**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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**Service Information**

For technical assistant or product service and repair, please contact us.

**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 version  2. UPC narrow quiet zone  3. 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 volume  2. 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 function  2. Modify volume  3. 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 missing  2. 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 mode  2. Add suffix before  3. Add data hiding of bar code  4. 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 barcode  2. 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 added  2. Solve the problem of losing digit when UPC-A transfers to EAN-13  3. Solve the problem that the conversion of EAN13 to ISSN does not work  4. 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 |

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# 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:\\Users\\Admin\\AppData\\Local\\youdao\\dict\\Application\\7.2.0.0703\\resultui\\dict\\?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**

|  |
| --- |
| 1  2  Enter 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 scanner  Enter 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.

|  |
| --- |
| 500  500ms（default） |
| 200  750ms |
| 重码间隔1秒  1s |
| 2  2s |

**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.

|  |
| --- |
| gao  High Volume（default） |
| di  Low 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i  On（default） |
| 关闭i  Off |

**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.bmp1  Disable（default） |
| C:\Users\86186\Desktop\1.bmp1  Enable |

**Enter Sleep Mode**

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1  Enter 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** Barcode  2、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 Appendix1  3、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.bmp1  Level 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Ç  Replace as Ç |
| 替换成  Replace as | |
| 替换成有  Replace as ^] |
| 替换成2  Replace as ] |
| 替换成3  Replace 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 |
| 1  Spanish |
| 葡萄牙语-葡萄牙  Portuguese (Portugal)  Portuguese-Portugal |
| IMG_256  French-France |
| IMG_256  German-Austria |
| IMG_256  Turkish Q |
| IMG_256  Turkish F |
| IMG_256  English-UK |
| IMG_256  Japanese |
| 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 1  3. Scan **Save** barcode in Appendix 1  4. 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 1  3. Scan **Save** barcode in Appendix 1  4. 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** barcode  2.Scan numeric barcode“6”“1”“5”“9” from the “Digital Barcodes” section in Appendix 1  3.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

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

### Code 39 Check Digit

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

### Code 39 Full ASCII

|  |
| --- |
| 6  Disable（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.

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

## **Interleaved 2 of 5 （ITF5）**

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

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

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

|  |
| --- |
| C:\Users\SC\Desktop\3.bmp3  Disable Check Digit（default） |
| C:\Users\SC\Desktop\4.bmp4  Enable and do not transmit check digit |
| C:\Users\SC\Desktop\5.bmp5  Enable and Transmit Check Digit |

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

|  |
| --- |
| C:\Users\SC\Desktop\6.bmp6  Any 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.bmp9  10 Characters |
| C:\Users\SC\Desktop\10.bmp10  12 Characters |
| C:\Users\SC\Desktop\11.bmp11  14 Characters |
| C:\Users\SC\Desktop\12.bmp12  16 Characters |
| C:\Users\SC\Desktop\13.bmp13  18 Characters |
| C:\Users\SC\Desktop\14.bmp14  20 Characters |
| C:\Users\SC\Desktop\15.bmp15  22 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.bmp18  Set 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

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

### Set Length Range for Industrial 2 of 5

|  |
| --- |
| 3  Set 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

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

### Set Length Range for Matrix 2 of 5

|  |
| --- |
| 7  Set 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

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

### Set Length for Code 93

|  |
| --- |
| 11  Set 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

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

### Code 11 Check Digit Transmission

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

### Code 11 Check Digit

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

Set Length Range for Code 11

|  |  |
| --- | --- |
| 8  Set 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

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

### Set Length Range for Code 128

|  |  |
| --- | --- |
| 12  Set 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.bmp1  Enable（default） |
| C:\Users\86186\Desktop\1.bmp1  Disable |

**ISBT 128（Not Enabled）**

**UPC-A**

### Enable/Disable UPC-A

|  |
| --- |
| C:\Users\SC\Desktop\1.bmp1  Enable（default） |
| C:\Users\SC\Desktop\2.bmp2  Disable |

**UPC-A Check Digit**

|  |
| --- |
| C:\Users\SC\Desktop\3.bmp3  Transmit 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_256  Covert UPC-A to EAN-13 |
| IMG_256  Do Not Convert UPC-A to EAN-13(default) |

### **UPC-E**

### Enable/Disable UPC-E

|  |
| --- |
| C:\Users\SC\Desktop\7.bmp7  Enable（default） |
| C:\Users\SC\Desktop\8.bmp8  Disable |

### UPC-E Check Digit

|  |
| --- |
| C:\Users\SC\Desktop\9.bmp9  Transmit Check Digit（default） |
| C:\Users\SC\Desktop\10.bmp10  Do not Transmit Check Digit |

### Convert UPC-E to UPC-A

|  |
| --- |
| C:\Users\SC\Desktop\11.bmp11  Convert UPC-E to UPC-A |
| C:\Users\SC\Desktop\12.bmp12  Do not Convert UPC-E to UPC-A（default） |

**EAN/JAN-8**

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

**EAN/JAN-13**

### Enable/Disable EAN/JAN-13

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

### Convert EAN13 to ISBN

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

### Convert EAN13 to ISSN

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

**UPC/EAN/JAN Supplemental**

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

**GS1 DataBar（RSS14）(Stacked)**

### Enable/Disable GS1 DataBar

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

### Enable/Disable GS1 DataBar Limited

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

### Enable/Disable GS1 DataBar Expanded

|  |
| --- |
| C:\Users\SC\Desktop\5.bmp5  Enable（default） |
| C:\Users\SC\Desktop\6.bmp6  Disable |

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

### GS1 DATABAR LIMITED Preamble （Not Enabled）

**PDF417**

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

## **Micro PDF417**

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

**QR**

### QR Enable/Disable

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

### QR with URL

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

**Micro QR**

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

**Data Matrix**

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

**Aztec**

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

**Standard 2 of 5（Not Enabled）**

## **Plessey（Not Enabled）**

**Msiplessey**

**Enable/Disable msiplessey**

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

**Msiplessey Check Digit**

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

|  |
| --- |
| C:\Users\86186\Desktop\1.bmp1  Two 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.bmp1  Set 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**

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

**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) |