02 0x00 0x00 0x01 0x3E 0xE4 0xAC**

2）CRC wrong

Input：**0x7E 0x00 0x07 0x01 0x00 0x0A 0x01 0x11 0x22**

Output：None

3）When length of command to short or more than **400ms** after **0x7e 0x00**, treat as unknown
Command.

Input：**0x7E 0x00 0x07 0x01 0x00 0x0A 0x01**

Out：None

## 10.3 Write Zone Bit

Max 256 bytes/time for zone bit reading
The modified content of the zone bit will be lost after power failure. If the modified content is needed after power loss,You need to save the zone bit to internal
**Flash(9.4).**
Command Format:

Input：**{Head1}{Types}{Lens}{Address}{Datas}{CRC}**

PS:  **Head1 ： 0x7E 0x00（2 bytes）**

**Types    ： 0x08（1 byte）**

**Lens   ： 0x00~0xFF（1 byte）,**means numbers of bytes of this datas, times of continuous writing

**Address ： 0x0000~0xFFFF（2 bytes）,**start location of write

    **Datas** ：**0x00~0xFF（1~255 bytes）**， dates wrote in zone bit. When configuring multiple zone bit,must follow the order of address from low to high to fill the data domains

**CRC** ：**CRC_CCITT** check value（**2 bytes**）。Suitable for **Types、Lens、Address、Datas,**the calculation method:**CRC_CCITT**，Characteristic polynomial :**X16+X12+X5+1**，multinomial coefficient: **0x1021**，original value:0. For single byte, the highest bit will be calculated at first, output will be without negation.

The reference code of C is as follows:

```
unsigned int crc  cal  by  bit(unsigned char* ptr, unsigned int len)

{

unsigned int crc = 0;

while(len-- != 0)

{

for(unsigned char i = 0x80; i != 0; i /= 2)

{

crc *= 2;

if((crc&0x10000) !=0) //Last   CRC * 2,   if the first on is 1，so divide  0x11021

crc ^= 0x11021;

if((*ptr&i) != 0) //If the standard is 1，so CRC =  last   CRC + standard CRC_CCITT

crc ^= 0x1021;

}

ptr++;

}

return crc;

}
```

Note: users can fill 0xAB 0xCD at CRC byte when CRC validation is not required.

Output：**{Head2}{Types}{Lens}{Datas}{CRC}**

1）Read successfully

PS: **Head2 ：0x02 0x00**

   **Types** ：**0x00**（read succeed）

   **Lens** ： **0x01**

   **Datas** ：**0x00**

   **CRC** ：**CRC_CCITT** check value（**0x33 0x31**）

2）CRC failed

No response command

3）Unknown command response

No response command

E.G.：

Write **0x3E** in **0x000A** of zone bit

1） Successfully set

Input：**0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E 0x4C 0xCF**

Output：**0x02 0x00 0x00 0x01 0x00 0x33 0x31**

2） CRC wrong

Input：**0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E 0x11 0x22**

Output：None

3） When length of command to short or more than **400ms** after**0x7e 0x00**, treat as unknown command.

Input：**0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E**

Out：None

## 10.4 Save Zone Bit To Internet Flash Instruction

To save the device of the zone bit list to internal **Flash**,you need to send a save command.

**Note:** the device cannot save a single zone bit configuration separately, and must keep the entire list at the same time.

Command Format:

Input：**{Head1}{Types}{Lens}{Address}{Datas}{CRC}**

PS:　**Head1 ： 0x7E 0x00**

**Types ： 0x09**

**Lens ： 0x01**

**Address ： 0x0000**

**Datas ： 0x00**

**CRC**：**CRC_CCIT**T check value（**0xDE 0xC8**）

Output：**{Head2}{Types}{Lens}{Datas}{CRC}**

1）Saved successful

PS:  **Head2 ：0x02 0x00**

**Types   ：0x00**（read succeed）

**Lens    ：0x01**

**Datas   ：0x00**

**CRC：CRC_CCITT** check value（**0x33 0x31**）

2）**CRC** failed
No response command

3）Unknown command response
No response command

## 10.5 Zone Bit Reset To Defaults

To restore the contents of the device flag bits to factory settings and save them to the

plug-in **EERPOM**, you need to send a factory reset command.

Command Format:

Input：**{Head1}{Types}{Lens}{Address}{Datas}{CRC}**

PS:  **Head1 ：0x7E 0x00**

**Types   ：0x09**

**Lens    ：0x01**

**Address ：0x0000**

**Datas   ：0xFF**

**CRC    ：CRC_CCITT** check value

**Output：{Head2}{Types}{Lens}{Datas}{CRC}**

1）Saved successful

PS:  **Head2 ：0x02 0x00**

**Types   ：0x00**（read succeed）

**Lens    ：0x01**

**Datas   ：0x00**

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CRC ： CRC_CCITT check value（**0x33 0x31**）

2）CRC failed

No response command

3) Unknown command response

No response command


## 10.6 Program Erasure Operation

For erasing programs in the device, you can choose to erase both bootstrap and user programs, using the wipe command.

Command Format:

Input：**{Head1}{Types}{Lens}{NotUse}{Datas}{CRC}**

PS： **Head1 ：0x7E 0x00（2 bytes）**

**Types ： 0x05（1 byte）**

**Lens ： 0x01（1 byte）**， Numbers of Datas for Sequential read

**NotUse ：0x0000（2 bytes）**， 2 bytes 0x00

**Datas ： 0x11/0x22/0x33（1 bytes）**， represents the data to be written;**0x11**:Erase the bootstrap; **0x22：** erase the user program，**0x33：** Erase the bootstrap and user program.

**CRC ： CRC_CCITT** check value（**2 bytes**）。Suitable for：**Types、Lens、NotUse、Datas,** the calculation:**CRC_CCITT**， characteristic polynomial :**X16+X12+X5+1**， multinomial coefficient: **0x1021**， original value:0. For single byte, the highest bit will be calculated at first, output will be without negation.

The reference code of C is as follows:

```
unsigned int crc_cal_by_bit(unsigned char* ptr, unsigned int len)
{
unsigned int crc = 0;
while(len-- != 0)
{
for(unsigned char i = 0x80; i != 0; i /= 2)
{
crc *= 2;
if((crc&0x10000) !=0) //last CRC * 2，if the first one is 1，so divide 0x11021
crc ^= 0x11021;
if((*ptr&i) != 0) //If the standard is 1, so CRC = last  CRC + standard CRC_CCITT
crc ^= 0x1021;
```

```
}
ptr++;
}
return crc;
}
```

Note: users can fill 0xAB 0xCD at CRC byte when CRC validation is not required.


Output：**{Head2}{Types}{Lens}{Datas}{CRC}**

1）Erased successful

PS：**Head2** ：**0x02 0x00**

　　　　**Types** ：**0x00**（read succeed）

　　　　**Lens** ：**0x01**

　　　　**Datas** ：**0x00**

　　　　**CRC** ：**CRC_CCITT** check value（**0x33 0x31**）

2）CRC failed

　　No response command

3）Unknown command response

　　No response command

**E.G.：**

After erasure the user program, the device will automatically enter the boot program and wait for the download of the new user program

4）Erased successful

Input：**0x7E 0x00 0x05 0x01 0x00 0x00 0x22 xx xx**

Output：**0x02 0x00 0x00 0x01 0x00 0x33 0x31**

5）CRC wrong

Input：**0x7E 0x00 0x05 0x01 0x00 0x00 0x22 xx xx**

Output：None

6）When length of command to short or more than **400ms** after **0x7e 0x00**, treat as unknown command.


Input：**0x7E 0x00 0x05 0x01 0x00 0x00 0x22**

Output：None

## 10.7 List of Zone Bit

| Zone Bit | 0x0000 |
|----------|--------|
| Data Bit | Function |
| Bit 7 | 1：Open LED when successfully read 0：Close |
| Bit 6 | 1：Mute off  0：Mute on |
| Bit 5-4 | Retain |
| Bit 3-2 | 00：No light  01：Standard 10/11：Always on |
| Bit 1-0 | 00：Manual Mode  01：Command Triggered Mode  10：Continuous mode<br>11：Induction Mode |
| Zone Bit | 0x0002 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit 0 | Command mode triggers flags, Automatically reset after scanning.<br>1：trigger  0：no trigger |
| Zone Bit | 0x0003 |
| Data Bit | Function |
| Bit 7-2 | HID query cycle. Cycle= （Reg0x0003[7:2]+1）ms |
| Bit 1 | 1：Close Settlement Code  0：Open |
| Bit0 | 1：Output content of settlement code  0：Not output |
| Zone Bit | 0x0004 |
| Data Bit | Function |
| Bit 7-0 | The time of Image stabilization<br>0x00-0xFF：0.0-25.5s |
| Zone Bit | 0x0005 |
| Data Bit | Function |
| Bit 7-0 | Read interval<br>0x00-0xFF：0.0-25.5s |
| Zone Bit | 0x0006 |
| Data Bit | Function |
| Bit 7-0 | Time for single read<br>0x00-0xFF：0.0-25.5s |
| Zone Bit | 0x0007 |
| Data Bit | Function |
| Bit 7 | Automatic deep sleep<br><br>1：On  0：Off |

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| | | |
|---|---|---|
| Bit6-0 | Free Time（High Bit14-8）<br>Unit：100ms | |
| Zone Bit | 0x0008 | |
| Data Bit | Function | |
| Bit 7-0 | Free Time（Low Bit Bit7-0）<br>Unit：100ms | |
| Zone Bit | 0x0009 | |
| Data Bit | Function | |
| Bit7-2 | HID the interval before release　Interval=（Reg0x0009[7:2]）ms | |
| Bit 1-0 | Image rollovers<br>00：Forbid　01：Allow　10/11：Keep | |
| Zone Bit | 0x000B | |
| Data Bit | Function | |
| Bit 7-0 | Time duration for successfully read sound<br>0x00-0xFF；0-255ms | |
| Zone Bit | 0x000C | |
| Data Bit | Function | |
| Bit 7-2 | HID the interval after release　Interval ＝ （Reg0x000C[7:2]）ms | |
| Bit1 | CapsLock Switch　0：On　1：Off | |
| Bit0 | Piezo Buzzer<br>0：high level when free, low level when busy<br>1：low level when free, high level when busy | |
| Zone Bit | 0x000D | |
| Data Bit | Function | |
| Bit 7 | Invoicing mode enable flags　　　0：Forbid　　1：Allow | |
| Bit 6 | Virtual keyboard enable flags　　　0：Forbid　　1：Allow | |
| Bit5-4 | Input data encoding format<br>00：GBK　　　01：Keep　　　10：AUTO　　11：UTF8 | |
| Bit 3-2 | Output data encoding format<br>00：GBK　　01：UNICODE　　10：Keep　　11：UTF8 | |
| Bit1-0 | 00：serial port output　01：USB PC Keyboard<br>10：Keep　　　　　　11：USB virtual serial port | |
| Zone Bit | 0x000E | |
| Data Bit | Function | |
| Bit 7-4 | Light sleep free time　Free time ＝ （Reg0x000E[7:4]*500）ms | |
| Bit3 | Keep | |
| Bit2 | 1：Decode successfully sound on　0：Decode successfully sound off | |
| Bit1 | 1：Turn off start-up tone　　　　0：Turn on start-up tone | |
| Bit0 | 1：Allow serial port mode HID protocol　　　0: Forbid | |

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| Zone Bit | 0x000F |
| --- | --- |
| Data Bit | Function |
| Bit7-0 | Sensitivity adjustment parameter 1<br>0x00-0xFF：higher value, lower sensitivity, default value 0x32 |
| Zone Bit | 0x0010 |
| Data Bit | Function |
| Bit 7-0 | Sensitivity adjustment parameter 2<br>0x00-0xFF：higher value, lower sensitivity, default value 0x0A |
| Zone Bit | 0x0011 |
| Data Bit | Function |
| Bit 7-0 | Exposure Settings - high bytes<br>0x00-0xFF |
| Zone Bit | 0x0012 |
| Data Bit | Function |
| Bit 7-0 | Exposure Settings - low bytes<br>0x00-0xFF |
| Zone Bit | 0x0013 |
| Data Bit | Function |
| Bit 7 | Same barcode reading delay setting<br>0：Turn off      1：Turn on |
| Bit 6-0 | Same barcode reading delay time（Unit：100ms）<br>0x00：Infinite length     0x01-0x7F：0.1-12.7 s； |
| Zone Bit | 0x0014 |
| Data Bit | Function |
| Bit 7-0 | Reserved time for information output（Unit：10ms）<br>0x00-0xFF：0-2.55 s |
| Zone Bit | 0x002B，0x002A |
| Data Bit | Function |
| Bit 15 | Keep |
| Bit 14-13 | Parity Mode：<br>0：None      1：Odd       2：Even |
| Bit 12-0 | 0x09C4：Series rate 1200 bps<br>0x0271：Series rate 4800 bps<br>0x0139：Series rate 9600 bps<br>0x00D0：Series rate 14400 bps<br>0x009C：Series rate 19200 bps<br>0x004E：Series rate 38400 bps<br>0x0034：Series rate 57600 bps<br>0x001A：Series rate  115200bps<br>E.G.：9600 Baud rate：0x002A = 0x39 ，    0x002B = 0x01 |

| Zone Bit | 0x002C |
|----------|--------|
| Data Bit | Function |
| Bit 7-4 | Keep |
| Bit3 | Decoding range setting<br>0：Full Width                    1：the central area only |
| Bit 2-1 | Bar code switch<br>00：forbid reading all bar code          01：all bar code can be read<br>10/11：Default |
| Bit 0 | Keep |
| Zone Bit | 0x002D |
| Data Bit | Function |
| Bit 7-0 | Center area range setting<br>0x01-0x64：1%-100%<br>Other values：50% |
| Zone Bit | 0x002E |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read EAN13<br>0：Forbid              1：Allow |
| Zone Bit | 0x002F |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read EAN8 码<br>0：Forbid              1：Allow |
| Zone Bit | 0x0030 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read UPCA<br>0：Forbid              1：Allow |
| Zone Bit | 0x0031 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read UPCE0 码<br>0：Forbid              1：Allow |
| Zone Bit | 0x0032 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read UPCE1<br>0：Forbid              1：Allow |

| | |
|---|---|
| Zone Bit | 0x0033 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Code128<br>0：Forbid　　　　　　　　1：Allow |
| Zone Bit | 0x0034 |
| Data Bit | Function |
| Bit 7-0 | Code128 Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0035 |
| Data Bit | Function |
| Bit 7-0 | Code128 Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0036 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Code39<br>0：Forbid　　　　　　　　1：Allow |
| Zone Bit | 0x0037 |
| Data Bit | Function |
| Bit 7-0 | Code39 Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0038 |
| Data Bit | Function |
| Bit 7-0 | Code39 Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0039 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Code93<br>0：Forbid　　　　　1：Allow |
| Zone Bit | 0x003A |
| Data Bit | Function |
| Bit 7-0 | Code93 Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x003B |
| Data Bit | Function |
| Bit 7-0 | Code93 Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x003C |

| Data Bit | Function |
|---|---|
| Bit 7-2 | Keep |
| Bit1 | CodeBar code send the start/end characte<br>0：Forbid　　　　　1：Allow |
| Bit0 | Read CodeBar<br>0：Forbid　　　　　1：Allow |
| Zone Bit | 0x003D |
| Data Bit | Function |
| Bit 7-0 | CodeBar Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x003E |
| Data Bit | Function |
| Bit 7-0 | CodeBar Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x003F |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read QR<br>0：Forbid　　　　　1：Allow |
| Zone Bit | 0x0040 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Interleaved 2 of 5<br>0：Forbid　　　　　1：Allow |
| Zone Bit | 0x0041 |
| Data Bit | Function |
| Bit 7-0 | Interleaved 2 of 5 Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0042 |
| Data Bit | Function |
| Bit 7-0 | Interleaved 2 of 5 Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0043 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Industrial 25<br>0：Forbid　　　　　1：Allow |
| Zone Bit | 0x0044 |
| Data Bit | Function |

| | |
|---|---|
| Bit 7-0 | Industrial 25 Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0045 |
| Data Bit | Function |
| Bit 7-0 | Industrial 25 Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0046 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Matrix 2 of 5<br>0：Forbid         1：Allow |
| Zone Bit | 0x0047 |
| Data Bit | Function |
| Bit 7-0 | Matrix 2 of 5 Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0048 |
| Data Bit | Function |
| Bit 7-0 | Matrix 2 of 5 Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0049 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Code11<br>0：Forbid         1：Allow |
| Zone Bit | 0x004A |
| Data Bit | Function |
| Bit 7-0 | Code11 Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x004B |
| Data Bit | Function |
| Bit 7-0 | Code11 Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x004C |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read MSI<br>0：Forbid      1：Allow |
| Zone Bit | 0x004D |
| Data Bit | Function |

| | |
|---|---|
| Bit 7-0 | MSI Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x004E |
| Data Bit | Function |
| Bit 7-0 | MSI Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x004F |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read RSS-14<br>0：Forbid          1：Allow |
| Zone Bit | 0x0050 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read limited RSS<br>0：Forbid          1：Allow |
| Zone Bit | 0x0051 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read Expended RSS<br>0：Forbid          1：Allow |
| Zone Bit | 0x0052 |
| Data Bit | Function |
| Bit 7-0 | RSS Information minimum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0053 |
| Data Bit | Function |
| Bit 7-0 | RSS Information maximum length setting<br>0x00-0xFF：0-255Byte |
| Zone Bit | 0x0054 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read DM<br>0：Forbid          1：Allow |
| Zone Bit | 0x0055 |
| Data Bit | Function |
| Bit 7-1 | Keep |
| Bit0 | Read PDF417<br>0：Forbid          1：Allow |
| Zone Bit | 0x0058 |

| Data Bit | Function |
|---|---|
| Bit 7-1 | Keep |
| Bit0 | Strengthen reading skills<br>0：Forbid          1：Allow |
| Zone Bit | 0x0060 |
| Data Bit | Function |
| Bit 7 | Serial/virtual serial output with or without protocol<br>  0：Original data        1：With protocol |
| Bit6-5 | Type of Tailed<br>00：CR(0x0D)              01：CRLF(0x0D,0x0A)<br>10：TAB(0x09)              11：None |
| Bit4 | 1.Allow to add RF                0：forbid |
| Bit3 | 1：Allow to add prefix            0：forbid |
| Bit2 | 1：Allow to add Code ID          0：forbid |
| Bit1 | 1：Allow to add suffix          0：forbid |
| Bit0 | 1：Allow to add tail                0：forbid |
| Zone Bit | 0x0061 |
| Data Bit | Function |
| Bit 7-0 | Keyboard Settlement<br>00：US          01：Czech      02：France      03：Germany      04：Hungary<br>05：Italy      06：Japan      07：Spain      08：Turkey Q      09：Turkey F |
| Zone Bit | 0x0062 |
| Data Bit | Function |
| Bit 7-4 | Length of prefix<br>0x00-0x0F：Length of prefix |
| Bit3-0 | Length of suffix<br>0x00-0x0F：Length of suffix |
| Zone Bit | 0x0063 – 0x0071 |
| Data Bit | Function |
| Bit 7-0 | Prefix<br>0x00-0xFF：Content，max 15Byte |
| Zone Bit | 0x0072 - 0x0080 |
| Data Bit | Function |
| Bit 7-0 | Suffix<br>0x00-0xFF：Content，max 15Byte |
| Zone Bit | 0x0081 |
| Data Bit | Function |
| Bit 7-4 | Keep |

| | |
|---|---|
| Bit3-0 | RF Information length<br>0x00-0x0F：RF Information length |
| Zone Bit | 0x0082– 0x0090 |
| Data Bit | Function |
| Bit 7-0 | RF content<br>0x00-0xFF：Content，max 15Byte |
| Zone Bit | 0x0091 – 0x00A4 |
| Data Bit | Function |
| Bit 7-0 | Code ID settlement<br>0x41-0x5a & 0x61-0x7a （A-Z,a-z）：Code ID as appendix C |
| Zone Bit | 0x00B0 |
| Data Bit | Function |
| Bit 7-2 | Keep |
| Bit 1-0 | Data Cut out settlement<br>00：Output whole data          01：Output only the previous M characters<br>10：Output only the last N characters        11：Output center part |
| Zone Bit | 0x00B1 |
| Data Bit | Function |
| Bit 7-0 | Cut out M bytes from start<br>0x00-0xFF：0-255 Byte |
| Zone Bit | 0x00B2 |
| Data Bit | Function |
| Bit 7-0 | Cut out N bytes from end<br>0x00-0xFF：0-255 Byte |
| Zone Bit | 0x00D9（Only read Zone bit） |
| Data Bit | Function |
| Bit 7-0 | Function Zone bit<br>0x55：reset to defaults<br>0xA0：Mild sleep, wake up by UART interrupt, valid serial port command, power consumption:18mA<br>0xA5：Deep sleep,wake up by UART interrupt; module reboot，invalid serial port command；power consumption:1.8mA<br>0x00：write 0 to wake up module |
| Zone Bit | 0x00E1（Only read Zone bit） |
| Data Bit | Function |
| Bit 7-0 | Hardware Version<br>0x64：V1.00<br>0x6E：V1.10<br>0x78：V1.20 |

| | |
|---|---|
| | 0x82：V1.30 |
| | 0x8C：V1.40 |
| | ...... |
| Zone Bit | 0x00E2 （Only read Zone bit） |
| Data Bit | Function |
| Bit 7-0 | Software Version<br>0x64：V1.00<br>0x6E：V1.10<br>0x78：V1.20<br>0x82：V1.30<br>0x8C：V1.40<br>　...... |
| Zone Bit | 0x00E3 （Only read Zone bit） |
| Data Bit | Function |
| Bit 7-0 | Year of software (Add 2000)<br>0x0F：2015<br>0x10：2016<br>0x11：2017<br>　...... |
| Zone Bit | 0x00E4（Only read Zone bit） |
| Data Bit | Function |
| Bit 7-0 | Software month<br>0x09：9 月<br>0x0A：10 月<br>0x0B：11 月<br>　...... |
| Zone Bit | 0x00E5（Only read Zone bi） |
| Data Bit | Function |
| Bit 7-0 | Software date<br>0x09：9<br>0x0A：10<br>0x0B：11<br>　...... |

# XI Appendix

## 11.1 Appendix A: Default settings Table

| Parameter | | Default Setting | Note |
|---|---|---|---|
| Communication interface | | | |
| TTL-232 | Baud rate | 9600 | |
| | Verification | No | |
| | Data Bit | 8 bit | |
| | Stop Bit | 1 bit | |
| | Hardware Flow Control | No | |
| Reading Mode by Default | | Manual Mode | |
| Serial Port Trigge Mode | Single Reading Time | 5s | Parameter Range：0.1-25.5s5，Step: 0.1s；0: The time for a single decoding is unlimited |
| Manual Mode | Trigger Level | Trigger Low Level | Default High |

## 11.2 Appendix B: Common Serial Port Instruction

| Function | Instruction |
|---|---|
| Baud rate to 9600 | 7E 00 08 01 00 D9 D3 20 38 |
| Save settlements to EEPROM | 7E 00 09 01 00 00 DE C8 |
| Find baud rate | 7E 00 07 01 00 2A 02 D8 0F |

Module will return following info after mainframe send serial port instruction - find baud rate

| Return information | Baud rate |
|---|---|
| 02 00 00 02 C4 09 SS SS | 1200 |
| 02 00 00 02 71 02 SS SS | 4800 |
| 02 00 00 02 39 01 SS SS | 9600 |
| 02 00 00 02 D0 00 SS SS | 14400 |
| 02 00 00 02 9C 00 SS SS | 19200 |
| 02 00 00 02 4E 00 SS SS | 38400 |
| 02 00 00 02 34 00 SS SS | 57600 |

PS: SS SS=check value

## 11.3 Appendix C: Code ID List

| Type of Bar Code | Corresponding Character | Zone Bit Address |
|---|---|---|
| EAN-13 | d | 0x91 |
| EAN-8 | d | 0x92 |
| UPC-A | c | 0x93 |
| UPC-E0 | c | 0x94 |
| UPC-E1 | c | 0x95 |
| Code 128 | j | 0x96 |
| Code 39 | b | 0x97 |
| Code 93 | i | 0x98 |
| Codabar | a | 0x99 |
| Interleaved 2 of 5 | e | 0x9A |
| Industrial 2 of 5 | D | 0x9B |
| Matrix 2 of 5 | v | 0x9C |
| Code 11 | H | 0x9D |
| MSI-Plessey | m | 0x9E |
| GS1 Databar(RSS-14) | R | 0x9F |
| GS1 Databar Limited(RSS) | R | 0xA0 |
| GS1 Databar Expanded(RSS) | R | 0xA1 |
| QR Code | Q | 0xA2 |
| Data Matrix | u | 0xA3 |
| PDF 417 | r | 0xA4 |

## 11.4 Appendix D: ASCII

| Hexadecimal | Decimalism | Character |
|:-----------:|:----------:|-----------|
| 00 | 0 | NUL |
| 01 | 1 | SOH |
| 02 | 2 | STX |
| 03 | 3 | ETX |
| 04 | 4 | EOT |
| 05 | 5 | ENQ |
| 06 | 6 | ACK |
| 07 | 7 | BEL |
| 08 | 8 | BS |
| 09 | 9 | HT |
| 0a | 10 | LF |
| 0b | 11 | VT |
| 0c | 12 | FF |
| 0d | 13 | CR |
| 0e | 14 | SO |
| 0f | 15 | SI |
| 10 | 16 | DLE |
| 11 | 17 | DC1 |
| 12 | 18 | DC2 |
| 13 | 19 | DC3 |
| 14 | 20 | DC4 |
| 15 | 21 | NAK |
| 16 | 22 | SYN |
| 17 | 23 | ETB |
| 18 | 24 | CAN |
| 19 | 25 | EM |
| 1a | 26 | SUB |

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| 1b | 27 | ESC |
|---|---|---|
| 1c | 28 | FS |
| 1d | 29 | GS |
| 1e | 30 | RS |
| 1f | 31 | US |
| 20 | 32 | SP |
| 21 | 33 | ! |
| 22 | 34 | " |
| 23 | 35 | # |
| 24 | 36 | $ |
| 25 | 37 | % |
| 26 | 38 | & |
| 27 | 39 | ` |
| 28 | 40 | ( |
| 29 | 41 | ) |
| 2a | 42 | * |
| 2b | 43 | + |
| 2c | 44 | , |
| 2d | 45 | - |
| 2e | 46 | . |
| 2f | 47 | / |
| 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 | : |
| 3b | 59 | ; |
| 3c | 60 | < |
| 3d | 61 | = |
| 3e | 62 | > |
| 3f | 63 | ? |
| 40 | 64 | @ |
| 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 | [ |
| 5c | 92 | \ |
| 5d | 93 | ] |
| 5e | 94 | ^ |
| 5f | 95 | _ |
| 60 | 96 | ' |
| 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 | { |
| 7c | 124 | | |
| 7d | 125 | } |
| 7e | 126 | ~ |
| 7f | 127 | DEL |

## 11.5 Appendix E: Data Code

0 ~ 9



**0**



**1**



**2**



**3**



**4**



**5**

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6



7



8



9

A – F



A



B



C



D

E



F

# XII Data Resources

## 12.1 Schematic

## 12.2 Demo Codes

## 12.3 Data Sheet

# XIII Related Links

# XIV FAQ

# XV Maintenance and Support of Products:

## 15.1 Precautions and Maintenance of Products

### 15.1.1 Precautions

◆ Please do not remove or insert the modules while it is running!

◆ Please follow all warnings and guidance information marked on the product.

◆ Please keep this product dry.If it is splashed or soaked by any liquid accidentally, please power off immediately and dry thoroughly.

◆ Please pay attention to the ventilation and heat dissipation in the environment of running the product to avoid the damage of components by high temperature.

◆ Please do not use or store the product in dusty or dirty environment.

◆ Please do not use the product in alternating environment between hot and cold to

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avoid condensation damage to the components of the product.

◆ Please do not handle the product roughly. Falling, knocking or violent shaking may damage the circuit and components.

◆ Please do not clean this product with organic solvents or corrosive liquids.

◆ Please do not repair or disassemble our products by yourself. If the products break down, please contact us for maintenance in time.Unauthorized repair may damage the product,so the resulting damage will not be covered by warranty.

**15.1.2 Maintenance**

◆ Address: Guangxi Guilin Shengui Technology Co., LTD.

  After-sales maintenance department

  Room 211, No.9 Building, Minhua Science and Technology Information Incubation Base, Chaoyang Road, Information Industry Park, Qixing District, Guilin, Guangxi

◆ Contact: After-sales maintenance department

◆ Phone No.: 86+0773-7799838

**15.2 Technical Support**

Our working time: 9：30 AM-11：30 AM, 3：30 PM－17：30 PM

Phone: 86+0773-7799838

E-mail: gxshengui@163.com