**User Manual**



V1.1.1

**About This User Guide**

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

**Disclaimer**

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

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

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**Version Record**

|  |  |  |
| --- | --- | --- |
| Version number | Version description | Version date |
| SV1.0\_ZS\_HV1.0\_PTY\_MZ\_P1\_20190905\_4.6.190823.250718  | Speed up based on the first version, adaptation of optical structure | 2019-9-5 |
| SV1.1\_ZS\_HV1.0\_PTY\_P1\_20191012\_4.6.190823.250718  | 1. Adapt new camera (long depth of field) based on the first version2. UPC narrow quiet zone3. Can support anti color bar code | 2019-10-14 |
| SV1.2\_ZS\_HV1.0\_PTY\_P1\_20191021\_4.6.190823.250718  | 1. Website QR code filtering function | 2019-10-21 |
| SV1.3\_ZS\_HV1.0\_PTY\_P2\_20191022\_4.6.191018.250718  | 1. Modify volume2. Modify the duplicate code detection time | 2019-10-22 |
| SV1.4\_ZS\_HV1.0\_PTY\_P2\_20191023\_4.6.191018.250718  | 1. Website QR code filtering function2. Modify volume3. Modify the duplicate code detection time | 2019-10-23 |
| SV1.5\_ZS\_HV1.0\_PTY\_P2\_20191028\_4.6.191018.250718  | 1. Solve the problem of control transfer character and repeated code missing2. Added the function of virtual keyboard (mode 1, 2, 3)  | 2019-10-28 |
| SV1.6\_ZS\_HV1.0\_PTY\_P2\_20191028\_4.6.191018.250718  | 1. Solve the problem that the “\n”appears in version number twice | 2019-10-28 |
| SV1.8\_ZS\_HV1.0\_PTY\_P2\_20191107\_4.6.191018.250718  | 1. Add Portuguese (Portugal), Portuguese (Brazil) keyboard  | 2019-11-7 |
| SV2.2\_ZS\_HV1.0\_PTY\_P4\_HT\_OLD\_20191115\_4.6.191018.250718  | 1. Solve the problem that the control escape character can not be returned. | 2019-11-15 |
| SV2.4\_ZS\_HV1.0\_PTY\_P5\_HT\_OLD\_20191119\_4.6.191115.250718  | 1. Version number printing too fast, abnormal. | 2019-11-19 |
| SV2.7\_ZS\_HV1.0\_PTY\_P7\_HT\_OLD\_20191228\_4.6.191115.250718  | 1. Added sleep mode2. Add suffix before3. Add data hiding of bar code4. Add barcode category selection | 2019-12-30 |
| SV2.8\_ZS\_HV1.0\_PTY\_P7\_HT\_OLD\_20191230\_4.6.191115.250718  | 1. Modifying data hiding of barcode2. Modify the disable one-dimensional code, will not output 128 code | 2019-12-30 |
| SV3.4\_ZS\_HV1.0\_PTY\_P9\_HT\_OLD\_20200317.250718  | 1. UPC-A to EAN-13.
2. EAN-13 to ISSN
3. UPC-A/EAN/JAN Additional code
 | 2020-3-24 |
| SV3.5\_ZS\_HV1.0\_PTY\_P14\_HT\_OLD\_20200422\_4.7.200416.250718 | It is applicable to the 14th batch of core boards | 2020-4-23 |
| SV3.7\_ZS\_HV1.0\_PTY\_P16\_HT\_OLD\_20200511\_4.7.200416.250718 | 1. Solution suffix cannot be added2. Solve the problem of losing digit when UPC-A transfers to EAN-133. Solve the problem that the conversion of EAN13 to ISSN does not work4. Added barcode to get CPUID (for internal use only)5. From mp6300y (2.7khz buzzer) to old camera before November 11, 2019 | 2020-5-13 |
| SV4.7\_ZS\_HV1.0\_PTY\_P20\_HT\_CHA1\_20200817\_4.7.200612.250718 |  | 2020-08-18 |

# **Table of content**

1. Product Introduction - 13 -

1.1 Main feature - 13 -

1.2 Unpacking - 14 -

1.3 Communication port - 14 -

1.4 Start-up, shutdown, standby and restart - 14 -

1.5 Maintenance - 15 -

1.6 Scanning Skill - 15 -

Chapter2 System Setting 17

Introduction 17

Programming Barcode 17

Use of Programming Code 17

Restore Factory Default 19

Inquiry Firmware Version 19

User Preference 19

Reread Timeout 19

Beeper 20

Beeper Volume 20

Startup Beep 20

Beeper On/Off 21

Beeper Tone-Good Read 21

Beeper Duration - Good Read and Error 22

Beeper Tone-Error 22

LED Illumination 23

Aimer(Not Enabled) 24

Good Read LED 24

Vibration（Not Enabled） 24

Firmware Upgrade 24

Image Capture（Not Enabled） 25

Auto Sleep Mode 26

Enable/Disable Auto Sleep Mode 26

Enter Sleep Mode 26

Chapter 3 Scan Mode 28

Sense Mode（default） 28

Sense Mode 28

Decode Session Timeout 28

Set custom decode session timeout 30

Good Read Illumination LED Duration 30

Set Custom Good Read Illumination LED Duration 31

Continuous Mode 32

Chapter Communication Interface 33

USB Interface 33

USB HID （default） 33

USB HID Data Upload Method 33

Function Key Mapping 34

Function Key GS Replace 34

Virtual Keyboard 35

USB-Keyboard Transmit Speed 36

Set Custom Transmission Speed 36

Countries Keyboards 37

USB CDC  38

RS232- 232 Interface 38

RS485（Not Enabled） 39

RS485 Device ID（Not Enabled） 39

Baud Rate 39

Chapter 5 Data Format 41

Custom Prefix 41

Enable/Disable Custom Prefix 41

Set Custom Prefix 42

Custom Suffix 42

Enable/Disable Custom Suffix 42

Set Custom Suffix 43

CODE ID 43

CODE ID Selection 44

Restore All CODE ID 44

Set Custom CODE ID 44

AIM ID 45

Start Character 45

Terminating Character Suffix 46

Prefix/Suffix Sequence 46

Prefix Sequence 47

Suffix Sequence 47

Convert Case 47

Data Formatter 48

Set Length Range for Start/End Filed 49

Chapter 6 Symbologies 50

Introduction 50

Enable/Disable All Symbologies 50

Enable/Disable All 1D Symbologies 50

Enable/Disable All 2D Symbologies 51

Inverse BarCode 51

Codabar 51

Enable/Disable Codabar 51

Codabar Start/Ending Character 52

Set Length Range for Codabar 52

Code 39 54

Enable/Disable Codo 39 54

Code 39 Check Digit 54

Code 39 Full ASCII 54

Set Length Range for Code 39 55

Code 32 56

Interleaved 2 of 5 （ITF5） 56

Enable/Disable Interleaved 2 of 5（ITF5） 56

Interleaved 2 of 5（ITF5）Check Digit 56

Set Fixed Length for Interleaved 2 of 5（ITF5） 57

Set Length Range for Interleaved 2 of 5 58

Industrial 2 of 5  59

Enable/Disable Industrial 2 of 5 59

Set Length Range for Industrial 2 of 5 59

Matrix 2 of 5  60

Enable/Disable Matrix 2 of 5 60

Set Length Range for Matrix 2 of 5 60

Code 93 61

Enable/DisableCode 93 61

Set Length for Code 93 61

Code 11 62

Enable/Disablt Code 11 62

Code 11 Check Digit Transmission 62

Code 11 Check Digit 63

Code 128 64

Enable/Disable Code 128 64

Set Length Range for Code 128 64

GS1-128 65

ISBT 128（Not Enabled） 65

UPC-A 65

Enable/Disable UPC-A 65

UPC-A Check Digit 65

Convert UPC-A to EAN-13 66

UPC-E 66

Enable/Disable UPC-E 66

UPC-E Check Digit 66

Convert UPC-E to UPC-A 67

EAN/JAN-8 67

EAN/JAN-13 67

Enable/Disable EAN/JAN-13 67

Convert EAN13 to ISBN 67

Convert EAN13 to ISSN 68

UPC/EAN/JAN Supplemental 68

GS1 DataBar（RSS14）(Stacked) 68

Enable/Disable GS1 DataBar 68

Enable/Disable GS1 DataBar Limited 69

Enable/Disable GS1 DataBar Expanded 69

GS1 DATABAR(RSS14) Preamble （Not Enabled） 69

GS1 DATABAR LIMITED Preamble （Not Enabled） 69

PDF417 70

Micro PDF417 70

QR 70

QR Enable/Disable 70

QR with URL 70

Micro QR 71

Data Matrix 71

Aztec 71

Standard 2 of 5（Not Enabled） 71

Plessey（Not Enabled） 71

Msiplessey 72

Msiplessey Check Digit 72

Set Length Range for Msiplessey 73

Hanxi code 73

Appendix 74

Appendix1 Data and Digital Barcodes 74

Appendix2 Symbology Table 77

Appendix3 Command Format Description 79

Appendix4 ASCII Character and Keystroke Table 81

Appendix5 ASCII Table 83

# Product Introduction

This user guide applies to MP6300Y, which identify 1D&2D barcodes by 2D image scanning pattern. The scanners above are of strong identification capability, and support automatic continuous scanning mode with fast and flexible scanning speed.

In this chapter, we will introduce the instruction of scanner with pictures, please compare to the scanner you bought when reading this user guide, which is good for your understanding. This chapter applies to regular users, maintenance personnel, and software developers.

**1.1 Main feature**

\* Complete independent research and development, possessing the complete set of patent, plug and play without the need to install driver.

\* Wide voltage design to avoid the data can’t be transmitted due to voltage fluctuation.

\* 32-bit master chip equipped with patented software, the scanner can smoothly decode reflective, wrinkled, blurred, and colorful barcode, and can also normally scan in light and dark environment.

\* Adopt all tantalum capacitors and anti-oxidation optical [technology](file:///C%3A%5C%5CUsers%5C%5CAdmin%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.2.0.0703%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=technology), avoiding the problem of performance declining after long-term using.

**1.2 Unpacking**

Open the package and take out the products and accessories. Check whether all items are complete and whether there are damaged parts according to the packing list. If there are any damaged or missing parts, please keep the original packaging and contact your supplier for after-sales service.

## 1.3 Communication port

The scanner must be connected to a host to operate. Host can be a PC, POS machine, intelligent terminal with USB or RS-232 interface.

|  |  |  |
| --- | --- | --- |
| **USB** | USB interface on host | **USB接口图** |
| **RS-232** | RS-232 interface on host | **RS-232接口图** |

**1.4 Start-up, shutdown, standby and restart**

Start-up：Connect host computer with scanner, which will automatically start-up and in working state.

Shutdown：Remove the data cable which is connected with scanner; remove the USB which is connected with host computer; remove the power adapter which is inserted into RS-232 serial port.

Standby：Scanner with automatic sleep standby function, if 30 minutes without work it will be in standby mode, but it will automatically start-up when barcode approach.

Restart：If the scanner crashes or doesn't respond, please switch it off and restart.

**1.5 Maintenance**

\* The window must be kept clean, the supplier do not bear the guarantee responsibility due to the improper maintenance.

\* Avoid the window being wear and tear or scratched by hard object

\* Use the hairbrush to remove the stain on the window

\* Clean the window with a soft cloth, such as lens cleaning cloth

\* Spraying liquid onto the window is prohibited.

\* Prohibit any cleaning solvents, except for the cleaning water.

**1.6 Scanning Skill**

If the barcode is small, it should be closer to the scanning window; if the barcode is large, it should be far away from the scanning window a little more, thus easier to be read correctly.

If the barcode is highly reflective (for example, the coated surface), you may need to tilt the barcode at an angle to successfully scan it.

**Barcode scanning example：**

|  |
| --- |
| **扫描示例** |

# Chapter2 System Setting

## **Introduction**

The MP6300Y can be configured by scanning programming barcodes. All user programmable features/options are described along with their programming barcodes/commands in the following sections. This programming method is most straightforward. However, it requires manually scanning barcodes. As a result, errors are more likely to occur.

**Programming Barcode**

|  |
| --- |
| 12Enter Setup（default） |
| The figure above is an example that shows you the programming barcode for the Enter Setup function:1. The programming barcode.
2. The description of feature/function.
 |

**Use of Programming Code**

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

|  |
| --- |
| 扫配置码功能关闭 Exit Setup  |

**Restore Factory Default**

|  |
| --- |
| 恢复出厂默认配置Restore Factory Default |

**Inquiry Firmware Version**

|  |
| --- |
| 输出设备版本号Inquiry Firmware Version |

**User Preference**

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

|  |
| --- |
| 保存当前配置到用户配置表Save User Preference |
| 将当前配置恢复到用户配置表 Restore to User Preference Default  |

**Reread Timeout**

Reread Timeout can avoid undesired rereading of same barcode in a given period of time. This feature is only applicable to

the Sense and Continuous modes.

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

|  |
| --- |
| 500500ms（default） |
| 200750ms  |
| 重码间隔1秒1s |
| 22s  |

**Beeper**

The scanner issues different beeps to indicate status: Good-Read Beep, Error Beep, Startup Beep and Programming Beep.

### Beeper Volume

For setting up **Good Read Beep** and **Error Beep** only.

|  |
| --- |
| gaoHigh Volume（default） |
| diLow Volume |

### Startup Beep

The scanner can be programmed to beep when it is powered on. Scan the **Off** barcode if you do not want a power on beep.

|  |
| --- |
| 打开On（default） |
| 关闭Off |

### Beeper On/Off

Setting for “Good Read-Beep” and Error Beep”

|  |
| --- |
| 成功解码打开On（default） |
| 成功解码关闭Off |

### Beeper Tone-Good Read

|  |
| --- |
| 频率低Low Tone（default） |
| 频率中Medium Tone |
| 频率高High Tone |

### Beeper Duration - Good Read and Error

|  |
| --- |
| 时间长Long Duration（default） |
| 时间短Short Duration |

### Beeper Tone-Error

|  |
| --- |
| 错误频率低Low Tone（default） |
| 错误频率中Medium Tone |
| 错误频率高High Tone |

**LED Illumination**

Normal（default）：LED on scanner are turned on during image capture；

Always on：Illumination LED on the scanner keep on after the scanner is powered on.

Always off：Illumination LED on the scanner are off all the time

|  |
| --- |
| 普通Normal（default） |
| 常开Always on |
| 常闭Always off |

**Aimer(Not Enabled)**

**Good Read LED**

The LED can be programmed to be On or Off to indicate good read.

|  |
| --- |
| 打开iOn（default） |
| 关闭iOff |

**Vibration（Not Enabled）**

**Firmware Upgrade**

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

|  |
| --- |
| 升级包Firmware Upgrade |

|  |  |
| --- | --- |
| **Example** | Steps to upgrade firmware：1.Plug the scanner with a USB cable；2. Scan **Firmware Upgrade** barcode to enter USB driver mode and wait for USB driver showing up on the computer;3.Copy the firmware file into the USB driver;4. Eject the USB driver and replug the usb cable to restart up the scanner and the scanner will start the firmware upgrade procedure.5.The scanner beeps after firmware upgrading.  |
| **ATT** | If the upgrade is successful, the factory settings will be restored, and users can reset the scanner according to their needs.If the upgrade fails, you need to re-power on and restart the scanner and perform the above upgrade steps again. |

**Image Capture（Not Enabled）**

**Auto Sleep Mode**

**Enable/Disable Auto Sleep Mode**

The auto sleep mode can be set up only when the scanner is under Level Mode. Auto Sleep allows the scanner to automatically enter the sleep mode if no operation or communication is performed for a time period (user programmable). Sending trigger signal can awake the scanner. The default setting is 5s.

|  |  |
| --- | --- |
| **ATT** | When the scanner is under USB-keyboard interface and awake from auto sleep mode, it will not transmit any decoded data until it’s re powered on. |

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1Disable（default） |
| C:\Users\86186\Desktop\1.bmp1Enable  |

**Enter Sleep Mode**

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1Enter Sleep Mode Now |

**Set Time Period from Idle to Sleep**

The following parameter sets how long the scanner remains idle (no operation or communication occurs) before it is put into sleep mode. It is programmable in 1s increments from 1s to 3600s.

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1**Time Period from Idle to Sleep** |

|  |  |
| --- | --- |
| **Example** | Set Time Period from Idle to Sleep to ‘10s’(default：5s)1. Scan **Time Period from Idle to Sleep** barcode.
2. Scan numeric barcode“1”“0”from the “Digital barcodes” section in Appendix 1.
3. Scan **Save** barcode in Appendix 1
 |

**Chapter 3 Scan Mode**

## Sense Mode（default）

### Sense Mode

The scanner activates a decode session every time it detects a barcode presented to it. The decode session continues until a barcode is decoded or the decode session timeout expires. **Reread Timeout** can avoid undesired rereading of same barcode in a given period of time.

|  |
| --- |
| 感应Sense Mode |

### Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable from 3s to 10s. The default setting is 3s.

|  |
| --- |
| 短Short（default） |
| 中Medium |
| 高Long |

|  |
| --- |
| 定义Custom Decode Session Timeout |

###

### Set custom decode session timeout

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

|  |
| --- |
| 单位定义 Set Custom Decode Session Timeout |
| **Example** | Set the decode session timeout to 10s: 1、Scan **Set Custom Decode Session Timeout** Barcode2、Scan the numeric barcodes：“1”“0” from the “Digital barcodes” section in Appendix1.3、Scan the **Save** barocde in Appendix1 |

### Good Read Illumination LED Duration

This parameter sets the amount of time that the Good Read LED to remain on following a good read.

It’s programmable as Short, Medium and Long, corresponding to 3s, 7s and 10s. The default setting is 0s.

|  |
| --- |
| 3秒Short |
| 7秒Medium |
| 10秒Long |
| 自定义Set up Custom Duration |

### Set Custom Good Read Illumination LED Duration

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

|  |
| --- |
| 识读自定义Set Custom Good Read Illumination LED Duration |
| **Example** | Set the custom duration as 10s: 1、Scan **Set Custom Good Read LED Duration** Barcode.2、Scan numeric barcode“1”“0” from the “Digital Barcodes” section in Appendix13、Scan **Save** barcode in Appendix 1 |

**Level Mode**

A trigger pull activates a decode session. The decode session continues until a barcode is decoded or you release the trigger

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1Level Mode |

## Continuous Mode

The scanner automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger. **Reread Timeout** can avoid undesired rereading of same barcode in a given period of time.

|  |
| --- |
| 识读状态Continuous Mode |

# **Chapter Communication Interface**

## USB Interface

### USB HID （default）

When the scanner is connected to the USB port on a host device, you can enable the USB HID Keyboard feature by scanning the barcode below. Then scanner’s transmission will be simulated as USB keyboard input. The Host receives keystrokes on the virtual keyboard. It works on a Plug and Play basis and no driver is required.

|  |
| --- |
| 通讯接口切换USB HID |

### USB HID Data Upload Method

|  |  |  |
| --- | --- | --- |
|

|  |  |
| --- | --- |
| **ATT** | Before turning on this function, make sure that "USB HID Mode" is turned on. |

上位机上传PC Software |
| 记事本上传USB-Keyboard（default） |
| 同时记事本上传Both PC Software and USB-Keyboard |

### Function Key Mapping

This setting is aimed for USB-Keyboard Mode. Please Refer to Appendix《ASCII Table》.

|  |
| --- |
| 打开Enable |
| 关闭Disable（default） |

### Function Key GS Replace

|  |
| --- |
| 不替换Do not replace（default） |
| 替换成ÇReplace as Ç |
| 替换成Replace as | |
| 替换成有Replace as ^] |
| 替换成2Replace as ] |
| 替换成3Replace as <GS> |

### Virtual Keyboard

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

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

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

|  |
| --- |
| 虚拟键盘关闭（默认）Disable Virtual Keyboard（default） |
| 虚拟键盘打开（模式一）Enable Virtual Keyboard（Mode 1） |
| 虚拟键盘打开（模式二）Enable Virtual Keyboard（Mode 2） |
|  虚拟键盘打开（模式三）Enable Virtual Keyboard（Mode 3） |

### USB-Keyboard Transmit Speed

|  |
| --- |
| 发送速度低（默认）Low Speed |
| 发送速度中Medium Speed |
| 发送速度高High Speed（default） |
| 自定义Set Custom Speed |

### Set Custom Transmission Speed

The transmission speed can be set up from 2ms to 50ms.

|  |
| --- |
| 自定义发送速度（2ms~50ms，默认2ms）Set Custom Transmission Speed（default 10ms） |

|  |  |
| --- | --- |
| **Example** | Set custom transmission speed to 10ms:1. Scan **Set Custom Transmission Speed** barcode.
2. Scan numeric barcode”1””0” from the “Digital Barcodes” section in appendix 1.
3. Scan **Save** barcode in appendix 1.
 |

### Countries Keyboards

|  |
| --- |
| 美国-英语  English (United States)(默认) USA-English (default） |
|  意大利语  Italian (Italy) Italian |
| 1Spanish |
| 葡萄牙语-葡萄牙  Portuguese (Portugal)Portuguese-Portugal |
| IMG_256French-France  |
|  IMG_256German-Austria |
| IMG_256Turkish Q  |
|  IMG_256Turkish F |
| IMG_256English-UK  |
| IMG_256Japanese  |
| IMG_256 German-Switzerland  |

### USB CDC

|  |
| --- |
| 1)USB CDC  |

### **RS232- 232 Interface**

Serial communication interface is usually used when connecting the scanner to a host device (like PC, POS). However, to ensure smooth communication and accuracy of data, you need to set communication parameters (including baud rate, parity check, data bit and stop bit) to match the host device

|  |
| --- |
| RS232 |

### RS485（Not Enabled）

### RS485 Device ID（Not Enabled）

### Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the baud rate to match the host requirements. Default is 9600bps。

|  |
| --- |
| Baud Rate4800 |
| Baud Rate9600（default） |
| Baud Rate19200 |
| Baud Rate38400 |
| Baud Rate57600 |
|  Baud Rate115200 |

**Parity Check**

Set the parity type to match the host requirements.

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

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

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

**Stop Bit**: The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream. Set the number of stop bits to match the host requirements.

|  |
| --- |
|  数据位8_停止位1_不校验Data Bit8，Stop Bit1，No Parity（default） |
| 数据位8_停止位1_奇校验 Data Bit8，Stop Bit1，Odd Parity |
|  数据位8_停止位1_偶校验Data Bit8，Stop Bit1，Even Parity |
| 数据位8_停止位2_不校验 Data Bit8，Stop Bit2，No Parity |
| 数据位8_停止位2_奇校验Data Bit8，Stop Bit2，Odd Parity |
| 数据位8_停止位2_偶校验Data Bit8，Stop Bit2，Even Parity |

#

# **Chapter 5 Data Format**

## Custom Prefix

### Enable/Disable Custom Prefix

If custom prefix is enabled, you are allowed to append to the data a user-defined prefix that cannot exceed 10 characters. For example, if the custom prefix is “AB” and the barcode data is “123”, the Host will receive “AB123”.

|  |
| --- |
| Enable Custom Prefix |
| Disable Custom Prefix（default） |
| Restore All Custom Prefix |

### Set Custom Prefix

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

|  |
| --- |
| Set Custom Prefix |
| **Example** | Set custom prefix “a” (Hex value is 0x61) to all symbologies( CODE ID value is 0x99）1.. Scan **Set Custom Prefix** barcode.2.. Scan numeric barcode“9”“9”“6”“1” from the “Digital Barcodes” section in Appendix 13. Scan **Save** barcode in Appendix 14. Scan **Enable Custom Prefix** barcode. |

## Custom Suffix

### Enable/Disable Custom Suffix

If custom suffix is enabled, you are allowed to append to the data a user-defined suffix that cannot exceed 10 characters. For example, if the custom suffix is “AB” and the barcode data is “123”, the Host will receive “123AB”.

|  |
| --- |
| Enable Custom Suffix |
| Disable Custom Suffix（default） |
| Restore All Custom Suffix |

### Set Custom Suffix

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

|  |
| --- |
| Set Custom Suffix |

|  |  |
| --- | --- |
| **Example** | Set custom suffix “a” (Hex value is 0x61) to all symbologies( CODE ID value is 0x99）1.. Scan **Set Custom Suffix** barcode.2.. Scan numeric barcode“9”“9”“6”“1” from the “Digital Barcodes” section in Appendix 13. Scan **Save** barcode in Appendix 14. Scan **Enable Custom Suffix** barcode. |

## CODE ID

Code ID can also be used to identify barcode type. Unlike AIM ID, Code ID is user programmable. Code ID can only consist of one letters.

### CODE ID Selection

CODE ID Prefix：CODE ID before barcode

CODE ID Suffix：CODE ID after barcode

|  |
| --- |
| Enable CODE ID（default） |
| CODE ID Prefix |
| CODE ID Suffix |

**Restore All CODE ID**

|  |
| --- |
| Restore All CODE ID |

### Set Custom CODE ID

|  |
| --- |
| Set Custom CODE ID |

|  |  |
| --- | --- |
| **Example** | Modify Codabar（CODE ID:0x61） CODE ID to be “Y”（Hex: 0x59）：1.Scan **Set Custom CODE ID** barcode2.Scan numeric barcode“6”“1”“5”“9” from the “Digital Barcodes” section in Appendix 13.Scan **Save** barcode in Appendix 1 |

## AIM ID

AIM (Automatic Identification Manufacturers) ID defines symbology identifier (For the details, see the “AIM ID Table**”** section in Appendix). If AIM ID prefix is enabled, the scanner will add the symbology identifier before or after the scanned data after decoding

|  |  |
| --- | --- |
| **ATT** | AIM ID is not user programmable  |

Disable AIM ID（default）：Do Not output AIM ID.

AIM ID Prefix：AIM ID before scanned data.

AIM ID Suffix：AIM ID after scanned data.

|  |
| --- |
| Disable AIM ID（default） |
| Enable AIM ID Prefix |
| Enable AIM ID Suffix |

## Start Character

|  |
| --- |
| No Start Character（default） |
| Set Start Character as STX |

## Terminating Character Suffix

A terminating character such as carriage return (CR) or carriage return/line feed pair (CRLF) can only be used to mark the end of data, which means nothing can be added after it.

|  |
| --- |
| Set Terminating Character Suffix to CR（default）（Enter） |
| Set Terminating Character Suffix to LF |
| Set Terminating Character Suffix to CRLF |
| Set Terminating Character Suffix to LAB |
| Set Terminating Character Suffix to ETX |
| Disable Terminating Character Suffix |

**Prefix/Suffix Sequence**

### Prefix Sequence

|  |
| --- |
| Start Character+CODE ID+AIM ID+Custom Prefix （default） |
| Start Character+Custom Prefix+CODE ID+AIM ID |

### Suffix Sequence

|  |
| --- |
| Custom Suffix+CODE ID+AIM ID+Terminating Character （default） |
| CODE ID+AIM ID+Custom Suffix+Terminating Character |

**Convert Case**

|  |
| --- |
| No Convert Case（default） |
| Convert Case |
| Convert All to Lower Case  |
| Convert All to Upper Case |

## **Data Formatter**

|  |  |
| --- | --- |
| **ATT** | Prefix or suffix will be outputted regularly.  |

Data output selection

**Transmit Original data (default)**: The barcode data will not be modified.

**Transmit Start-Field** : Only transmit the start-Field data and the length will be set up by **Set Length for Start Field** barcode. If the set length is greater than the length of the read character string, the original data will be transmitted. For example: if the string “1234567890” is read and the length is set to 3, the final output data is “123”.

**Transmit Middle Field**: Only transmit the Middle Field and the length will be set up by **Set length for Start Field** barcode and **Set Length for End Field** barcode. If the sum of the two length values is greater than the length of the read character string, the output is empty. For example: if the character string "1234567890" is read, and the start/end field lengths are set to 3 and 4 respectively, the final output data is "456".

**Transmit End Filed**: Only transmit the End-Field data and the length will be set up by **Set Length for End Field** barcode.. If the set length is greater than the length of the read character string, the original data will be output. For example: if the character string "1234567890" is read and the length is set to 3, the final output data is "890".

**Transmit Start Field and end Field**: The transmitted data is limited according to the data of **"Set Length for Start-Filed"** and **"Set Length for End-Field"**. If the sum of the two length values is greater than the length of the read character string, the original data will be transmitted. For example: if the character string "1234567890" is read, and the start/end field lengths are set to 3 and 4 respectively, the final transmitted data is "1237890".。

|  |
| --- |
| Original Data(default) |
| Transmit Start-Field Data |
| Transmit Middle Field |
| Transmit End Filed |
| Transmit Start Field and End Filed |

### Set Length Range for Start/End Filed

Default value is 1，Range：1～7900. When it is set up to be 0, this function will be invalid.

**Example: Set Start Field Length as 12**

1. Scan **Set Length Range for Start Field** barcode.
2. Scan numeric barcode “1””2” from the Digital Barcodes section in Appendix 1.
3. Scan **Save** barcode in Appendix 1.

|  |
| --- |
| Set Length Range for Start Field |
| Set Length Range for End Field |

##

# **Chapter 6 Symbologies**

**Introduction**

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

the efficiency of the scanner.

**Enable/Disable All Symbologies**

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

|  |
| --- |
| Enable All Symbologies |
| Disable All Symbologies |

**Enable/Disable All 1D Symbologies**

|  |
| --- |
| Enable All 1D Symbologies |
| Disable All 1D Symbologies |

**Enable/Disable All 2D Symbologies**

|  |
| --- |
| Enable All 2D Symbologies |
| Disable All 2D Symbologies |

**Inverse BarCode**

|  |
| --- |
| Only Decode Regular BarCodes（default） |
| Decode Regular and Inverse BarCodes Both |

|  |  |
| --- | --- |
| **Tips** | Only Decode Inverse Barcode（Not Enabled） |

**Codabar**

### Enable/Disable Codabar

|  |
| --- |
| Enable（default） |
| Disable |

### Codabar Start/Ending Character

|  |
| --- |
|  Enable |
| Disable（default） |

### Set Length Range for Codabar

|  |  |
| --- | --- |
| **ATT** | Any 1D barcode length can not exceed 127 characters. If minimum length is set to be greater than maximum length, the scanner only decodes Codabar barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Codabar barcodes with that length are to be decoded.  |
| Set the Minimum Length(1~127) |
| Set the Maximum Length（1~127位） |

|  |  |
| --- | --- |
| **Example** | **Set the scanner to decode Codabar barcodes containing between 8 and 12 characters:**1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
 |

**Code 39**

### Enable/Disable Codo 39

|  |
| --- |
| 1Enable（default） |
| 2Disable  |

### Code 39 Check Digit

|  |
| --- |
| 3Disable Check Digit（default） |
| 4Enable and do not transmit check digit  |
| 5Enable and transmit check digit |

### Code 39 Full ASCII

|  |
| --- |
| 6Disable（default） |
| 7 Enable  |

**Set Length Range for Code 39**

|  |
| --- |
| Set the Minimum Length(1~127) |
| Set the Maximum Length（1~127位） |

|  |  |
| --- | --- |
| **Example** | **Set the scanner to decode Code39 barcodes containing between 8 and 12 characters:**1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
 |

**Code 32**

To enable code32, code39 need to be enabled first.

|  |
| --- |
| 1Enable（default） |
| 2Disable  |

## **Interleaved 2 of 5 （ITF5）**

### Enable/Disable Interleaved 2 of 5（ITF5）

|  |
| --- |
| 1Enable（default） |
| C:\Users\SC\Desktop\2.bmp2 Disable  |

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

|  |
| --- |
| C:\Users\SC\Desktop\3.bmp3Disable Check Digit（default） |
| C:\Users\SC\Desktop\4.bmp4Enable and do not transmit check digit  |
| C:\Users\SC\Desktop\5.bmp5Enable and Transmit Check Digit |

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

|  |
| --- |
| C:\Users\SC\Desktop\6.bmp6Any Length（4-128位）（default） |
| C:\Users\SC\Desktop\7.bmp7 6 Characters  |
| C:\Users\SC\Desktop\8.bmp8 8 Characters |
| C:\Users\SC\Desktop\9.bmp910 Characters  |
| C:\Users\SC\Desktop\10.bmp10 12 Characters |
| C:\Users\SC\Desktop\11.bmp1114 Characters  |
| C:\Users\SC\Desktop\12.bmp12 16 Characters |
| C:\Users\SC\Desktop\13.bmp1318 Characters  |
| C:\Users\SC\Desktop\14.bmp1420 Characters |
| C:\Users\SC\Desktop\15.bmp1522 Characters  |
| C:\Users\SC\Desktop\16.bmp16 24 Characters |

|  |
| --- |
| C:\Users\SC\Desktop\17.bmp17 Set Custom Length for ITF5 |

### Set Length Range for Interleaved 2 of 5

Need to scan **Set Custom Length for ITF5** barcode first

|  |
| --- |
|  C:\Users\SC\Desktop\18.bmp18Set the Minimum Length（4~128） |
| C:\Users\SC\Desktop\19.bmp19 Set the Maximum Length（4~128 ） |

|  |  |
| --- | --- |
| **Example** | **Set the scanner to decode ITF25 barcodes containing between 8 and 12 characters:**1.Scan the **Set the Minimum Length** barcode. 2.Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix. 3.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. 4.Scan the **Set the Maximum Length** barcode. 5.Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix. 6.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. |

**Industrial 2 of 5**

### Enable/Disable Industrial 2 of 5

|  |
| --- |
| 1Enable（default） |
| 2 Disable  |

### Set Length Range for Industrial 2 of 5

|  |
| --- |
|  3Set the Minimum Length（4~128） |
| 4 Set the Maximum Length（4~128 ） |

|  |  |
| --- | --- |
| **Example** | **Set the scanner to decode Industrial 2 of 5 barcodes containing between 8 and 12 characters:**1.Scan the **Set the Minimum Length** barcode. 2.Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix. 3.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. 4.Scan the **Set the Maximum Length** barcode. 5.Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix. 6.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. |

**Matrix 2 of 5**

### Enable/Disable Matrix 2 of 5

|  |
| --- |
| 5Enable（default） |
| 6Disable  |

### Set Length Range for Matrix 2 of 5

|  |
| --- |
|  7Set the Minimum Length（4~128 ） |
| 8 Set the Maximum Length（4~128）  |

|  |  |
| --- | --- |
| **Example** | **Set the scanner to decode Matrix 2 of 5 barcodes containing between 8 and 12 characters:**1.Scan the **Set the Minimum Length** barcode. 2.Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix. 3.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. 4.Scan the **Set the Maximum Length** barcode. 5.Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix. 6.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. |

**Code 93**

### Enable/DisableCode 93

|  |
| --- |
| 9Enable（default） |
| 10Disable  |

### Set Length for Code 93

|  |
| --- |
|  11Set the Minimum Length（1~127 ） |
| 12 Set the Maximum Length（1~127） |

|  |  |
| --- | --- |
| **Example** | **Set the scanner to decode Code93 barcodes containing between 8 and 12 characters:**1.Scan the **Set the Minimum Length** barcode. 2.Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix. 3.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. 4.Scan the **Set the Maximum Length** barcode. 5.Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix. 6.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. |

**Code 11**

### Enable/Disablt Code 11

|  |
| --- |
| 1Enable |
| 2Disable（default）  |

### Code 11 Check Digit Transmission

|  |
| --- |
| 3Transmit Code 11 Check Digit  |
| 4 Do not Transmit Code11 Check Digit（default） |

### Code 11 Check Digit

|  |
| --- |
| 5Disable Check Digit（default） |
| 6 One Check Digit  |
| 7Two Check Digit |

Set Length Range for Code 11

|  |
| --- |
| 8Set the Minimum Length（1~127） |
| 9 Set the Maximum Length（1~127） |
| **Example** | **Set the scanner to decode Code 11 barcodes containing between 8 and 12 characters:**1.Scan the **Set the Minimum Length** barcode. 2.Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix. 3.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. 4.Scan the **Set the Maximum Length** barcode. 5.Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix. 6.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. |

**Code 128**

### Enable/Disable Code 128

|  |
| --- |
| 10Enable（default） |
| 11Disable  |

### Set Length Range for Code 128

|  |
| --- |
|  12Set the Minimum Length（1~127） |
| 13 Set the Maximum Length（1~127） |
| **Example** | **Set the scanner to decode Code 129 barcodes containing between 8 and 12 characters:**1.Scan the **Set the Minimum Length** barcode. 2.Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix. 3.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. 4.Scan the **Set the Maximum Length** barcode. 5.Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix. 6.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. |

**GS1-128**

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1Enable（default） |
| C:\Users\86186\Desktop\1.bmp1Disable  |

**ISBT 128（Not Enabled）**

**UPC-A**

### Enable/Disable UPC-A

|  |
| --- |
| C:\Users\SC\Desktop\1.bmp1Enable（default） |
| C:\Users\SC\Desktop\2.bmp2Disable  |

**UPC-A Check Digit**

|  |
| --- |
| C:\Users\SC\Desktop\3.bmp3Transmit UPC-A Check Digit（default） |
| C:\Users\SC\Desktop\4.bmp4 Do not Transmit UPC-A Check Digit  |

### Convert UPC-A to EAN-13

|  |
| --- |
| IMG_256Covert UPC-A to EAN-13 |
| IMG_256Do Not Convert UPC-A to EAN-13(default)  |

### **UPC-E**

### Enable/Disable UPC-E

|  |
| --- |
| C:\Users\SC\Desktop\7.bmp7Enable（default） |
| C:\Users\SC\Desktop\8.bmp8Disable  |

### UPC-E Check Digit

|  |
| --- |
| C:\Users\SC\Desktop\9.bmp9Transmit Check Digit（default） |
| C:\Users\SC\Desktop\10.bmp10Do not Transmit Check Digit  |

### Convert UPC-E to UPC-A

|  |
| --- |
| C:\Users\SC\Desktop\11.bmp11Convert UPC-E to UPC-A |
| C:\Users\SC\Desktop\12.bmp12 Do not Convert UPC-E to UPC-A（default） |

**EAN/JAN-8**

|  |
| --- |
| 13Enable（default） |
| 14Disable  |

**EAN/JAN-13**

### Enable/Disable EAN/JAN-13

|  |
| --- |
| 1Enable（default） |
| 2Disable  |

### Convert EAN13 to ISBN

|  |
| --- |
| 3Convert ISBN to ISBN |
| 4 Do not Convert ISBN to ISBN（default） |

### Convert EAN13 to ISSN

|  |
| --- |
| 5Convert ISBN to ISSN |
| 6 Do not Convert ISBN to ISBN（default） |

**UPC/EAN/JAN Supplemental**

|  |
| --- |
|  7Ignore UPC/EAN/JAN Supplemental（default) |
|  8 Decode UPC/EAN/JAN Supplemental |
|  9Autodiscriminate UPC/EAN/JAN with Supplemental |

**GS1 DataBar（RSS14）(Stacked)**

### Enable/Disable GS1 DataBar

|  |
| --- |
| 1Enable（default） |
| 2Disable  |

### Enable/Disable GS1 DataBar Limited

|  |
| --- |
| 3Enable （default） |
| 4Disable  |

### Enable/Disable GS1 DataBar Expanded

|  |
| --- |
| C:\Users\SC\Desktop\5.bmp5Enable（default） |
| C:\Users\SC\Desktop\6.bmp6Disable  |

### GS1 DATABAR(RSS14) Preamble （Not Enabled）

### GS1 DATABAR LIMITED Preamble （Not Enabled）

**PDF417**

|  |
| --- |
| 11 Enable（default） |
| 12Disable  |

## **Micro PDF417**

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1Enable（default） |
| C:\Users\86186\Desktop\1.bmp1 Disable  |

**QR**

### QR Enable/Disable

|  |
| --- |
| 1Enable（default） |
| 2Disable  |

### QR with URL

|  |
| --- |
| 3Enable |
| 4Disable（default）  |

**Micro QR**

|  |
| --- |
| 5Enable（default） |
| 6Disable  |

**Data Matrix**

|  |
| --- |
| 7Enable（default） |
| 8Disable  |

**Aztec**

|  |
| --- |
| 9Enable（default） |
| 10Disable  |

**Standard 2 of 5（Not Enabled）**

## **Plessey（Not Enabled）**

**Msiplessey**

**Enable/Disable msiplessey**

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1Enable（default） |
| C:\Users\86186\Desktop\1.bmp1Disable  |

**Msiplessey Check Digit**

|  |
| --- |
|  C:\Users\86186\Desktop\1.bmp1Disable Check Digit |
| C:\Users\86186\Desktop\1.bmp1 One Check Digit MOD10（default） |

|  |
| --- |
|  C:\Users\86186\Desktop\1.bmp1Two Check Digit MOD10/MOD10 |
| C:\Users\86186\Desktop\1.bmp1 Two Check Digit MOD10/MOD11 |

**Set Length Range for Msiplessey**

|  |
| --- |
|  C:\Users\86186\Desktop\1.bmp1Set the Minimum Length（1~127） |
| C:\Users\86186\Desktop\1.bmp1 Set the Maximum Length（1~127） |
| **Example** | **Set the scanner to decode Msiplessey barcodes containing between 8 and 12 characters:**1.Scan the **Set the Minimum Length** barcode. 2.Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix. 3.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. 4.Scan the **Set the Maximum Length** barcode. 5.Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix. 6.Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix. |

**Hanxi code**

|  |
| --- |
| 9Enable（default） |
| 10Disable  |

 **Appendix**

**Appendix1 Data and Digital Barcodes**

|  |  |
| --- | --- |
|  | IMG_256 |
| 0 |
| IMG_257 |  |
| 1 |
|  | IMG_258 |
| 2 |
| IMG_259 |  |
| 3 |
|  | IMG_260 |
| 4 |
| IMG_261 |  |
| 5 |
|  | IMG_262 |
| 6 |
| IMG_263 |  |
| 7 |

|  |  |
| --- | --- |
|  | IMG_264 |
| 8 |
| IMG_265 |  |
| 9 |
|  | IMG_266 |
| A |
| IMG_267 |  |
| B |
|  | IMG_268 |
| C |
| IMG_269 |  |
| D |
|  | IMG_270 |
| E |
| IMG_271 |  |
| F |
|  | IMG_272 |
| Cancel Last String |
| IMG_273 |  |
| Cancel Current Setting |  |
|  | IMG_274 |
| Cancel Last Digit |
| IMG_275 |  |
| Save |

**Appendix2 Symbology Table**

|  |  |  |
| --- | --- | --- |
| **Symbology** | **CODE ID** | **AIM ID** |
| **HEX** | **Code ID** | **ID** |
| All Symbology | 0x99 |  |  |
| Codabar | 0x61 | a | ]F0 |
| Code 11 | 0x68 | h | ]H1 |
| Code 128(Including GS1 128)、GS1-128 | 0x6A | j | ]C0 |
| ISBT 128 | 0x6A | j | ]C0 |
| Code 32 | 0x3C | < | ]X0 |
| Code 39 | 0x62 | b | ]A0 |
| Code 93 | 0x69 | i | ]G0 |
| EAN |
| EAN-13(including ISBN) | 0x64 | d | ]E0 |
| EAN-8 | 0x44 | D | ]E4 |
| GS1 |
| GS1 DataBar | 0x79 | y | ]e0 |
| GS1 DataBar Limited | 0x7B | { | ]e0 |
| GS1 DataBar Expanded | 0x7D | } | ]e0 |
| 2 of 5 |
| Interleaved 2 of 5 | 0x65 | e | ]I0 |
| Matrix 2 of 5 | 0x6D | m | ]X0 |
| Straight 2 of 5 Industrial | 0x66 | f | ]S0 |
| MSI | 0x67 | g | ]M1 |
| UPC |
| UPC-A | 0x63 | c | ]E0 |
| UPC-E | 0x45 | E | ]E0 |
| Aztec Code | 0x7A | z | ]z0 |
| Han Xin | 0x48 | H | ]X0 |
| Codablock F | 0x6A | j | ]C0 |
| Data Matrix | 0x77 | w | ]d1 |
| PDF417、Micro PDF417 | 0x72 | r | ]L0 |
| QR、Micro QR | 0x73 | s | ]Q1 |

**Appendix3 Command Format Description**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Head** | **DEV ID** | **CMD** | **Status** | **Package No.** | **Data Length** | **Data** | **CRC16** | **End** |
| 2byte | 1 byte | 3 byte | 1 byte | 2 byte | 2 byte | N byte | 2 byte | 2 byte |
| 0x0057 |  |  |  |  |  |  |  | 0x4150 |
| Description | 1.For multi-byte data types, the low byte is before the high byte (little endian mode), (for example, the data length of 2 bytes is 0x0001, and the actual sending order is 01 00 instead of 00 01). The maximum length of the command is 64byte. If a command with a length greater than 64byte is sent, it will be sent in packets. |
| 2.head：The Master is 0x57 0x00, and the Slave is 0x31 0x00. |
| 3.DEV ID：The default value is 0x00, which is used to distinguish different devices in the 485 serial port multi-machine communication |
| CMD | [23:16] | 《二、菜单设置条码》“一级菜单”栏的最后一位数字，内容空则为0。 |
| [15:8] | 《二、菜单设置条码》“二级菜单”栏的最后一位数字，内容空则为0。 |
| [7:0] | 《二、菜单设置条码》“三级菜单”栏的最后一位数字，内容空则为0。 |
| CMD Status： | [7:4] | When the value is 0x0，the Command is a Programming Command。 |
| When the value is 0x1，the Command is a Inquiry Command。 |
| [3:0] | When the value is 0x0，Command is normal. |
| When the value is 0x1，Command is abnormal. |
| 6.Package No.：Initial value is 0x00, and it will increase with the number of packets sent during sub-packet transmission. |
| 7. Data length: the length of the data segment in the current command. If the total length of the last command is set to 64byte, the packet label needs to be increased by 1 and then a supplementary command with a data length of 0byte is used to determine that the communication has ended. . If the get status command gets 64bytes, the packet label number needs to be increased by 1 and then another get command is issued to determine whether the communication has ended. |
| 8.Data: The data content is determined by the corresponding instruction number. When the data length is 0byte, there is no need to fill in the content of this section. |
| 9.CRC16：CRC16 check is to perform CRC16 check on all data between the beginning of the packet header and before the CRC16 check. The verification is carried out in byte order starting from the packet header.Online calculation of CRC check: https://www.lammertbies.nl/comm/info/crc-calculation, check data type is Hex, parameter model select CRC-16/IBM |
| 10.End of packet: 0x50 0x41, used to determine the end of the command transmission. |

**Appendix4 ASCII Character and Keystroke Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Char | HEX | ASCII Character  | Value | Keystroke |
| NUL (Null char.) | 0x00 | Null | 0x00 | Ctrl+2 |
| SOH (Start of Header) | 0x01 | Keypad Enter | 0x58 | Ctrl+A |
| STX (Start of Text) | 0x02 | Caps Lock | 0x39 | Ctrl+B |
| ETX (End of Text) | 0x03 | Null | 0x00 | Ctrl+C |
| EOT (End of Transmission) | 0x04 | Null | 0x00 | Ctrl+D |
| ENQ (Enquiry) | 0x05 | Null | 0x00 | Ctrl+E |
| ACK (Acknowledgment) | 0x06 | Null | 0x00 | Ctrl+F |
| BEL (Bell) | 0x07 | Enter | 0x28 | Ctrl+G |
| BS (Backspace) | 0x08 | Left Arrow | 0x50 | Ctrl+H |
| HT (Horizontal Tab) | 0x09 | Horizontal Tab | 0x2b | Ctrl+I |
| LF (Line Feed) | 0x0a | Down Arrow | 0x51 | Ctrl+J |
| VT (Vertical Tab) | 0x0b | Vertical Tab | 0x2b | Ctrl+K |
| FF (Form Feed) | 0x0c | Backspace | 0x2a | Ctrl+L |
| CR (Carriage Return) | 0x0d | Enter | 0x28 | Ctrl+M |
| SO (Shift Out) | 0x0e | Insert | 0x49 | Ctrl+N |
| SI (Shift In) | 0x0f | Esc | 0x29 | Ctrl+O |
| DLE (Data Link Escape) | 0x10 | F11 | 0x44 | Ctrl+P |
| DC1 (XON) (Device Control 1) | 0x11 | Home | 0x4a | Ctrl+Q |
| DC2 (Device Control 2) | 0x12 | Print Screen | 0x46 | Ctrl+R |
| DC3 (XOFF) (Device Control 3) | 0x13 | Delete | 0x4c | Ctrl+S |
| DC4 (Device Control 4) | 0x14 | tab+shift | 0x2b,0xe1 | Ctrl+T |
| NAK (Negative Acknowledgement) | 0x15 | F12 | 0x45 | Ctrl+U |
| SYN (Synchronous Idle) | 0x16 | F1 | 0x3a | Ctrl+V |
| ETB (End of Trans. Block) | 0x17 | F2 | 0x3b | Ctrl+W |
| CAN (Cancel) | 0x18 | F3 | 0x3c | Ctrl+X |
| EM (End of Medium) | 0x19 | F4 | 0x3d | Ctrl+Y |
| SUB (Substitute) | 0x1a | F5 | 0x3e | Ctrl+Z |
| ESC (Escape) | 0x1b | F6 | 0x3f | Ctrl+[ |
| FS (File Separator) | 0x1c | F7 | 0x40 | Ctrl+\ |
| GS (Group Separator) | 0x1d | F8 | 0x41 | Ctrl+] |
| RS (Request to Send) | 0x1e | F9 | 0x42 | Ctrl+6 |
| US (Unit Separator) | 0x1f | F10 | 0x43 | Ctrl+- |

**Appendix5 ASCII Table**

（Character in yellow ground is Function Character; Character in white ground is Visible Character）

|  |  |  |  |
| --- | --- | --- | --- |
| **Binary** | **Dec** | **Hex** | **Char** |
| 0 | 0 | 0 | NUL (NULL) |
| 1 | 1 | 1 | SOH (Start Of Headling) |
| 10 | 2 | 2 | STX (Start Of Text) |
| 11 | 3 | 3 | ETX (End Of Text) |
| 100 | 4 | 4 | EOT (End Of Transmission) |
| 101 | 5 | 5 | ENQ (Enquiry) |
| 110 | 6 | 6 | ACK (Acknowledge) |
| 111 | 7 | 7 | BEL (Bell) |
| 1000 | 8 | 8 | BS (Backspace) |
| 1001 | 9 | 9 | HT (Horizontal Tab) |
| 1010 | 10 | 0A | LF/NL(Line Feed/New Line) |
| 1011 | 11 | 0B | VT (Vertical Tab) |
| 1100 | 12 | 0C | FF/NP (Form Feed/New Page) |
| 1101 | 13 | 0D | CR (Carriage Return) |
| 1110 | 14 | 0E | SO (Shift Out) |
| 1111 | 15 | 0F | SI (Shift In) |
| 10000 | 16 | 10 | DLE (Data Link Escape) |
| 10001 | 17 | 11 | DC1/XON |
| (Device Control 1/Transmission On) |
| 10010 | 18 | 12 | DC2 (Device Control 2) |
| 10011 | 19 | 13 | DC3/XOFF |
| (Device Control 3/Transmission Off) |
| 10100 | 20 | 14 | DC4 (Device Control 4) |
| 10101 | 21 | 15 | NAK (Negative Acknowledge) |
| 10110 | 22 | 16 | SYN (Synchronous Idle) |
| 10111 | 23 | 17 | ETB (End of Transmission Block) |
| 11000 | 24 | 18 | CAN (Cancel) |
| 11001 | 25 | 19 | EM (End of Medium) |
| 11010 | 26 | 1A | SUB (Substitute) |
| 11011 | 27 | 1B | ESC (Escape) |
| 11100 | 28 | 1C | FS (File Separator) |
| 11101 | 29 | 1D | GS (Group Separator) |
| 11110 | 30 | 1E | RS (Record Separator) |
| 11111 | 31 | 1F | US (Unit Separator) |
| 100000 | 32 | 20 | (Space) |
| 100001 | 33 | 21 | ! |
| 100010 | 34 | 22 | " |
| 100011 | 35 | 23 | # |
| 100100 | 36 | 24 | $ |
| 100101 | 37 | 25 | % |
| 100110 | 38 | 26 | & |
| 100111 | 39 | 27 | ' |
| 101000 | 40 | 28 | ( |
| 101001 | 41 | 29 | ) |
| 101010 | 42 | 2A | \* |
| 101011 | 43 | 2B | + |
| 101100 | 44 | 2C | , |
| 101101 | 45 | 2D | - |
| 101110 | 46 | 2E | . |
| 101111 | 47 | 2F | / |
| 110000 | 48 | 30 | 0 |
| 110001 | 49 | 31 | 1 |
| 110010 | 50 | 32 | 2 |
| 110011 | 51 | 33 | 3 |
| 110100 | 52 | 34 | 4 |
| 110101 | 53 | 35 | 5 |
| 110110 | 54 | 36 | 6 |
| 110111 | 55 | 37 | 7 |
| 111000 | 56 | 38 | 8 |
| 111001 | 57 | 39 | 9 |
| 111010 | 58 | 3A | : |
| 111011 | 59 | 3B | ; |
| 111100 | 60 | 3C | < |
| 111101 | 61 | 3D | = |
| 111110 | 62 | 3E | > |
| 111111 | 63 | 3F | ? |
| 1000000 | 64 | 40 | @ |
| 1000001 | 65 | 41 | A |
| 1000010 | 66 | 42 | B |
| 1000011 | 67 | 43 | C |
| 1000100 | 68 | 44 | D |
| 1000101 | 69 | 45 | E |
| 1000110 | 70 | 46 | F |
| 1000111 | 71 | 47 | G |
| 1001000 | 72 | 48 | H |
| 1001001 | 73 | 49 | I |
| 1001010 | 74 | 4A | J |
| 1001011 | 75 | 4B | K |
| 1001100 | 76 | 4C | L |
| 1001101 | 77 | 4D | M |
| 1001110 | 78 | 4E | N |
| 1001111 | 79 | 4F | O |
| 1010000 | 80 | 50 | P |
| 1010001 | 81 | 51 | Q |
| 1010010 | 82 | 52 | R |
| 1010011 | 83 | 53 | S |
| 1010100 | 84 | 54 | T |
| 1010101 | 85 | 55 | U |
| 1010110 | 86 | 56 | V |
| 1010111 | 87 | 57 | W |
| 1011000 | 88 | 58 | X |
| 1011001 | 89 | 59 | Y |
| 1011010 | 90 | 5A | Z |
| 1011011 | 91 | 5B | [ |
| 1011100 | 92 | 5C | \ |
| 1011101 | 93 | 5D | ] |
| 1011110 | 94 | 5E | ^ |
| 1011111 | 95 | 5F | \_ |
| 1100000 | 96 | 60 | ` |
| 1100001 | 97 | 61 | a |
| 1100010 | 98 | 62 | b |
| 1100011 | 99 | 63 | c |
| 1100100 | 100 | 64 | d |
| 1100101 | 101 | 65 | e |
| 1100110 | 102 | 66 | f |
| 1100111 | 103 | 67 | g |
| 1101000 | 104 | 68 | h |
| 1101001 | 105 | 69 | i |
| 1101010 | 106 | 6A | j |
| 1101011 | 107 | 6B | k |
| 1101100 | 108 | 6C | l |
| 1101101 | 109 | 6D | m |
| 1101110 | 110 | 6E | n |
| 1101111 | 111 | 6F | o |
| 1110000 | 112 | 70 | p |
| 1110001 | 113 | 71 | q |
| 1110010 | 114 | 72 | r |
| 1110011 | 115 | 73 | s |
| 1110100 | 116 | 74 | t |
| 1110101 | 117 | 75 | u |
| 1110110 | 118 | 76 | v |
| 1110111 | 119 | 77 | w |
| 1111000 | 120 | 78 | x |
| 1111001 | 121 | 79 | y |
| 1111010 | 122 | 7A | z |
| 1111011 | 123 | 7B | { |
| 1111100 | 124 | 7C | | |
| 1111101 | 125 | 7D | } |
| 1111110 | 126 | 7E | ~ |
| 1111111 | 127 | 7F | DEL (Delete) |