Barcode Scanner Module User Manual

PERFACE

This manual will be updated without prior notice.

Version	Date	Description
V1.1	2018	First version
V1.2	2019-10-10	Function Update
V2.1	2025-04-07	Scanner update, partial Setting codes and serial commands are updated.
	2025-05-21	Correct the registers address of the prefix and suffix

OVERVIEW

This is a small 1D/2D codes reader, by using the intelligent image recognition algorithm, it will decode the barcode or 2D code on paper or screen, fast and accurately. Through the onboard USB and UART interface, it can be directly plugged into a computer or be easily integrated to kinds of devices due to its small form factor.

FEATURES

- Easy to use, requires no knowledge of image recognition
- Decodes various common 1D/2D codes such as Barcode, QR code etc.
- Onboard micro USB and UART serial port, allows to connect with computers or embedded devices
- Configurable via scanning 'configuration code'
- Onboard light source, works in the dark

SPECIFICATIONS

Operating voltage	5V
Operating current	210mA
Standby current	≤25mA
Operating temperature	-20℃~60℃
Operating Humidity	5%~95%(non-condensing)
Interfaces	UART，USB
Light source	White

Scan angle	Tilt 360°， Skew ±65°，Pitch ±60°
FOV	42°(Horizontal)，32°(Vertical)
Resolution	640(H) x 980 (V)
Dimension	53.3mm × 21.4mm

CONTENT

SUPPORT BARCODES

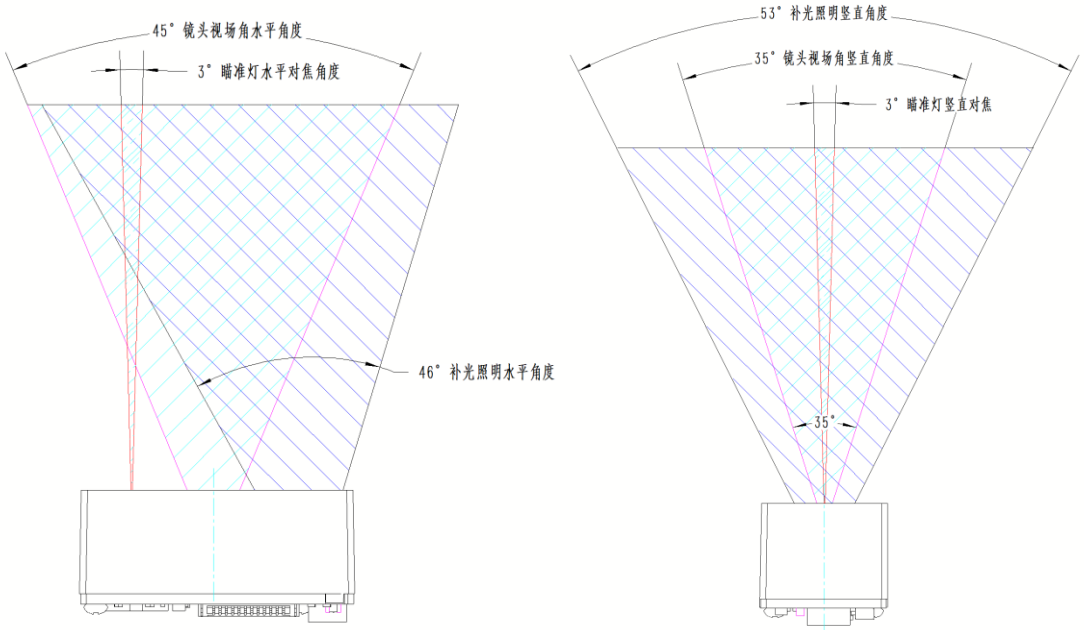
Code Type	Barcode	Support	Support (Factory)
1D	EAN-13	√	√
	EAN-8	√	√
	UPC-A	√	√
	UPC-E	√	√
	ISSN	√	√
	ISBN	√	√
	CodaBar	√	√
	Code 11	√	×
	Code 39	√	√
	Code 93	√	√
	Code 128	√	√
	ITF-14	√	×
	ITF-6	√	×
	Interleaved 2 of 5	√	×
	Matrix 2 of 5	√	×
	MSI-Plessey	√	×
	Industrial 2 of 5	√	×
	GS1 Databar (RSS)	√	√
2D	QR code	√	√
	Micro QR	√	×
	Data Matrix	√	√

	Micro PDF417	√	×
	PDF417	√	√
	Aztec	√	×

SCANNING INSTRUCTIONS

SCANNING AREA

Scanning distance: These values are all measured indoors (250 lux)



Barcode	Density	Min	Max
Code 39	3mils	6.0 cm	14.0 cm
	8mils	4.5 cm	36.0cm
EAN-13	13mils	3.0 cm	43.0cm
Code128	15mils	3.5 cm	53.0cm

The min distance is based on the length of barcode and the scanning angle.

If you want to house the scanner with a window, please note that:

- The window should be colorless
- Check the surface of the window carefully, make sure they are clean, smooth and have not scratch.

- Let the windows cave in the case
- Paralleling window with scanner without skewing. If you locate the window improperly, it will down the scanning performance.
- The window should close to and be in front of the scanner reader (don’ t touch)

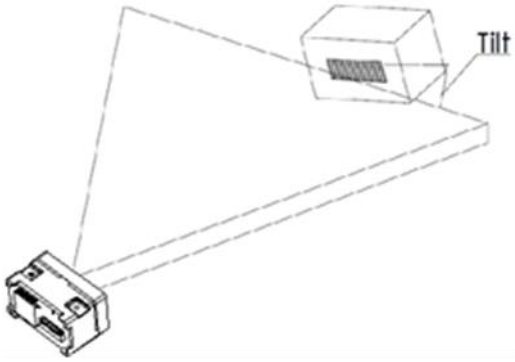
The distance between window and scanner protects the scanner from drop and crash.

SCANNING METHOD

While using the Barcode Scanner Module to scan 1D/2D barcodes, it allows some tilt, skew and pitch. However, you had better reduce them for better and faster scanning result.

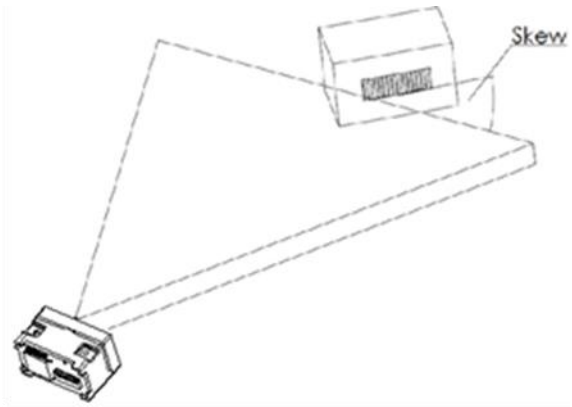
Tilt

You must keep the barcode inside the area of white light. If the barcode is inside the scanning area, the tilt angle could be 360°. To improve the scanning rate, recommend keeping vertical scanning.



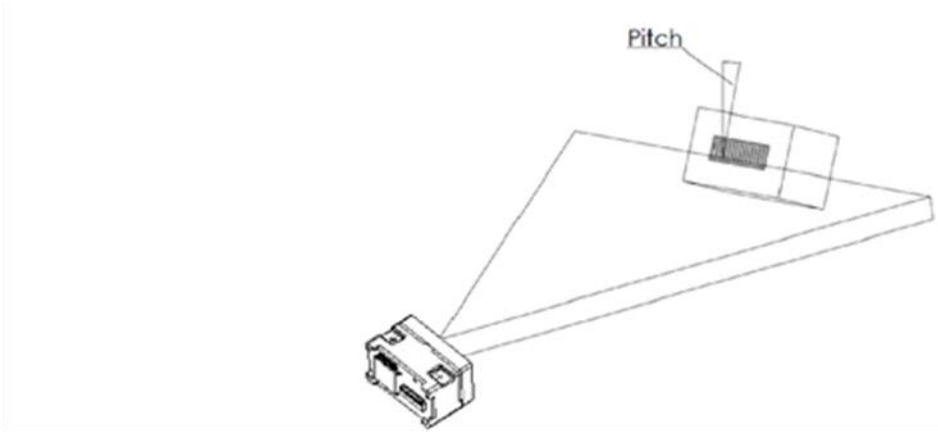
Skew

Skewing will reduce the width and space of barcode (scanned), it is the threshold dimension of high density barcode. It supports up to 65°. However, you’ d better reduce the skew for better and faster scanning.



Pitch

Pitch will decrease the height of barcode. 2° to 3° is the best scanning angle, which could avoid the direct reflection of barcode. Barcode Scanner Module supports up to 60° pitch angles. But you should reduce it for better and faster scanning.



SETTING INSTRUCTION

Setting commands are provided, you could refer to this chapter to configure the Barcode Scanner Module. The factory setting could meet the requirement of common use, users need not more setting.

HARDWARE CONNECTION

This module supports two communicating interfaces. You can connect the USB interface to your device with micro USB cable. Or you can connect the UART interface to your device. If you want to assess the UART interface with PC, you require TTL to USB board. (should be bought separately).

VCC: 5V

Tx: Transmit Pin (Connect to Rx of MCU/USB to TTL adapter)

Rx: Receive Pin (Connect to Tx of MCU/ USB to TTL adapter)

GND: Ground

SETTING CODES

Users could scan the setting codes to configure the Barcode Scanner Module

SETTING CODE

You can scan these two codes to enable/disable the setting code function. Enable it, you could scan setting codes for configuration. And setting code is invalid if disable.

Open/Close:

Open Setting Code Function

Close Setting Code Function

Output content:

Don't Output Content of Setting Code

Output Content of Setting Code

RESTORE FACTORY SETTING

You can scan this setting code to restore to factory setting if require.

Restore Factory Setting

USERS DEFAULT SETTING

Except for the factory setting, users can save the setting as user default setting. By scanning the "Save Current Setting as User Default Setting" code, you can save your current setting as default setting. If there was default setting, and this operation will cover the old information.

By scanning the code "Restore User Default Setting" can restore the module to user default setting.

Save Current Setting as User Default Setting

Restore User Default Setting

UART COMMUNICATION

If you connect the module to MCU by UART interface. You must set the correct UART communication parameters for success in communicating. The default parameters of UART interface of module are that: **Baud rate: 9600bps, Data bit: 8, Stop bit: 1**

Scanning this setting code, it switches the communication interface to UART.

UART Output

1. Baud rate Setting

1200bps

4800bps

*9600bps

14400bps

19600bps

38400bps

57600bps

115200bps

2. Set serial port parity bit

You can scan setting codes below to set parity bit of serial port

*NONE

ODD

EVEN

USB COMMUNICATION

1. USB HID devices

When you connect the module with USB cable, you can set the module to HID device by scanning this code.

USB HID Devices

1.1. Choose HID mode

Two working modes are selectable for HID devices.

*HIDKBW

HIDPOS

1.2. Set HID device

You can define the period of PC access HID device.

*1ms

3ms

5ms

10ms

You can set the interval time of the last valid packet and packet release.

*0ms

1ms

5ms

10ms

15ms

You can also set the interval time of packet release and next valid packet.

*0ms

1ms

5ms

10ms

15ms

You can use this setting code to modify the status of CapLock when data output.

*Off

On

1.3. HID KBW and UART output

You can set the module to work in HID KBW mode and UART mode at the same time.

*Disable

Enable

2. USB Virtual Port

You can set the module to USB virtual port mode by scanning this code.

USB Virtual Port

SCANNING MODE

1. Manual Mode

Manual Mode is default scanning mode. In this mode, user should press the button to begin scanning, and it will finish after scanning or button release.

Manual Mode

Sleep

In manual mode, modules could enter sleep mode if it being idle for some time. You can scan this code to configure this function.

Enable Sleep Function

***Disable Sleep Function**

Default setting is that the module will enter Sleep mode after 30s if module keeps idle. And you can wake it up by press button, module will restart after waking.

2. Continuous Mode

In Continuous Mode, the module will keep scanning automatically. After it success scanning and output result, or reaches the timeout of scanning time, the module will begin its next scan after a certain time (configurable). Users should single press the button to stop the scanning and single press again to continue.

Continuous Mode

Single Scanning Time

In Continuous Mode, this parameter sets the max scanning time for per scanning behavior. If the module succeeds in scanning or the its scanning time reach the max single scanning time, module will enter the non-scanning interval. The range of single scanning time should be 0.1~25.5s. If it is set to 0, it means that scanning time is infinite. It is 5.0s by default.

1000ms

3000ms

*5000ms

infinite

Non-Scanning Interval

It is the interval between two scanning behaviors. That is module will scan nothing after last scanning for this interval time before and begin its next scanning. The setting range of this interval is 0~25.5s. It is 1.0s by default.

No Interval

500ms

*1000ms

1500ms

2000ms

Delay for same barcodes

To avoid scanning the same barcodes multiple times. You can set a delay time. If module scans a same barcode, it will compare the time with the last scanning, only the result is larger than the delay time, the result can be outputted, otherwise, the barcodes is thrown away.

Delay of same barcode

*Disable delay of same barcode

Delay time of the same barcodes

You can set the delay time after you enable it.

Infinite

500ms

1000ms

3000ms

5000ms

3. Sensing Mode

In Sensing Mode, the module will detect the ambient brightness, if the brightness changes, module will begin scanning after an image stabilization time (configurable). After one scanning (success or timeout), module will enter detecting state again after a certain time (configurable). Module will keep this cycle unless: If timeout, module will stop scanning and in detecting state automatically. In Sensing Mode, user could also press the button to scan, and module will back detecting after success scanning or button release.

Sensing Mode

Single Scanning time

In Sensing Mode, this parameter sets the max scanning time for per scanning behavior. If the module succeeds in scanning or the its scanning time reaches the max single scanning time, module will enter the non-scanning interval. The range of single scanning time should be 0.1~25.5s. If it is set to 0, it means that scanning time is infinite. It is 5.0s by default

1000ms

3000ms

*5000ms

Infinite

Non-Scanning Interval

It is the interval between scanning and detecting. That is module will scan nothing after last scanning for this interval time before and begin its next detecting. The setting range of this interval is 0~25.5s. It is 1.0s by default.

No Interval

500ms

*1000ms

1500ms

2000ms

Image stabilization time

It is the time for module to stabilize image if brightness changed is detected in sensing mode. The range is 0~25.5s, and 0.4s by default.

100ms

*400ms

1000ms

2000ms

Sensitivity

This is sensitivity of module switch working mode (idle/work).

*Common

Low

High

Highest

Delay for same barcodes

To avoid scanning the same barcodes multiple times. You can set a delay time. If module scan the same barcode, it will compare the time with last scanning, only the

result is larger than the delay time, the result can be output, otherwise, the barcodes is throw away. (Same as Continuous mode)

4. Command Mode

In command mode, the scanner will begin scanning after receiving the command from MCU. (That is set bit0 to 1 on address 0x0002).

Command Mode

Note: The scanning command (UART) is:7E 00 08 01 00 02 01 AB CD. The scanner module will response bytes (02 00 00 01 00 33 31) for the command and begin scanning at the same time.

Single Scanning Time

In command mode, this parameter sets the max scanning time for per scanning behavior. If the module succeeds in scanning or the its scanning time reach the max single scanning time, module will enter the non-scanning interval. The range of single scanning time should be 0.1~25.5s. If it is set to 0, it means that scanning time is infinite. It is 5.0s by default.

1000ms

3000ms

*5000ms

infinite

5. POS Mode

You can use this setting code to quickly configure the module to POS mode. In POS mode, the module is set to:

Scanning mode: **Command mode**;

Output interface: **UART**;

Start music: **Disable**;

End mark: **Disable**;

POS Mode

SCAN AREA

You can set the scan area of module for different applications.

1. Whole area

If the scan area is whole size, module will scan from center to edge, the barcode can be set are any place of the image.

*Whole area

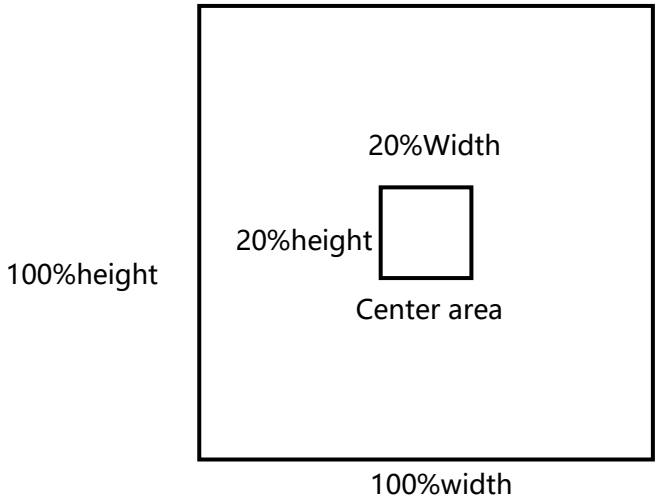
2. Center area

If the scan area are only in the center, you must set the barcode on center of image, otherwise, it isn’ t scanned.

Center area

2.1 Set size of center area

The center area is put on the center of the image, use the same center of image. The range of the size is 1-100 (percentage of the whole image). for example, if the size is 20, and it should be:



You can set the size of the center area:

Center 20%

Center 40%

Center 60%

You can also define the size yourself by setting codes “Change center size”

Change center size

Example: Set the center size to 50%

(1) From character table we get that the Hex value of “50” is 32

(2) Make sure the setting codes is enabled.

(3) Scan the “Change center size”

(4) Scan data codes “3” and “2” one by one.

(5) Scan “Save” code.

LIGHTING AND TARGETING

1. Lighting

The white LED provides light for scanning, to improve the scanning performance and supports weak light environments. It has three states for choice:

Standard (default): The LED only turn on when scanning, or it keeps off.

Keep lighting: The LED will keep lighting after powering on scanner module

No light: The LED is turned off all the time.

*Standard

Keep lighting

No light

2. Targeting

The targeting light beam could help user to get the best scanning distance and angle. User can set it:

Standard (default): The LED only turn on when scanning, or it keeps off.

Keep lighting: The LED will keep lighting after powering on scanner module

No targeting: The LED is turned off all the time

*Standard

keep lighting

No targeting

OUPUT INDICATION

1. All warning tones

You can set the buzzer to active/passive buzzer, as well as setting the driving frequency of passive buzzer.

Driving Frequency-Passive LF

***Driving Frequency-Passive MF**

Driving Frequency-Passive HF

Driving Frequency-Active

Note:

LF: Low frequency;

MF: Midium frequency;

HF: High frequency

In active driving mode, users can set the working level of buzzer.

***Working level-High**

Working level-Low

User can turn off all the warning tones by use the code “Enable silence”.

Enable silence

*Disable Silence

2. Start music

You can enable and disable the start music here:

*Enable start music

Disable start music

3. Scanned tone

With this code, you can set the buzzer behavior when you succeed in scanning barcode.

*Open Scanned tone

Close Scanned tone

The time of the warning tone can also be set, it is default 60ms.

Tone time-30ms

*Tone time-60ms

Tone time-90ms

Tone time-120ms

4. Decoding prompt

You can enable this function for MCU to know whether succeed in decoding. After enabling this function, module will send prompt character “F” if it failed decoding and “S” if success.

*Don't output decoding prompt

Output decoding prompt

5. Keyboard setting

To compatible with different keyboard layout of different countries. There are keyboard setting code for choosing.

*Keyboard-US

Keyboard-Czech

Keyboard-French

Keyboard-German

Keyboard-Hungarian

Keyboard-Italian

Keyboard-Japanese

Keyboard-Spanish

Keyboard-Turkey F

Keyboard-Turkey Q

Keyboard-Portugal

Keyboard-UK

Keyboard-Netherlands

Keyboard-Finland

Keyboard - Denmark

Keyboard - Poland

Keyboard - Sweden

Keyboard - Belgium(French)

Keyboard - Norse(Southern Sami)

Keyboard - Snowvak

Keyboard - Romania

Keyboard - Israel(Hebrew)

Keyboard - Switzerland(German)

Keyboard -Latin American(Spanish)

Keyboard - Russia

Keyboard - Canada(French)

Keyboard - Greece

Keyboard - Thailand

Keyboard -Brazil (Portuguese)

6. Virtual Keyboard Enable/Disable

To be used in more areas, we also provide a virtual keyboard function, after the virtual keyboard is enabled, it can be used in any keyboard mode. However, it will lose a certain output efficiency. In addition, when using a virtual keyboard mode, you must ensure that the keypad number keys are enabled.

*Normal Keyboard

Virtual Keyboard

To adapt to different application scenarios, the virtual keyboard has two different output modes for the control character smaller than 0x20, you can switch by scanning the following setting code.

Ctrl Mode

*Alt Mode

7. Image flip

Sometimes we may need to flip the barcode as below

original image

flip image

If your barcode is flipped, you can use the flip mode.

Enter flipped mode

*Normal mode

8. Color Invert

Sometimes your barcode’ s color is inverted, in this case, you can use color inverted code here.

*Disable barcode color invert

Enable barcode color invert

* Disable QR code color invert

Enable QR code color invert

9. Read version information

You can read the version information of module with this setting code.

Read version information

DATA EDIT

Sometimes we need to edit the scanned data first before output for easily managing.

Data edit includes:

- Add **Prefix**
- Add **Suffix**
- Decoding **Data** intercepting
- Output **CodeID** of barcode
- **RF** information for failed decoding
- Add terminator **Tail**

The format of Data is as below after edit:

【Prefix】【CodeID】【Data】【Suffix】【Tail】

1. Prefix

Add prefix

Profix is a definable string added in front of decoding data, user can edit it by scanning the related setting code

Allow prefix adding

Without prefix

Modify prefix

You can scan “Modify prefix” code and data setting code to change the prefix.

Every character has two HEX and every prefix should be less than 16 characters.

The Hex of character refers to Appendix D

Modify prefix

Example: Change the prefix as “DATA”

1) Query the character table to get the HEX of “DATA” are that: “44”, “41”,” 54”, “41”
2) Make sure Setting code is enabled, if no, please scanning the setting code “Open Setting Code Function”
3) Scanning “Modify prefix” code
4) Scanning the data setting code one by one: “4”, “4”, “4”, “1”, “5”, “4”, “4”, “1”
5) Scanning “Save” Setting code

2. Suffix

Add suffix

Suffix is definable string added after decoding information.

Allow Suffix Adding

*Without Suffix

Modify Suffix

The suffix can be changed to the same as the Prefix.

Modify Suffix

Example: Change the Suffix as "DATA"

1) Query the character table to get the HEX of "DATA" are that: "44", "41","54", "41"
2) Make sure Setting code is enabled, if no, please scanning the setting code "Open Setting Code Function"
3) Scanning "Modify prefix" code
4) Scanning the data setting code one by one: "4", "4", "4", "1", "5", "4", "4", "1"
5) Scanning "Save" Setting code

3. Terminator

To enable the host to quickly distinguish the results of the current decoding, you can enable this function.

Read "Add Terminator" setting code, after this function is enabled, the read module adds the corresponding terminator after decoding the data.

Disable Terminator

***Add Terminator CR**

Add Terminator TAB

Add Terminator CRLF

Modify Terminator to dual CRLF

Modify Terminator tail to CRDownArrow

4. 输出协议

You can change the output format of the decoding results in the serial port/virtual serial port mode by scanning the following setting code.

If you choose the output format with a protocol, the format is as follows:

<03><Length><Decoded data>.

Note: In the protocol mode, the output format must use UTF-8 encoding. When using other output encoding formats, only pure data can be output regardless of whether the protocol output is selected.

*Pure Data

With Protocol

5. AIM ID

AIM is the abbreviation of Automatic Identification Manufacturers. AIM ID defines identification codes for various standard barcodes respectively (users cannot customize AIM IDs). For specific definitions, see (Appendix B: List of AIM IDs). After decoding, the scanning engine can add this identification code before the barcode data. The format is: "]" + the letter "C" + the digit "0". For example, the AIM ID of Code 128 is "]C0".

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Adding AIM ID

Users can use AIM IDs to identify different barcode types. The AIM ID corresponding to each barcode type cannot be freely modified by users. Code IDs are identified using three characters.

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Enable AIM ID

***Disable AIM ID**

6. CODE ID

Add CODE ID

Users can use CODE ID to identify different type of barcode. CODE ID is chagnable. Every CODE ID has one character.

Allow Adding CODE ID

***Without CODE ID**

Default CODE ID

Using "Default CODE ID" code, the module will restore all barcode information to default code id. The default setting should refer to Appendix C

Default CODE ID

Change CODE ID

User can change the Code ID with related setting codes. Every code id has one character (one HEX value). More details about characters, please refer to Appendix D

Example: change the CODE ID of CODE 128 to "A"

1) Query the HEX value of "A" is "41"
2) Make sure Setting code is enabled, if no, please scanning the setting code "Open Setting Code Function"
3) Scanning setting code "Modify CODE ID of CODE 128"
4) Scanning data setting codes "4" , " 1"
5) Scanning setting code "Save"

Change CODE ID List

Modify CODE ID of EAN 13

Modify CODE ID of EAN8

Modify CODE ID of UPCA

Modify CODE ID of UPCE0

Modify CODE ID of UPCE1

Modify CODE ID of CODE 128

Modify CODE ID of CODE 39

Modify CODE ID of CODE 93

Modify CODE ID of CODE BAR

Modify CODE ID of Interleaved 2 of 5

Modify CODE ID of Industrial 25

Modify CODE ID of Matrix 2 of 5

Modify CODE ID of CODE 11

Modify CODE ID of MSI

Modify CODE ID of RSS

Modify CODE ID of Limited RSS

Modify CODE ID of Expanded RSS

Modify CODE ID of QR CODE

Modify CODE ID of Data Matrix

Modify CODE ID of Limited PDF417

Modify CODE ID of MicroQR

Modify CODE ID of AZTEC

Modify CODE ID of GS1STACK

Modify CODE ID of ISSN

Modify CODE ID of MicroPDF417

Modify CODE ID of ISBN

7. Data segment intercept

The decoding data 【Data】could be divided to three parts:

【Start】【Center】【End】

The length of Start and End segments can be set:

*Send whole Data

Only Send Start Segment

Only Send End Segment

Only Send Center Segment

Change the Length M of Start

With data setting code and this one, you can change the length of Start segment.

The length of Start is max 255 characters.

The Length M is represented by a HEX. More details about HEX refer to Appendix D

Modify the Length M

Change the Length N of End

With data setting code and this one, you can change the length of End segment.

The length of Start is max 255 characters.

The Length N is represented by a HEX. More details about HEX refer to Appendix D

Modify the Length N

Examples:

- Decoding Data: "1234567890123ABC", output the first thirteen bytes:

  "1234567890123" (Only Start)

  1) Query the characters table to get the HEX value of "13" (DEC) is "0D"

  2) Make sure the setting code function is enable, if not, open it.

  3) Scanning "Modify the Length M"

  4) scanning setting code: "0", "D"

  5) Scanning "Save"

  6) Scanning "Only Send Start Segment"

- Decoding Data: “1234567890123ABC”, output the last three bytes: “ABC”

  (Only End)

  1) Query characters table, get the HEX value of “3” (DEC) is “03”

  2) Make sure the setting code function is enable, if not, open it.

  3) Scanning “Modify the length N”

  4) Scanning setting code: “0” . “3”

  5) Scanning “Save”

  6) Scanning “Only Send End Segment”

- Decoding Data: “1234567890123ABC”, output the center four bytes “0123”

  (Only Center)

  1) Query characters table, get the HEX value of “10” (DEC) and “3” are “0A”

  and “03” separately

  2) Make sure the setting code function is enable, if not, open it.

  3) Scanning “Modify the Length N”

  4) Scanning setting code: “0” . “3”

  5) Scanning “Save”

  6) Scanning “Modify the Length M”

  7) Scanning setting code “0”, “A”

  5) Scanning “Save”

  6) Scanning “Only Send Center Segment”

8. RF Information

RF (Read Fail) information is the that used for indicating failed scanning in some modes.

Send RF Information

*Without RF Information

Modify Information

The RF information can be modified by users. The max length of RF is 15 and every character represented by two HEX values. (Appendix D)

Modify RF Information

Example: Modify the RF information as "FAIL"

1) Query characters table to get the HEX values of "FAIL" are "46", "41", "49", "4C"
2) Make sure setting code function is enabled, if not, please enable it.
3) Scanning "Modify RF Information"
4) Scanning data setting code: "4", "6", "4", "1", "4", "9", "4", "C"
5) Scanning "Save"

BARCODE TYPES ENABLE/DIABLE

1. All Types Enable

With these setting code, you can enable/disable all types of barcode. If you disable all types of barcode, only the setting code is scannable.

Enable All Types

*Enable Default Types

Disable All Types

2. Enhance scanning

Using these codes, you can enhance the scan effect of module. It can make the scan angle larger than 45° and the ability of scanning low-contrast and gradient barcodes.

The decoding is speed up if enhance feature is disabled.

*Disable scan enhance

Enable scan enhance

3. EAN13

Enable/Disable EAN13 barcode

*Enable Scanning EAN13

Disable Scanning EAN13

Enable/Disable extracode of EAN13

*2bit extracode disable

2bit extracode enable

*5bit extracode disable

5bit extracode enable

4. EAN8

Enable/Disable EAN8 barcode

*Enable Scanning EAN8

Disable Scanning EAN8

Enable/Disable extracode of EAN8

*2 bit extracode disable

2 bit extracode enable

*5bit extracode disable

5 bit extracode enable

5. UPCA

Enable/Disable UPCA barcode

***Enable Scanning UPCA**

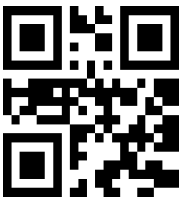
Disable Scanning UPCA

Enable/Disable extracode of UPCA

***2bit extracode disable**

2 bit extracode enable

***5bit extracode disable**



5bit extracode enable

6. UPCE0

Enable/Disable UPCE0 barcode

***Enable Scanning UPCE0**

Disable Scanning UPCE0

7. UPCE1

Enable/Disable UPCE1 barcode

*Enable Scanning UPCE1

Disable Scanning UPCE1

Enable/Disable extracode of UPCE1

*2bit extracode disable

2bit extracode enable

*5bit extracode disable

5bit extracode enable

8. Code128

Enable/Disable Code128 barcode

*Enable Scanning Code128

Disable Scanning Code128

Setting the Min Scannable Length of Code128:

Code128 Min Length 0

*Code128 Min Length 4

Setting the Max scannable length of Code128:

*Code128 Max Length 32

Code128 Max Length 255

9. Code 39

Enable/Disable Code39

*Enable Scanning Code39

Disable Scanning Code39

Setting the Min scannable length of Code39:

Code39 Min Length 0

*Code39 Min Length 4

Setting the Max Scannable length of Code39:

*Code39 Max Length 32

Code39 Max Length 255

Enable/Disable start and end character of Code39

*Disable Start Character

Enable Start Character

*Disable End Character

Enable End Character

Enable/Disable Code32 Mode and FullFsc mode

*Disable Code32

Enable Code32

*Disable FullAsc

Enable FullAsc

10. Code93

Enable/Disable Code93 barcode

*Enable Scanning Code93

Disable Scanning Code93

Setting the Min scannable length of Code93:

Code93 Min Length 0

*Code93 Min Length 4

Setting the Max scannable length of Code93:

*Code93 Max Length 32

Code93 Max Length 255

11. Code Bar

Enable/Disable Code Bar barcode

*Enable Scanning Code Bar

Disable Scanning Code Bar

Setting Start/Stop characters of Code Bar:

Send Code Bar Start/Stop Character

*Without Code Bar Start/Stop Character

Setting the min scannable length of Bar Code

Code Bar Min Length 0

*Code Bar Min Length 4

Setting the max scannable length of Bar Code

*Code Bar Max Length 32

Code Bar Max Length 255

12. QR

Enable/Disable QR code

*Enable Scanning QR

Disable Scanning QR

13. Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5 code

Enable Scanning Interleaved 2 of 5

*Disable Scanning Interleaved 2 of 5

Setting the min scannable length of Interleaved 2 of 5 code:

Interleaved 2 of 5 Min Lenght 0

* Interleaved 2 of 5 Max Length 4

Setting the max scannable length of interleaved 2 of 5 code:

*** Interleaved 2 of 5 Min Length 32**

Interleaved 2 of 5 Max Length 255

14. Industrial 25

Enable/Disable Industrial 25 code

Enable Scanning Industrial 25

***Disable Scanning Industrial 25**

Setting the min scannable length of Industrial 25

Industrial 25 Min Length 0

*** Industrial 25 max Length 4**

Setting the max scannable length of Industrial 25:

*** Industrial 25 Max Length 32**

Industrial 25 Max Length 255

15. Matrix 2 of 5

Enable/Disable scanning Matrix 2 of 5 code:

Enable Scanning Matrix 2 of 5

*Disable Scanning Matrix 2 of 5

Setting the min scannable length of Matrix 2 of 5

Matrix 2 of 5 Min Length 0

* Matrix 2 of 5 Min Length 4

Setting the max scannable length of Matrix 2 of 5

* Matrix 2 of 5 Max Length 32

Matrix 2 of 5 Max Length 255

Set check mode of Matrix 2 of 5 code

Matrix 2 of 5-Mod10

*Matrix 2 of 5-None

16. Code11

Enable/Disable Scanning Code11

Enable Scanning Code11

*Disable Scanning Code11

Setting the min scannable length of Code11:

Code11 Min Length 0

*Code11 Min Length 4

Setting the max scannable length of Code11:

*Code11 Max Length 32

Code11 Max Length 255

Set parity type of Code11:

Code11-1bit

*Code-2bit

17. MSI

Enable/Disable scanning MSI code

Enable Scanning MSI

*Disable Scannig MSI

Setting the min scannable length of MSI:

MSI Min Length 0

*MSI Min Length 4

Setting the max scannable length of MSI:

* MSI Max Length 32

MSI Max Length 255

18. RSS

Enable/Disable scanning RSS-14

Enable Scanning RSS-14

*Disable Scanning RSS-14

Enable/Disable scanning Limited RSS

Enable Scanning Limited RSS

*Disable Scanning Limited RSS

Enable/Disable scanning Expanded RSS

Enable Scanning Expanded RSS

*Disable Scanning Expanded RSS

Setting the min scannable length of RSS

RSS Min Length 0

*RSS Min Length 4

Setting the max scannable length of RSS

* RSS Max Length 32

RSS Max Length 255

19. DM

Enable/Disable Scanning DM code

*Disable multiple DM code

Enable multiple DM code

Enable/Disable scan multiple DM code

*Enable Scanning DM

Disable Scanning DM

20. PDF417

Enable/Disable scanning PDF417 code:

*Enable Scanning PDF417

Disable Scanning PDF417

21. Micro PDF417

Scan the following setting code will set the Micro PDF417 barcode to enable/disable reading.

*Enable Scanning MicroPDF417

Disable Scanning MicroPDF417

22. Aztec Code

Scan the following setting Code to enable/disable the Aztec code.

*Enable Scanning Aztec

Disable Scanning Aztec

APPENDIX A: DEFAULT SETTING TABLE

Parameters		Default Setting	Note
Communicating Interface			
UART	Baud rate	9600	
	Parity	None	
	Data bit	8	
	Stop bit	1	
	Flow control	None	
Mode			
Default Scanning Mode		Manual Mode	
UART Mode	Single scanning time	5s	Range: 0.1-25.5s, Step: 0.1s; 0 stands for infinite
Manual Mode	Trigger Level	Low	Default High

APPENDIX B: COMMON UART COMMAND

Functions	Commands
Set Baud rate as 9600	7E 00 08 02 00 2A 39 01 A7 EA
Save setting to EEPROM	7E 00 09 01 00 00 00 DE C8
Query the baud rate	7E 00 07 01 00 2A 02 D8 0F

After sending the query command of baud rate, the module will response as below:

Return	Related 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

Note: SS SS is checksum

APPENDIX C: CODE ID LIST

Code Type	Code ID	Flag address
EAN-13	d	0x64
EAN-8	d	0x64
ISSN	n	0x6E
ISBN	B	0x42
UPC-A	c	0x63
UPC-E	c	0x63
Aztec Code	Z	0x7A
Code 128	j	0x6A
Code 39	b	0x62
Code 93	i	0x69
Codabar	a	0x61
Interleaved 2 of 5	e	0x65
Industrial 2 of 5	D	0x44
Matrix 2 of 5	v	0x76
Code 11	H	0x48
MSI-Plessey	m	0x6D
GS1 Databar(RSS-14)	R	0x52
GS1 Databar Limited(RSS)	R	0x52
GS1 Databar Expanded(RSS)	R	0x52
GS1 Databar Stacked(RSS)	R	0x52

APPENDIX D: ASCII TABLE

HEX	DEC	Character
0	0	NUL
1	1	SOH
2	2	STX
3	3	ETX
4	4	EOT
5	5	ENQ
6	6	ACK
7	7	BEL
8	8	BS
9	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

HEX	DEC	Character
15	21	NAK
16	22	SYN
17	23	ETB
18	24	CAN
19	25	EM
1a	26	SUB
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	*

HEX	DEC	Character
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	@

HEX	DEC	Character
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

HEX	DEC	Character
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

HEX	DEC	Character
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

APPENDIX E: DATA CODE

0~9:

0

1

2

3

4

5

6

7

8

9

A~F:

A

B

C

D

E

F

APPENDIX F: SAVE AND REMOVE

Using Data Code, you need to scan the "Save" to save your setting, you can also use "Remove" /" Cancle" to remove your wrong data setting if require.

Save

Exit one Data scanned before

Remove a string of Data Scanned

Cancel Modify Setting

APPENDIX G: AIM ID LIST

Code Type	AIM ID	Description
Code 128	]C0	Common Code 128 data
EAN-8	]E4	Common EAN-8 data
EAN-13	]E0	Common EAN-13 data
ISSN	]X5	
ISBN	]X4	
UPC-E / UPC-A	]E0	Common UPC-E/UPC-A data
Interleaved 2 of 5	]I0	No check character
ITF-6 / ITF-14	]I0	Output check character
Matrix 2 of 5	]X1	No check character
Industrial 25	]S0	
Code 39	]A1	MOD 43 CRC, and output it
Codabar	]F0	Standard data packet without processed
Code 93	]G0	
Code 11	]H1	MOD11 dual char CRC, RSS-Expand, RSS-Stacked
MSI Plessey	]M1	MOD10 CRC, don’ t output
GS1 Databa (RSS)	]e0	RSS-14, RSS-Limited, RSS-Expand, RSS-Stacked
PDF417	]L0	Compatible with 1994 PDF417 encoding
Data Matrix	]d1	DM Code ECC200
QR Code	]Q1	QR Mode 2（2005 symbol），without ECI

UART COMMAND

User can set module by sending command via UART interface. Default UART parameters of scanner module are: Baud rate: 9600bps: Parity: None; Data bit: 8; Stop bit: 1

READ

For devices flag reading, supports 256 bytes for every reading.

Command format: {Head1} {Types} {Lens} {Address} {Data} {CRC}

Head1 : 0x7E 0x00（2 bytes）

Types : 0x07（1 byte）

Lens : 0x01（1 byte）

Address : 0x0000~0x00FF（2 bytes）, the start address of flag read

Data : 0x00~0xFF（1 byte）, number of bytes read sequentially, 0x00 stand for 256 bytes

CRC : CRC_CCITT checksum (2 bytes). The calculate range: Types, Lens, Address, Data; Use CRC_CCITT polynomial: X16+X12+X5+1, whose coefficients is 0x1021. Initial value is 0, first calculate high bit for single byte without negating.

The referent C code:

```
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) //上一位 CRC 乘 2 后，若首位是 1，则除以
0x11021 crc ^= 0x11021;
if((*ptr&i) != 0) //如果本位是 1，那么 CRC = 上一位的 CRC + 本位
/CRC_CCITT crc ^= 0x1021;
}
ptr++;
```

Note: Can use 0xAB 0xCD as CRC bytes if user don’ t need check function.

Return: {Head2} {Types} {Lens} {Data} {CRC}

1) Read successfully and return data

   Head2 : 0x02 0x00

   Types : 0x00（Read Success）

   Lens : Upload number of Data bytes, 0x00 stand for 256 bytes

   Data : 0x00~0xFF, the data read

   CRC : CRC_CCITT checksum (2 bytes). The calculate range: Types, Lens, Address, Data; Use CRC_CCITT polynomial: X16+X12+X5+1, whose coefficients is 0x1021. Initial value is 0, first calculate high bit for single byte without negating.

2) Upload CRC check failed and have no return

   No return

3) Unknow command response

   No return

Example:

Read operation on address 0x000A

1) Successfully reading and return data 0x3E

   Command: 0x7E 0x00 0x07 0x01 0x00 0x0A 0x01 0xEE 0x8A

   Return: 0x02 0x00 0x00 0x01 0x3E 0xE4 0xAC

2) CRC error

   Command: 0x7E 0x00 0x07 0x01 0x00 0x0A 0x01 0x11 0x22

   Return: None

3) The length of command is not enough or timeout (reach 400ms) after 0x7E 0x00 sent, it will be handled as unknow command

   Command: 0x7E 0x00 0x07 0x01 0x00 0x0A 0x01

   Return: None

WRITE

For every writing operation, the bytes can up to 256. After your write the module, you need to save the setting to inter flash for saving forever.

Command: {Head1} {Types} {Lens} {Address} {Data} {CRC}

Head1 ： 0x7E 0x00（2 bytes）

Types ： 0x08（1 byte）

Lens ： 0x00~0xFF（1 byte），number of byte in Data segment, also the num of writing operation. 0x00 stand for 256 bytes

Address ： 0x0000~0xFFFF（2 bytes），the start address written

Data ： 0x00~0xFF（1~256 bytes），Data written

CRC ： CRC_CCITT checksum (2 bytes). The calculated range: Types, Lens, Address, Data; Use CRC_CCITT polynomial: X16+X12+X5+1, whose coefficients is 0x1021. Initial value is 0, first calculate high bit for single byte without negating. The referent code:

```
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) //上一位 CRC 乘 2 后，若首位是 1，则除以 0x11021
crc ^= 0x11021;
if((*ptr&i) != 0) //如果本位是 1，那么 CRC = 上一位的 CRC + 本位/CRC_CCITT
crc ^= 0x1021;
}
ptr++;
```

Note: if you don’ t need CRC check, just replace it with 0xAB 0xCD

Return: {Head2} {Types} {Lens} {Data} {CRC}

1) Write successfully

   Head2 : 0x02 0x00

   Types : 0x00（Write successfully）

   Lens : 0x01

   Data : 0x00

   CRC : CRC_CCITT checksum（0x33 0x31）

2) CRC check failed

   No return

3) Unknow command

   No return

Example:

Write 0x3E to address 0x000A

1) Write successfully

   Command: 0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E 0x4C 0xCF

   Return: 0x02 0x00 0x00 0x01 0x00 0x33 0x31

2) CRC failed

   Command: 0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E 0x11 0x22

   Return: None

3) The length of command is not enough or it is timeout after 0x7E 0x00 command sent, it will be handled as unknow command

Command: 0x7E 0x00 0x08 0x01 0x00 0x0A 0x3E

Return: None

SAVE TO FLASH

If you want to save the setting of device to inter flash, you can use save command

Command: {Head1} {Types} {Lens} {Address} {Data} {CRC}

Head1 : 0x7E 0x00

Types : 0x09

Lens : 0x01

Address : 0x0000

Data : 0x00

CRC : CRC_CCITT checksum (0xDE 0xC8)

Return: {Head2} {Types} {Lens} {Data} {CRC}

1) Save successfully

Head2 : 0x02 0x00

Types : 0x00 (save successfully)

Lens : 0x01

Data : 0x00

CRC : CRC_CCITT checksum (0x33 0x31)

2) CRC check failed

No return

3) Unknow Command

No return

RESTORE TO FACTORY SETTING

If you want to restore devices flags to factory setting, and save to external EERPOM, you can use restore command

Command: {Head1} {Types} {Lens} {Address} {Data} {CRC}

Head1 : 0x7E 0x00

Types : 0x08

Lens : 0x01

Address : 0x00D9

Data : 0x50

CRC : CRC_CCITT checksum

Return: {Head2} {Types} {Lens} {Data} {CRC}

1) Successfully save

Head2 : 0x02 0x00

Types : 0x00 (successfully save)

Lens : 0x01

Data : 0x00

CRC : CRC_CCITT checksum (0x33 0x31)

2) CRC check failed

No return

3) Unknow command

No return

ADDRESS TABLE

Address	0x0000
Data bit	Function
Bit 7	1：Open LED indication for decoding successfully 0：Close LED indication
Bit 6	1：Close silence 0：Enable silence
Bit 5-4	00：No target 01：Standard 10/11：Keep lighting
Bit 3-2	00：No lighting 01：Standard 10/11：Keep lighting
Bit 1-0	00：Manual mode; 01：Command mode; 10：Continuous mode; 11：Sensing mode
Address	0x0002
Data bit	Function
Bit 7-1	Reserved
Bit 0	Toggle scanning (Command mode) 1: Enable scanning; 0: Disable
Address	0x0003
Data bit	Function
Bit 7-2	HID query period Period = (Reg0x0003[7:2] + 1)ms

Bit 1	1：Close Setting code　　0：Open Setting code
Bit 1-0	1：Output content of Setting code　　0：Without content of Setting code
Address	0x0004
Data bit	Function
Bit 7-0	Time of image stabilization 0x00-0xFF：0.0-25.5s
Address	0x0005
Data bit	Function
Bit 7-0	Interval of scanning 0x00-0xFF：0.0-25.5s
Address	0x0006
Data bit	Function
Bit 7-0	Time of single scanning 0x00-0xFF：0.0-25.5s
Address	0x0009
Data bit	Function
Bit 7-2	Interval of HID release Interval = （Reg0x0009[7:2]）ms
Bit 1-0	Image invert；

	00：Disable invert； 01： Enable invert； 10/11：保留
Address	0x000B
Data bit	Function
Bit 7-0	Duration of warning tone 0x00-0xFF；0-255ms
Address	0x000C
Data bit	Function
Bit 7-2	Interval of HID release Interval = （Reg0x000C[7:2]）ms
Bit 1	CapsLock Enable/Disable 0: Disable; 1: Enable
Bit 0	Default level in active buzzer mode 0：High for idle and Low for busy； 1：Low for busy and High for idle
Address	0x000D
Data bit	Function
Bit 7	Reserved
Bit 6	Virtual keyboard Flag; 0: disable； 1: enable
Bit1-0	00：UART; 01：USB PC keyboard; 10：Reserved; 11：USB virtual port
Address	0x000E

Data bit	Function
Bit 7-4	Sleep interval time. Interval time = (Reg0x000E[7:4]*500) ms
Bit 3	Reserved
Bit2	1：Open warning tone of decoding　　0：Close warning tone of decoding
Bit 1	1: Disable start music; 0: Enable start music
Bit 0	1: Enable HID;　0:Disable HID
Address	0x000F
Data Bit	Function
Bit 7-0	Sensitivity parameter 1 0x00-0xFF：　Higher the value, lower the sensitivity, default 0x32
Address	0x0010
Data Bit	Function
Bit 7-0	Sensitivity parameter 2 0x00-0xFF：Higher the value, lower the sensitivity, default 0x0A
Address	0x0013
Data Bit	Function
Bit 7	Delay of same barcode 0：Disable delay；　　1：Enable delay
Bit 6-0	Delay time of same barcode（unit：100ms） 0x00：infinity;　　0x01-0x7F：0.1-12.7s；

Address	0x0014
Data Bit	Function
Bit 7-0	Time for data output（unit：10ms） 0x00-0xFF：0-2.55s
Address	0x0026
Data bit	Function
Bit 7-1	Reserved
Bit 0	Scan RSS_STACK Code 0: Disable;　1: Enabled
Address	0x0029
Data bit	Function
Bit 7-1	Reserved
Bit 0	Scan Micro PDF417 Code 0: Disable;　1: Enabled
Address	0x002B，0x2A
Data bit	Function
Bit 15-13	Reserved
Bit 12-0	0x09C4：baud rate is 1200 bps 0x0271：　Baud rate: 4800 bps 0x0139：　Baud rate: 9600 bps

	0x00D0： Baud rate: 14400 bps 0x009C： Baud rate: 19200 bps 0x004E： Baud rate: 38400 bps 0x0034： Baud rate: 57600 bps 0x001A： Baud rate: 115200bps
Address	0x002C
Data bit	Function
Bit 7-4	Reserved
Bit 3	Scan area 0： Whole area; 1: Center area
Bit 2-1	Switch of all barcodes 00：Disable all barcodes； 01：Enable all barcodes; 10/11： Enable default barcodes
Bit 0	Reserved
Address	0x002E
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable EAN13 0：Disable EAN13 1： Enable EAN13

Address	0x002F
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable EAN8 0：Disable EAN8　　1：Enable EAN8
Address	0x0030
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable UPCA 0：Disable UPCA　　1：Enable UPCA
Address	0x0031
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable UPCE0 0：Disable UPCE0　　1：Enable UPCE0
Address	0x0032
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable UPCE1

	0：Disable UPCE1　　1：Enable UPCE1
Address	0x0033
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable Code128 0：Disable Code128　　1：Enable Code128
Address	0x0034
Data bit	Function
Bit 7-0	Setting Code128 Min Length 0x00-0xFF：0-255Byte
Address	0x0035
Data bit	Function
Bit 7-0	Code128 Max Length setting 0x00-0xFF：0-255Byte
Address	0x0036
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable Code39 0：Disable Code39　　1：Enable Code39

Address	0x0037
Data bit	Function
Bit 7-0	Code39 Min Length setting 0x00-0xFF：0-255Byte
Address	0x0038
Data bit	Function
Bit 7-0	Code39 Max Length setting 0x00-0xFF：0-255Byte
Address	0x0039
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable Code93 0：Disable Code93　　1：Enable Code93
Address	0x003A
Data bit	Function
Bit 7-0	Code93 Min Length setting 0x00-0xFF：0-255Byte
Address	0x003B
Data bit	Function

Bit 7-0	Code93 Max Length setting 0x00-0xFF：0-255Byte
Address	0x003C
Data bit	Function
Bit 7-2	Reserved
Bit1	Enable/Disable send Start/Stop character 0：Disable Start/Stop character　　1：Enable Start/Stop character
Bit0	Enable CodeBar 0：Disable CodeBar　　1：Enable CodeBar
Address	0x003D
Data bit	Function
Bit 7-0	CodeBar Min Length setting 0x00-0xFF：0-255Byte
Address	0x003E
Data bit	Function
Bit 7-0	CodeBar Max Length setting 0x00-0xFF：0-255Byte
Address	0x003F
Data bit	Function

Bit 7-1	Reserved
Bit0	Enable QR code 0：Disable QR 1：Enable QR
Address	0x0040
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable Interleaved 2 of 5 0：Disable Interleaved 2 of 5 1：Enable Interleaved 2 of 5
Address	0x0041
Data bit	Function
Bit 7-0	Interleaved 2 of 5 Min Length setting 0x00-0xFF：0-255Byte
Address	0x0042
Data bit	Function
Bit 7-0	Interleaved 2 of 5 Max Length setting 0x00-0xFF：0-255Byte
Address	0x0043
Data bit	Function
Bit 7-1	Reserved

Bit0	Enable Industrial 25 0：Disable Industrial 25　　1：Enable Industrial 25
Address	0x0044
Data bit	Function
Bit 7-0	Industrial 25 Min Length setting 0x00-0xFF：0-255Byte
Address	0x0045
Data bit	Function
Bit 7-0	Industrial 25 Max Length setting 0x00-0xFF：0-255Byte
Address	0x0046
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable Matrix 2 of 5 0：Disable Matrix 2 of 5　　1：Enable Matrix 2 of 5
Address	0x0047
Data bit	Function
Bit 7-0	Matrix 2 of 5 Min Length setting 0x00-0xFF：0-255Byte

Address	0x0048
Data bit	Function
Bit 7-0	Matrix 2 of 5 Max Length setting 0x00-0xFF：0-255Byte
Address	0x0049
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable Code11 0：Disable Code11　　1：Enable Code11
Address	0x004A
Data bit	Function
Bit 7-0	Code11 Min Length setting 0x00-0xFF：0-255Byte
Address	0x004B
Data bit	Function
Bit 7-0	Code11 Max Length setting 0x00-0xFF：0-255Byte
Address	0x004C
Data bit	Function

Bit 7-1	Reserved
Bit0	Enable MSI 0：Disable MSI 1：Enable MSI
Address	0x004D
Data bit	Function
Bit 7-0	MSI Min Length setting 0x00-0xFF：0-255Byte
Address	0x004E
Data bit	Function
Bit 7-0	MSI Max Length setting 0x00-0xFF：0-255Byte
Address	0x004F
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable RSS-14 0：Disable RSS-14 1：Enable RSS-14
Address	0x0050
Data bit	Function
Bit 7-1	Reserved

Bit0	Enable Limited RSS 0：Disable Limited RSS 1：Enable Limited RSS
Address	0x0051
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable Expanded RSS 0：Disable Expanded RSS 1：Enable Expanded RSS
Address	0x0052
Data bit	Function
Bit 7-0	RSS Min Length setting 0x00-0xFF：0-255Byte
Address	0x0053
Data bit	Function
Bit 7-0	RSS Max Length setting 0x00-0xFF：0-255Byte
Address	0x0054
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable DM

	0：Disable DM 1：Enable DM
Address	0x0055
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable PDF417 0：Disable PDF417 1：Enable PDF417
Address	0x0056
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable ISSN 0：Disable 1：Enable
Address	0x0057
Data bit	Function
Bit 7-1	Reserved
Bit0	Enable ISBN 0：Disable 1：Enable
Address	0x005F
Data bit	Function
Bit 7-1	Reserved

Bit0	Enable MICROQR 0：Disable 1：Enable
Address	0x0060
Data bit	Function
Bit 7	Serial/Virtual Serial output data with protocol 0: Pure data; 1: With protocol
Bit6-5	Type of End character Suffix 00：CR(0x0D) 01：CRLF(0x0D,0x0A) 10：TAB(0x09) 11：无
Bit4	1.Allow Adding RF 0：Without RF
Bit3	1：Allow Adding Prefix 0：Without Prefix
Bit2	1：Allow Adding Code ID 0：Without Code ID
Bit1	1：Allow Adding Suffix 0：Without Suffix
Bit0	1：Allow Adding End character 0：Without End character
Address	0x0061
Data bit	Function
Bit 7-0	Keyboard Setting 00：US 01：Czech 02：France 03：Germany 04：Hungary 05：Italy 06：Japan 07：Spain

	08: Turkey-F 09:Turkey-Q 0A: Portugal 0B: Brazil 0C: Britain 0D: Netherlands 0E: Finland 0F: Denmark 10: Poland 11: Sweden 12: Belgium 13: Norse 14: Snowvak 15: Romania 16: Israel 17: Switzerland 18: Latin America 19: Russian 1A: Canada 1B: Greece 1C: Thai
Address	0x00B0
Data bit	Function
Bit 7-2	Reserved
Bit 1-0	Data intercept setting 00：Send all Data 01：Send first M Data 10：Send last N Data 11：Don’t send the first M+ the last N Data
Address	0x00B1
Data bit	Function
Bit 7-0	Length of interception M (front) 0x00-0xFF：0-255
Address	0x00B2
Data bit	Function
Bit 7-0	Length of interception N (End) 0x00-0xFF：0-255

Address	*0x00D9 (Write-only Address)*
Data bit	Function
Bit 7-0	Function Address 0x50：Restore to factory setting 0x55：Restore to user setting 0x56：Save current setting as user setting 0xA0：light sleep, can be waked up by serial interrupt；current: 18mA 0xA5：Deep sleep; can be waked up by serial interrupt, module restart after waking up; current: 1.8mA 0x00：Write 0 to wake up module
Address	0x00E1（Read-only Address)
Data bit	Function
Bit 7-0	Hardware version 0x64：V1.00 0x6E：V1.10 0x78：V1.20 0x82：V1.30 0x8C：V1.40
Address	0x00E2（Read-only Address)

Data bit	Function
Bit 7-0	Software version 0x64：V1.00 0x6E：V1.10 0x78：V1.20 0x82：V1.30 0x8C：V1.40
Address	0x00E3（Read-only Address）
Data bit	Function
Bit 7-0	Year of software (Add 2000 stand for year) 0x0F：2015 0x10：2016 0x11：2017
Address	0x00E4（Read-only Address）
Data bit	Function
Bit 7-0	Month of software 0x09：Sep. 0x0A：Oct. 0x0B：Nov.

Address	0x00E5（Read-only Address）
Data bit	Function
Bit 7-0	Date of software 0x09：9th 0x0A：10th 0x0B：11th
Address	0x0010
Data bit	Function
Bit 7-4	Reserved
Bit 3-0	Length of Prefix 0x00 – 0x0F
Address	0x0101 – 0x010F
Data bit	Function
Bit 7-0	Prefix Data 0x00-0xFF; Prefix data, max length 15 bytes
Address	0x0110
Data bit	Function
Bit 7-0	Suffix Length 0x00-0x0F

Address	0x0111 – 0x011F
Data bit	Function
Bit 7-0	Suffix Data 0x00 – 0xFF: Suffix data, max length: 15 bytes
Address	0x0700
Data bit	Function
Bit 7-4	Reserved
Bit 3-0	RF Length 0x00-0x0F
Address	0x0701 – 0x070F
Data bit	Function
Bit 7-0	RF Data 0x00-0xFF: RF data, max length 15 bytes