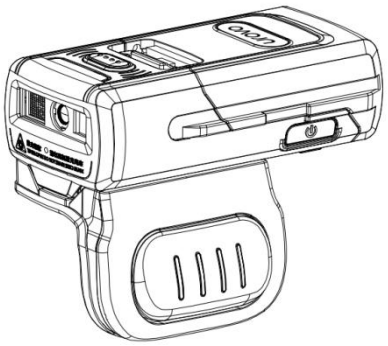
urovo

# SR5600

## Bluetooth Ring Scanner

[USER GUIDE]



urovo

[F.2021.07.12].2

# Revision History

| Change | Date | Description | Author |
|---|---|---|---|
| -2 | 2021.06.15 | First version | Liang Wang |
| -1 | 2021.07.12 | Initial Release | Nolan Luo |
| 0 | 2021.07.15 | Version 1.0 Revision | Nolan Luo |
| 1 | 2021.07.29 | Version 1.1 Revision | Nolan Luo |
| 2 | 2021.08.08 | Version 1.2 Revision<br>✧ Add prefix/suffix setting<br>✧ Barcode type<br>✧ Bluetooth name modifying | Nolan Luo |
| 3 | 2021.09.05 | Version 1.2.1<br>✧ Command controlling | Nolan Luo |
| | | | |
| | | | |
| | | | |

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# 1. Getting Started

## 1.1 Introduction

This chapter describes the features of the SR5600 Ring Scanner and explains how to install and charge the battery, capture data and reset the SR5600.

## 1.2 Unpacking

Carefully remove all protective material from around the equipment and save the shipping container for later storage and shipping.

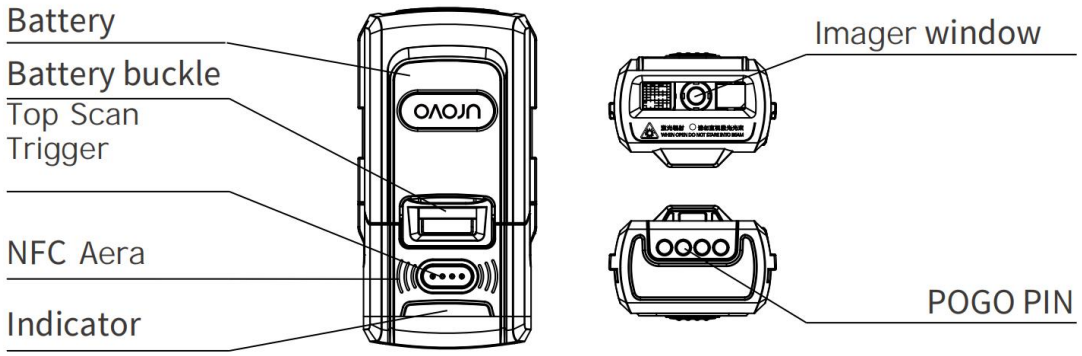
After opening the shipping box, inspect the contents. You should have received the following:

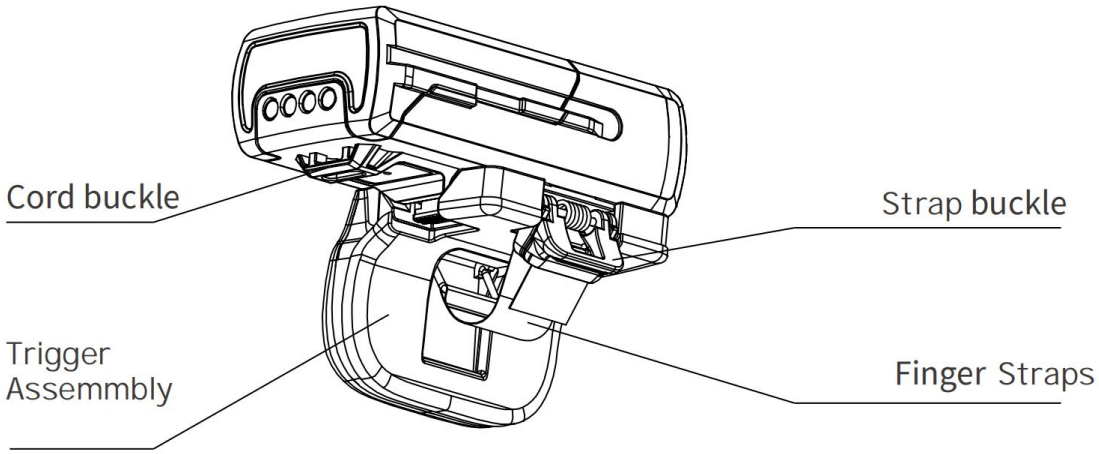
- SR5600
- Battery
- Simple Operation Guide
- USB Cable
- Power adaptor
- Direct Charger

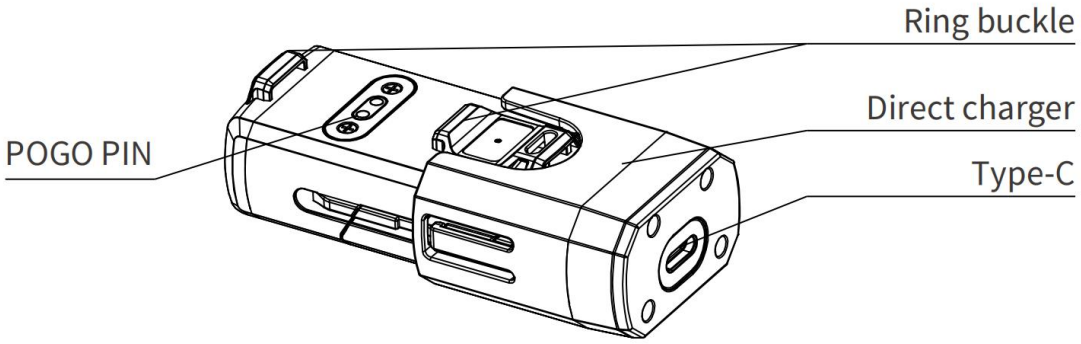
Inspect the equipment for damage. If you are missing any equipment or if you find any damaged equipment, contact Support immediately. See Website: http://en.urovo.com or local agent.

## 1.3 Configuration Features

**Figure 1 SR5600 Trigger Configuration Features**






## 1.4 LED Status Indications

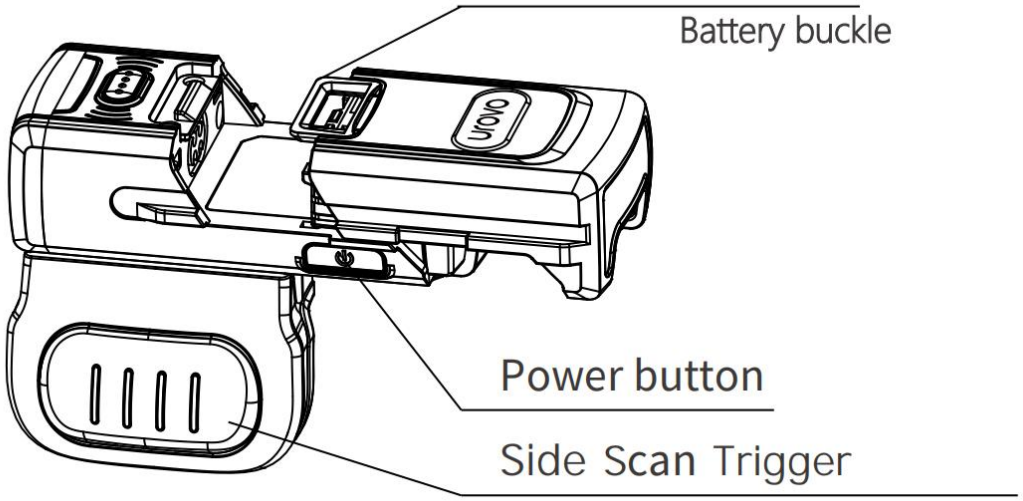
| Status light | Description |
|---|---|
| Red indicator light is always on | Trigger button hold or charging |
| Red indicator light flashes once | Setup failure |
| Red indicator blinking twice | Alarming/Scanning when Bluetooth is not connected |
| Green indicator light flashes once | Scan bar code successfully |
| Green indicator light is always on | Battery fully charged |
| Blue indicator light keeps flashing | Bluetooth enters pairing mode |
| Blue indicator solid on | Successful Bluetooth connection |

## 1.5 Buzzer, vibration status

| Buzzer, vibration status | Description |
|---|---|
| Start-up sound + no vibration | Startup |
| One long buzz + vibration | Shutdown |
| One short buzz + vibration | Successful decoding |
| Two short buzz + no vibration | The battery is set successfully, the Bluetooth is connected successfully, and the Bluetooth is disconnected |
| One long buzz + no vibration | Setup failure |
| Four short beeps + vibration | Alarming/Scanning when Bluetooth is not connected |

## 1.6 Battery installation instructions

Align the battery with the top of the SR5600 and insert it into the battery compartment. Slide the battery all the way into the SR5600 locking slot to ensure that the battery matches with SR5600.



# 1.7 Trigger Assembly

## 1.7.1 Installation instructions

Align one end of the SR5600 lock catch and push the other end down until it clicks into place.

The trigger assembly can be installed as required. The following figure 1 is for the right finger, and figure 2 is for the left finger. Press the sliding buckle to remove the ring.

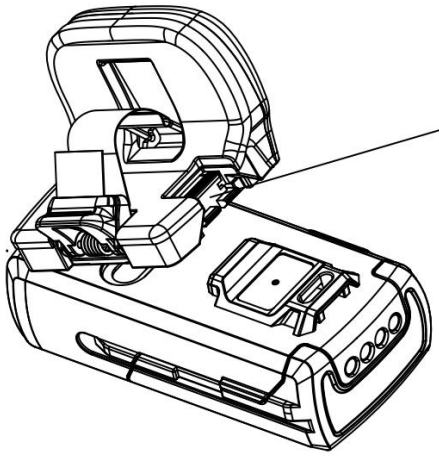


Figure1

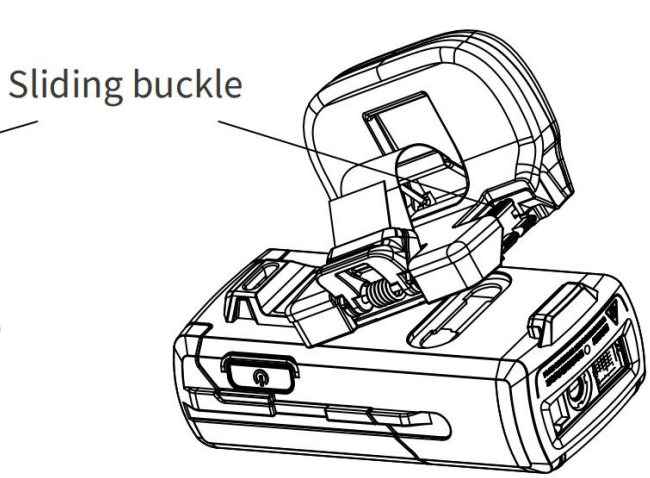
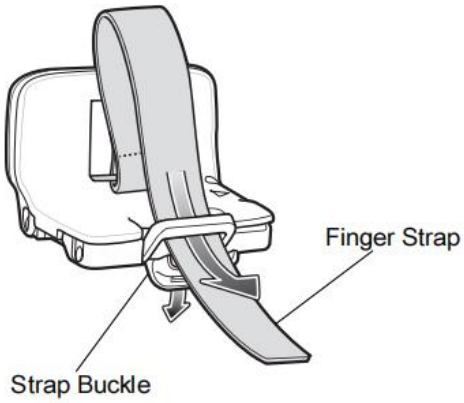


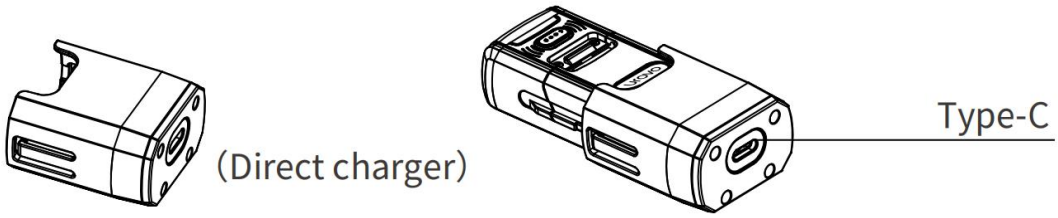

Figure2

## 1.7.2 Adjust finger strap



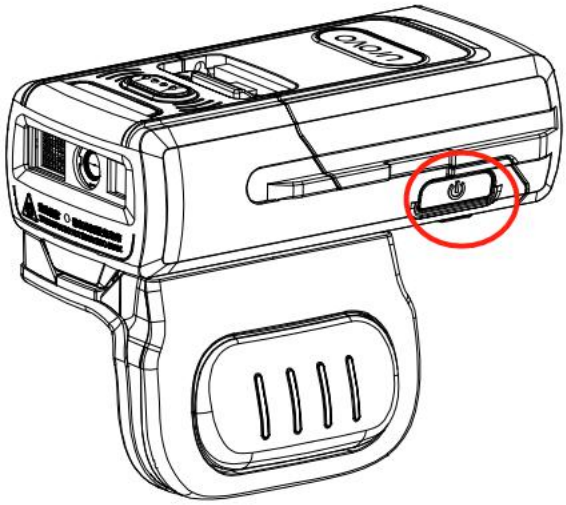
## 1.8 Direct Charger installation instructions

Insert the bottom of the SR5600 into the charger until it clips into place. Connect the Type-C interface at the end of the charger with the USB cable and Power adaptor. Normal charging starts when the indicator light indicates that the red light is always on.




### 1.8.1 Powering ON/OFF

Long-press the power button for 2 second to boot, for 3 second to turn off.



# 1.9 Bluetooth Communications

## 1.9.1 Introduction

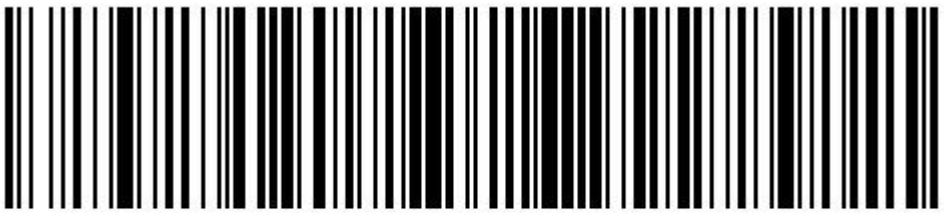
This chapter provides information about the modes of operation and features available or Bluetooth communication between Ring Scanner and hosts. The chapter also includes the parameters necessary to configure the SR5600.

Scan a factory barcode to return all features to default values. See page10.
Scan a version barcode to check the version number of the scanner. See page10.

## 1.9.2 Bluetooth Connection Modes

The SR5600 Ring Scanner can connect to a host computer using the following Bluetooth modes, scan to switch the connection mode you need:

**Human Interface Device(*HID MODE)**




**Serial Port Profile(SPP MODE)**




**Low Energy(BLE MODE)**



### 1.9.3 Pairing Mode

Scan the following barcode to enter the pairing mode or release the connection.




### 1.9.4 Bluetooth Name Modifying

Generate the barcode to change the Bluetooth name, value = $BT#SETSSID=M
M: Bluetooth name of Ring Scanner SR5600.

## 1.10 Command Controlling in SPP Mode

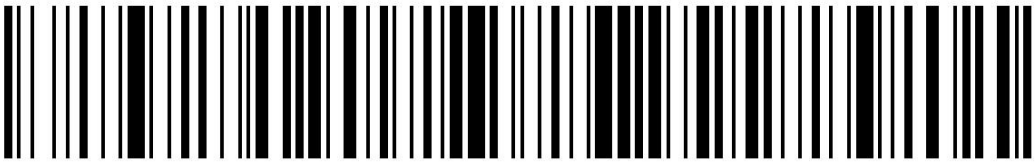
This setting enable can make scanner being control by HEX code.

| Function | Item | Parameter | Description |
|---|---|---|---|
| %4006M% | SPP Control | 00 | Disable |
| | | 01 | Enable |

Scan the following barcode to enable command controlling .



Scan the following barcode to enable command controlling .(HEX: AA 04 40 06 00 42 BB )



#~%INS:%4006S00%~#

## 1.10.1 Indicator Controlling

Make sure the scanner in SPP Mode and enable the SPP Controlling Mode, then you can send HEX code to control LEDs / Beeper / Vibrate to respond as you wish.

### Format 1:

AA (Start)
04 (Length of instructs)
C8 (Code/default)
SUM (R:0x01, G:0x02, B:0x04, BUZZ:0x08, Vibrate:0x10)
00~01 (OFF/ON)
XOR (XOR result)Can be count by XOR tool or HEX Calculate.
BB (END)

**For example.**
**Red LED Command(1 times):**
HEX.
ON: AA 04 C8 **01** 01 CC BB
OFF: AA 04 C8 **01** 00 CD BB

| Start | length | value 1 | value 2 | value 3 | XOR | End |
|---|---|---|---|---|---|---|
| AA | 0x04 | 0xC8 | 0x01 | 0x01 | CC | BB |
| AA | 04 | C8 | R:0x01, G:0x02, B:0x04, BUZZ:0x08, Vibrate:0x10 | 00:OFF 01:ON | XOR(length, C8, value2, value 3) | BB |

**Green LED Command(1 times):**

HEX.

ON: AA 04 C8 **02** 01 CF BB

OFF: AA 04 C8 **02** 00 CE BB

| Start | length | value 1 | value 2 | value 3 | XOR | End |
|---|---|---|---|---|---|---|
| AA | 04 | C8 | 02 | 01 | CF | BB |
| 0xAA | 0x04 | 0xC8 | R:0x01, G:0x02, B:0x04, BUZZ:0x08, Vibrate:0x10 | 0x00:OFF 0x01:ON | XOR(length, C8, value2, value 3) | 0xBB |

**Beeper Command(1 times)**

ON: AA 04 C8 08 01 C5 BB

OFF: AA 04 C8 08 00 C4 BB

| Start | length | value 1 | value 2 | value 3 | XOR | End |
|---|---|---|---|---|---|---|
| AA | 04 | C8 | 08 | 01 | C5 | BB |
| 0xAA | 0x04 | 0xC8 | R:0x01, G:0x02, B:0x04, BUZZ:0x08, Vibrate:0x10 | 00:OFF 01:ON | XOR(length, C8, value2, value 3) | 0xBB |

**Vibrate Command(1 times)**

HEX.

ON: AA 04 C8 10 01 DD BB

OFF: AA 04 C8 10 00 DC BB

| Start | length | value 1 | value 2 | value 3 | XOR | End |
|---|---|---|---|---|---|---|
| AA | 0x04 | 0xC8 | 0x10 | 01 | CC | BB |
| 0xAA | 0x04 | 0xC8 | R:0x01, G:0x02, B:0x04, BUZZ:0x08, Vibrate:0x10 | 0x00:OFF 0x01:ON | XOR(length, C8, value2, value 3) | 0xBB |

## Format 2:

| | |
|---|---|
| AA | (Start) |
| 06 | (Length of instructs) |
| C0 | (Code/default) |
| SUM | (R:0x01， G:0x02， B:0x04， BUZZ:0x08, Vibrate:0x10) |
| 00~FF | (Blink/beep/vibrate times) |
| 01~FE | (Duration)*10ms |
| 02~FF | (Interval time)*10ms |
| XOR | (XOR result)Can be count by XOR tool or HEX Calculate. |
| BB | (END) |

**Example 1**

HEX. AA 06 C0 **08** 03 0A 14 D3 BB(Means Beeping 3times totally, 100ms duration and wait 200ms between each beep).

| Start | length | value 1 | value 2 | value 3 | value 4 | value 5 | XOR | End |
|---|---|---|---|---|---|---|---|---|
| AA | 06 | C0 | 0x04 | 03 | 0A | 14 | D3 | BB |
| 0xAA | 0x06 | 0xC0 | R:0x01,<br>G:0x02,<br>B:0x04,<br>**BUZZ:0x08,**<br>Vibrate:0x10 | times | Duration<br>*10ms | Interval<br>times*10<br>ms | XOR<br>(length<br>,<br>C8, C0, v<br>alue1,<br>value<br>2, value<br>3, value<br>4, value<br>5) | 0xBB |

**Example 2(Parallel)**

HEX. AA 06 C0 **0A** 03 C8 C8 CF BB (Means **Green led** & **Beeper** reaction 3times totally, 2 seconds duration and wait 2second between each flash).

| Start | length | value 1 | value 2 | value 3 | value 4 | value 5 | XOR | End |
|---|---|---|---|---|---|---|---|---|
| AA | 06 | C0 | 0A | 03 | C8 | C8 | CF | BB |
| 0xAA | 0x06 | 0xC0 | R:0x01,<br>**G:0x02,**<br>B:0x04,<br>**BUZZ:0x08,**<br>Vibrate:0x10<br><br>SUM=0x02+0x0<br>8=0x**0A** | times | Duration<br>*10ms | Interval<br>times*10<br>ms | XOR<br>(length<br>,<br>C8, C0, v<br>alue1,<br>value<br>2, value<br>3, value | 0xBB |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | 4, value 5) | |

**Example 3(Parallel)**

HEX. AA 06 C0 **1A** 03 64 C8 73 BB (Means **Green led** &**Beeper**& **Vibrator** reaction at the same time, 3times totally, 1 seconds duration and wait 2second between each reaction).

| Start | length | value 1 | value 2 | value 3 | value 4 | value 5 | XOR | End |
|---|---|---|---|---|---|---|---|---|
| AA | 06 | C0 | 1A | 03 | 64 | C8 | 73 | BB |
| 0xAA | 0x06 | 0xC0 | R:0x01,<br>**G:0x02,**<br>B:0x04,<br>**BUZZ:0x08,**<br>**Vibrate:0x10**<br><br>SUM=0x02+0x08+0x10=0x**1A** | times | Duration *10ms | Interval times*10ms | XOR (length, C8, C0, value1, value 2, value 3, value 4, value 5) | 0xBB |

**Example 4(Queue)**

HEX. AA 06 C0 **10** 01 1E 00 C9 BB AA 06 C0 08 03 0A 14 D3 BB(Means Beeping 3times totally, 100ms duration and wait 200ms between each beep)+ vibrate 1 times before beeping

| Start | length | value 1 | value 2 | value 3 | value 4 | value 5 | XOR | End |
|---|---|---|---|---|---|---|---|---|
| AA | 06 | C0 | 10 | 01 | 1E | 00 | C9 | BB |
| AA | 06 | C0 | 08 | 03 | 0A | 14 | D3 | BB |
| 0xAA | 06 | 0xC0 | R:0x01,<br>G:0x02,<br>B:0x04,<br>**BUZZ:0x08,**<br>**Vibrate:0x10** | times | Duration *10ms | Interval times*10ms | XOR (length, C8, C0, value1, value 2, value 3, value 4, value 5) | 0xBB |

## 1.10.2 Trigger Controlling

**Trigger ON:**

HEX: AA 02 B1 B3 BB

**Trigger OFF:**

**HEX:** AA 02 B0 B2 BB

## 1.10.3 Trigger Button Controlling

**Disable Trigger Button:**

**HEX:** AA 02 A0 A2 BB

**Enable Trigger Button:**

**HEX:** AA 02 A1 A3 BB

# 1.11 AIM Output

Scan the following barcode to receive the barcode type in front of barcode data. The barcode type corresponding format refer to *ISO-IEC 15424-2008* and page 53 Programming references.

| Function | Item | Parameter | Description |
|---|---|---|---|
| %5001M% | AIM Code Output | 00* | Disable |
| | | 01 | Enable |

Scan the following barcode to enable the AIM Output. (HEX: AA 04 50 01 01 54 BB )

#~%INS:%5001S01%~#

Scan the following barcode to disable the AIM Output. (HEX: AA 04 50 01 00 55 BB )

#~%INS:%5001S00%~#

# 2. Setup

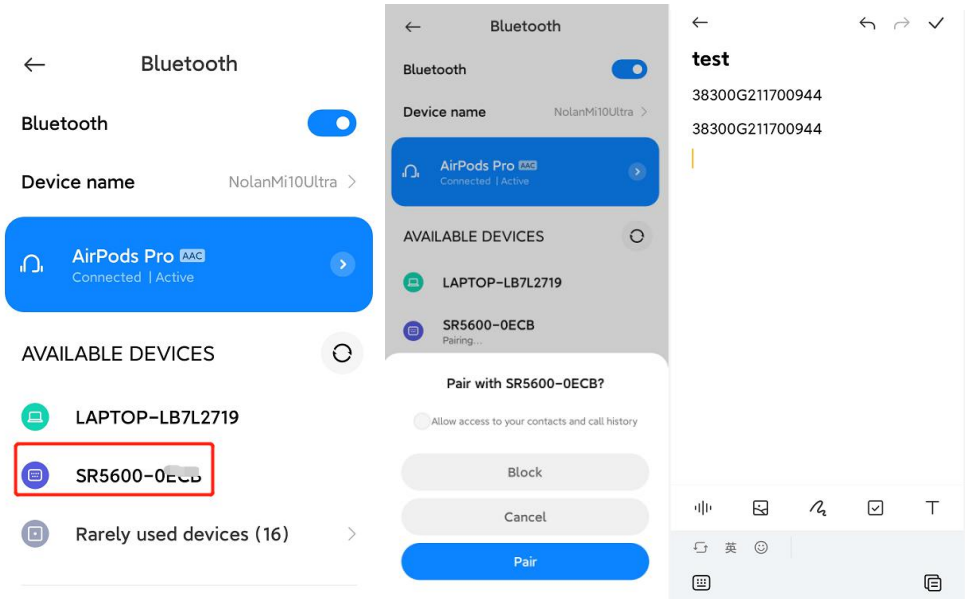
**HID Setup**

## 2.1. HID Bluetooth Connection to iOS/iPad/iPhone

1. Scan the barcode 'Pairing Mode' into connectable status.
2. Scan the HID MODE Barcode from this chapter.
3.Select Settings > General > Bluetooth(iOS)
4. Turn the iOS Bluetooth ON.
5. Select Bluetooth Settings and choose SR5600 from the list of discovered devices. The SR5600 displays as SR5600 - xxxx, where xxxx is the The last four digits of the Mac address.

## 2.2 HID Bluetooth Connection to Android

1. Scan the barcode 'Pairing Mode' into connectable status.
2. Scan the HID MODE barcode from this chapter.
3.Select Settings > Bluetooth(Android)
4. Turn the Android Bluetooth ON.
5 Select Bluetooth Settings and choose SR5600 from the list of discovered devices. The RS5100 displays as SR5600 - xxxxxx, where xxxxxx is the serial number.




**User-friendly operation-connect:**

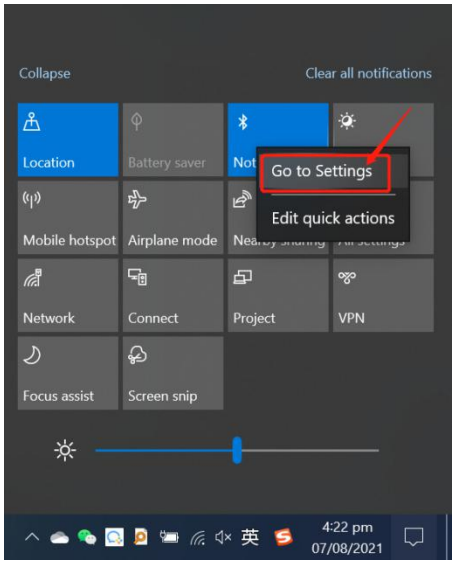
***Make sure the Android's NFC is on and Ring Scanner is power on, Tap NFC to quick pair.**

***Scan a QRCODE(Bluetooth MAC of urovo 's U2 wearable devices) to quick pair and connect.**

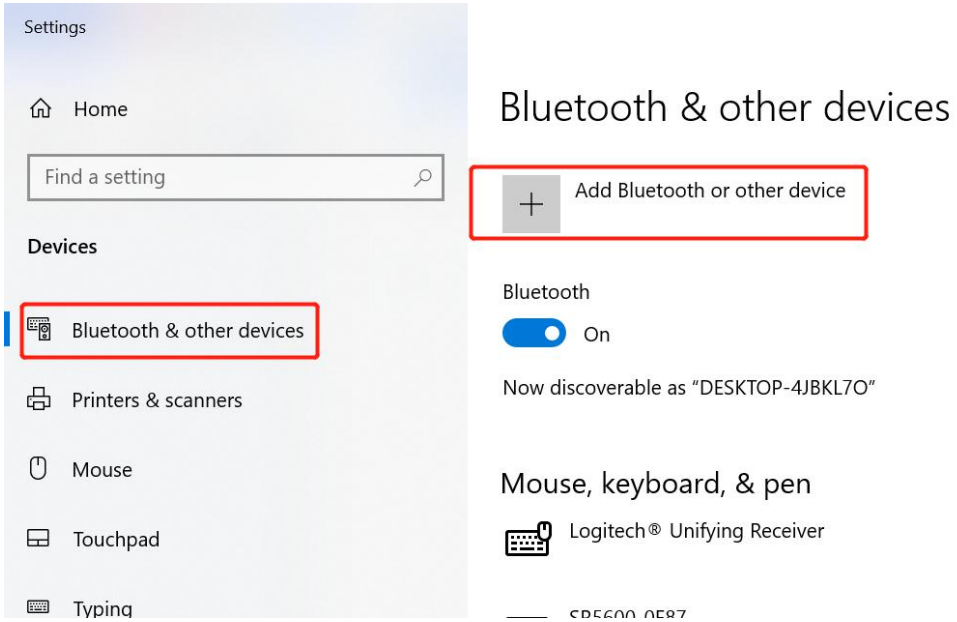
## 2.3 HID Bluetooth Connection to Windows

To start the connection process aim the SR5600 at about 7" (18 cm) away from the computer screen and scan the barcode of the Pairing Mode.
The SR5600 Scan LEDs start flashing blue indicating that the SR5600 is attempting to establish connection with the computer. The following notifications display upon successful connection.

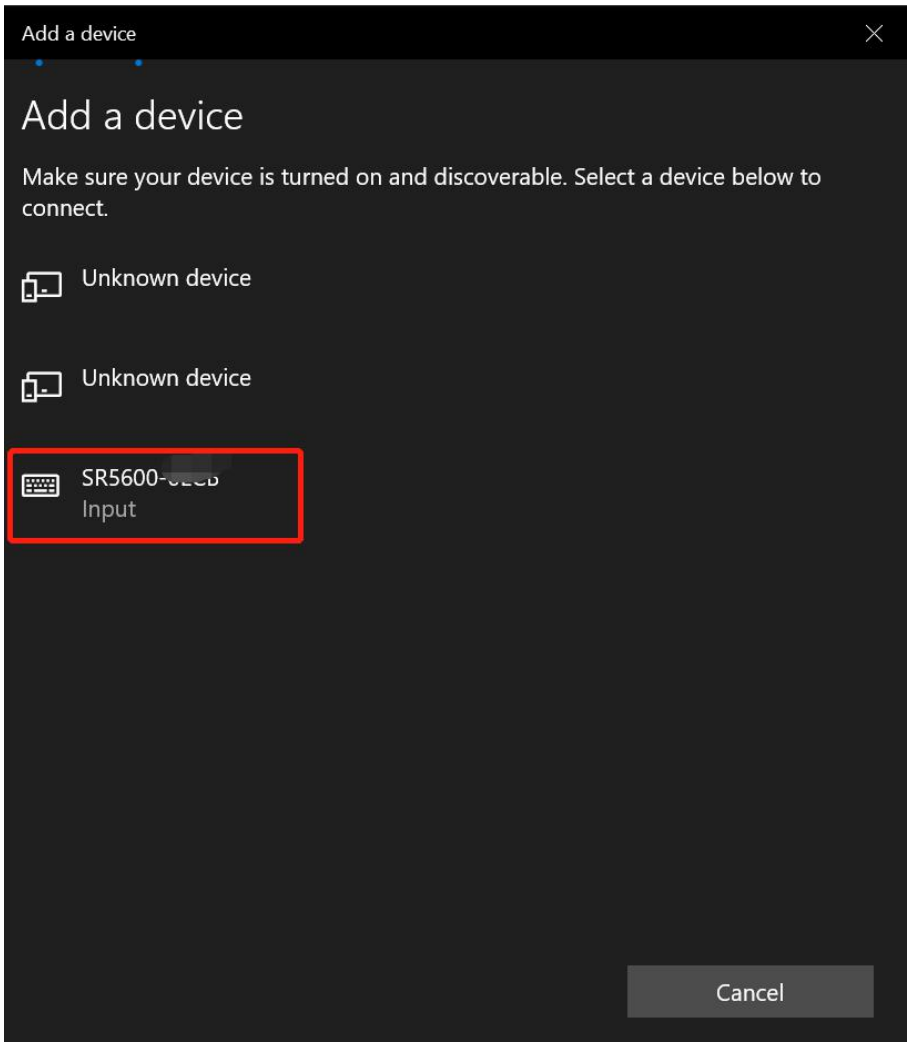
1. Scan the barcode 'Pairing Mode' into connectable status.
2. Scan the HID MODE barcode from this chapter.
3.

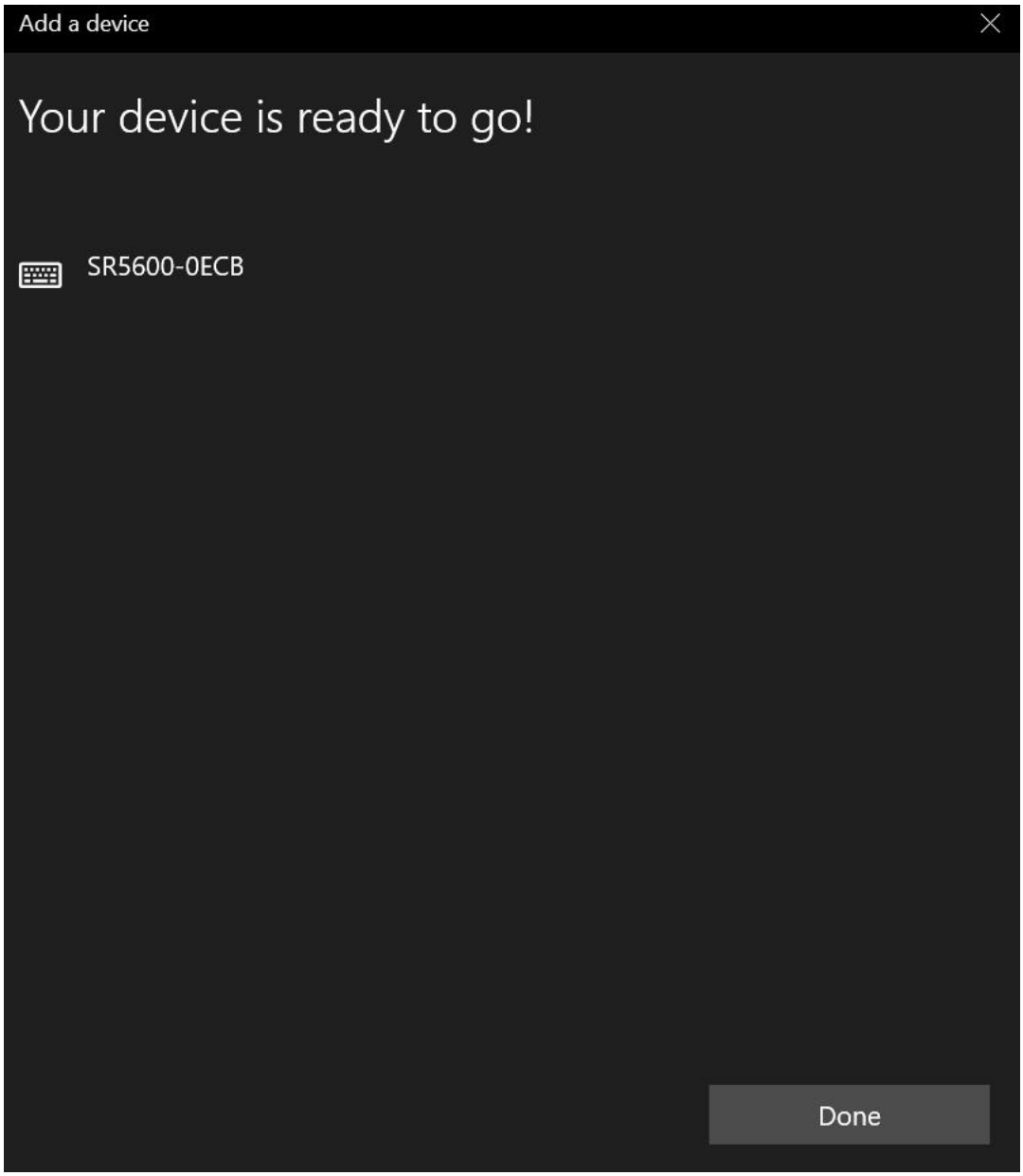


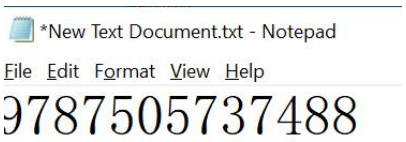

4.



5.Default PIN code is 0000.






<Test in text file.>

## 2.4 Power Save

If no Bluetooth connection is made within 5 minutes, the ring scanner will auto switch off.




Disable power off




*Enable power off

## 2.5 Delay 01~10 ms to send (HID)




*1ms

## 2.6 Inquiry

### 2.6.1 Inquiry Firmware version

Scan the following barcode to return firmware version.(HEX: AA 04 FF 02 00 F9 BB)



## 2.6.2 Inquiry Bluetooth MAC

Scan the following barcode to return Bluetooth MAC address.(HEX: AA 04 FF 02 01 F8 BB)




## 2.6.2 Inquiry Bluetooth Name

Scan the following barcode to return Bluetooth Name.(HEX: AA 04 FF 02 02 FB BB).




## 2.7 Restore Factory Setting




HEX Value: AA 04 FF 01 00 FA BB

## 2.8. Indicators & Beeper setting

### 2.8.1. Power on alarming




OFF




*ON

### 2.8.2. LED indicator(decode)




OFF




*ON

## 2.8.3. Beeper setting(decode)




OFF(HEX: AA 02 C2 C0 BB)




*ON(HEX:AA 02 C2 C1 BB)

## 2.8.4. Duration




*50ms

## 2.8.5. Volume Level




Low




Middle




*High

## 2.8.6 Vibrate Setting (decode)




OFF




ON*

# 3. Scanner Setting

## 3.1. Scanning Type




Continuous Barcode Read




Pluse




*Normal(Manual)

## 3.2. Illumination&Aiming setting




Disable both




Laser aiming only




Illumination only




*Enable both

## 3.3. Illumination level




Level 1




Level 2




*Level 3



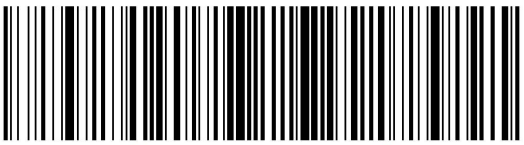
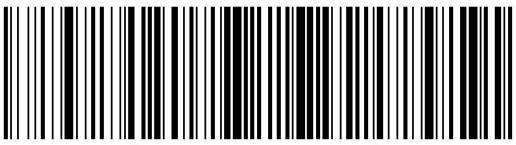
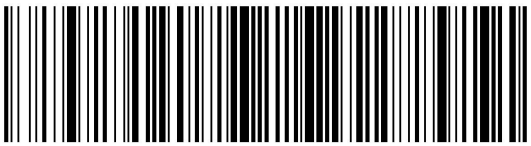
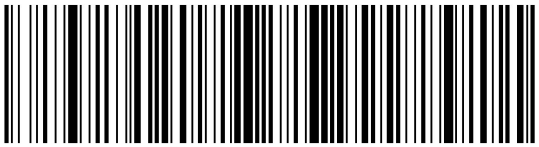

Level 4

## 3.4. Suffix&Prefix

SR5600 can add 1 prefix and 2 suffix.

‘*’represent default.

| Multi-step | | | Single-step |
|---|---|---|---|
| Function | Description | Parameter | Description |
| Option %3001M% | Disable | 00 |   |
| | Enable | 01* |   |
| Format %3002M% | <data><suffix 1><suffix 2> | 00* |   |

| | | | |
|---|---|---|---|
| | <data><suffix 1> | 01 |  |
| | <data><suffix 2> | 02 |  |
| | <prefix><data> | 03 |  |
| | <prefix><data><suffix 1><suffix 2> | 04 |  |
| | <prefix><data><suffix 1> | 05 |  |
| | <prefix><data><suffix 2> | 06 |  |
| Prefix<br>%3003M<br>% | Prefix value | 00~FF | ... |
| | | 00* |  |
| Suffix 1<br>%3004M<br>% | suffix 1 value | 00~FF | ... |
| | | 0A* |  |

| | | | |
|---|---|---|---|
| | | 0D | #~%INS:%3004S0D%~# |
| Suffix 2<br>%3005M<br>% | suffix 2 value | 00~FF | ... |
| | | 0D* | #~%INS:%3005S0D%~# |
| | | 0A | #~%INS:%3005S0A%~# |

# 4. Symbologies

This chapter describes symbology features and provides programming barcodes for selecting these features.

To set feature values, scan a single barcode or a short barcode sequence. The settings are stored in non-volatile memory and are preserved even when the SR5600 powers down.




**SPP Command Format:**

Code 128 Setting:

| Start | length | value 1 | value 2 | value 3 | XOR | End |
|---|---|---|---|---|---|---|
| AA | 0x04 | 0x08 | 0x01 | 0x00 | 0D | BB |

HEX:'AA 04 08 01 00 0D BB' to disable Code128 encoding.

| Start | length | value 1 | value 2 | value 3 | XOR | End |
|---|---|---|---|---|---|---|
| AA | 0x04 | 0x08 | 0x01 | 0x01 | 0C | BB |

HEX:' AA 04 08 01 01 0C BB' to enable Code128 encoding.

*The value 3 is the value following the character "S".

*XOR value can be calculated by (length, value 1,value 2, value 3)

## Code 39

Code Character:A

To enable or disable Code39, scan the appropriate barcode below.




*Disable Code 39




1 Check digit




2 Check digit




*Do not Transmit Code39 Check Digit(Disable)




*Do not Transmit Code39 2 Check Digit(Disable)

## Code 39 Full ASCII




*Disable Code 39 Full ASCII




Enable Code39 Full ASCII

## PDF417




Disable PDF417




*Enable PDF417

## Data Matrix

Code Character:d




Disable Data Matrix




*Enable Data Matrix

## Interleaved 2 of 5

Character Code:I




*Disable ITF




Enable ITF

## MaxiCode



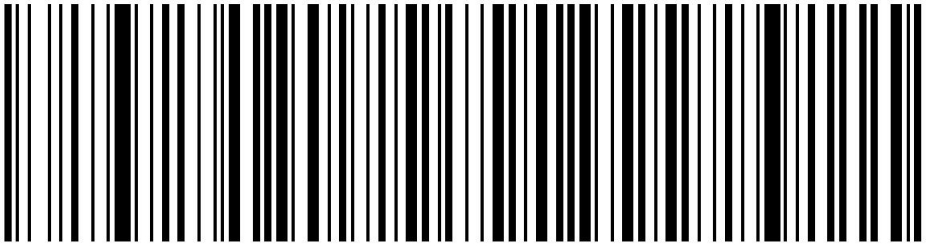

*Disable MaxiCode



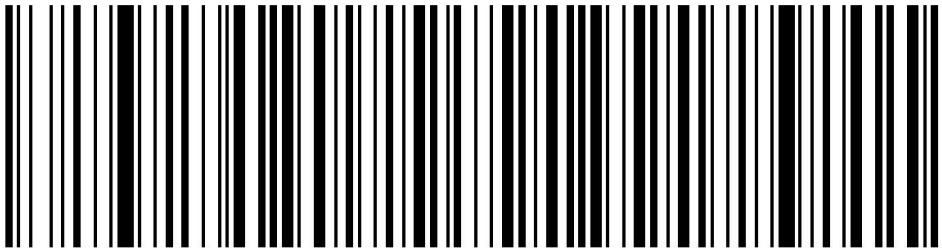

Enable MaxiCode

## UPC/EAN

Code Character:E

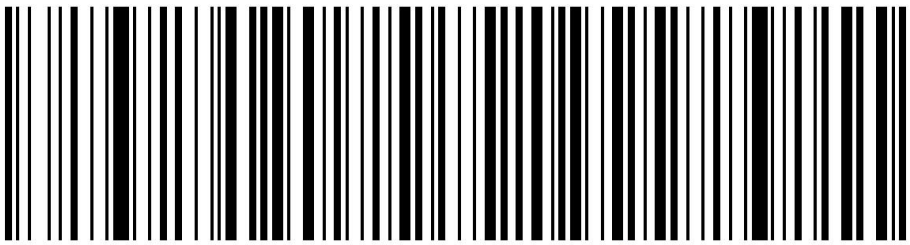



Disable UPC/EAN

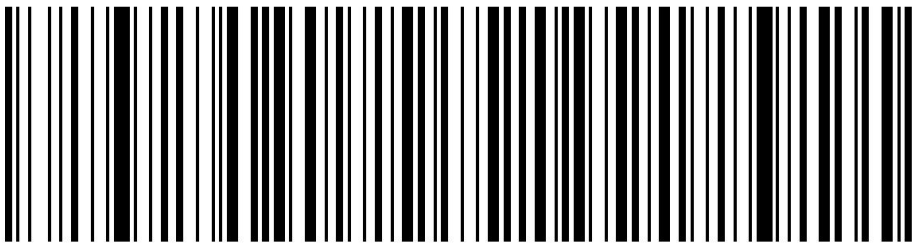



*Disable UPC/EAN

**EAN 2 or 5 supplemental setting**




Disable 2and5 digit supplemental




Enable 2 and 5 supplemental

# Code 93

Code Character:G




*Disable Code 93




Enable Code 93

## Code 11

Code Character:H




*Disable Code11




Enable Code11

## Check digit and transmit




Disable Code11




*1 check digit




2 check digit




Do not transmit 1 check digit




Do not transmit 2 check digit

## Matrix 2 of 5




*Disable Matrix 2 of 5




Enable Matrix 2 of 5

## NEC 2of 5




*Disable NEC 2 of 5




Enable NEC 2 of 5

## Hanxincode




*Disable Hanxin Code




Enable Hanxin Code

## GridMatrix




*Disable GridMatrix




Enable GridMatrix

## Aztec Code




*Disable Aztec Code




Enable Aztec Code

## MicroPDF417




*Disable Micro PDF417




Enable Micro PDF417

## MSI/PLESSEY




Disable MSI/PLESSEY(*)




Enable MSI/PLESSEY

## Dotcode

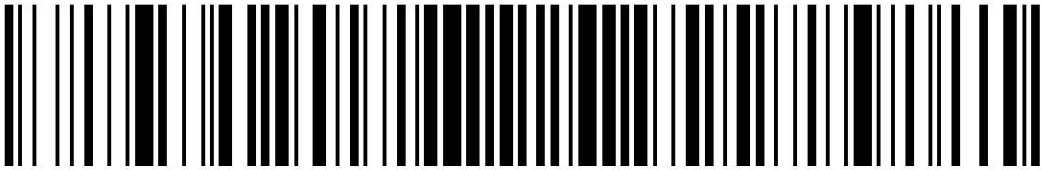



Disable Dotcode(*)



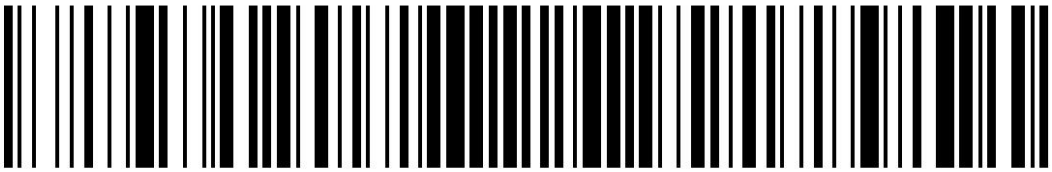

Enable Dotcode

## Standard 2 of 5



#~INS:%2301S00%~#

Disable Standard 2 of 5



#~INS:%2301S01%~#

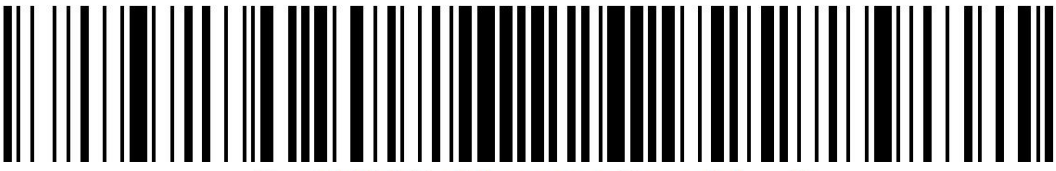
Disable Standard 2 of 5

IATA 2 of 5



#~%INS:%2301S01%~#

Enable



#~%INS:%2301S00%~#

Disable*

## CodaBlock_F




*Disable CodaBlock_F




Enable CodaBlock_F

## CodaBlock_A




*Disable CodaBlock_A




Enable CodaBlock_A

## GS1 DataBar-14




*Disable GS1 DataBar-14




Enable GS1 DataBar-14

## Codabar

Code Character:F




*Disable Codabar




Enable Codabar

## Code 2 of 5




*Disable code 2 of 5




Enable code 2 of 5

## Trioptic




*Disable Trioptic




Enable Trioptic

## postnet




*Disable postnet




Austranlian Post




Royal Mail(BPO-4-State)




Japan Post




Dutch Post(KIX code)




US Planet




US Postnet




US4State FICS(UPUID-Tag)




USPS 4CB(Intelligent Mail)




Canadian Post




Planet,Postnet




Planet,UPU




Postnet,UPU




Planet,USPS 4CB




Postnet,USPS 4CB




UPU,USPS 4CB




Planet,Postnet,UPU




Planet,Postnet,USPS 4CB




Planet,UPU,USPS 4CB




Postnet,UPU,UPS 4CB




Planet,Postnet,UPU,USPS 4CB

## China Post




*Disable China Post




Enable China Post

# OCR

## Decoding




*Disable OCR




Normal




Inverse




Both

## OCR Pattern



User Defined




*Passport




ISBN




Price Field




MicrE-13 B

## OCR Fonts




OCR-A




OCR-B




*OCR-A or B




MICR




SEMI

## OCR Character




Numeric




Alpha




Alphanumeric




*Any (include space)

## OCR Character length : 00~FF




*18

# 5.Programming Reference

**Applicability**

This Standard identifies symbologies for which a symbology specification has been published by ISO/IEC JTC 1, AIM Global, or another recognized international standards body. In addition there is a fixed number of symbologies which do not have a full standard but do have a reference document available from AIM Global. These symbologies are included in this International Standard because of their historical usage.[1]

The symbology identifier shall be an ASCII character string prefixed by the reading equipment to the data contained in a bar code symbol.
The structure of the symbology identifier string shall be as follows:

]cm...

Where ] (ASCII value 93)represents the symbology identifier flag character;
c Represents the code character as defined in Table 1;
m... Represents the modifier character(s) as defined for the symbology in question.

**NOTE** The sign ] is the character assigned to ASCII value 93 in the United States ASCIII character set in accordance with ISO/IEC646.

If a reader is enabled to transmit symbology identifiers, it shall always transmit a symbology identifier at the beginning of each message. The application must know whether or not the reader has symbology identifiers enabled. Therefore, the symbol data may start with a] and still be interpreted unambiguously.
When these ASCII characters are transmited in a 16-bit(double byte) system, an 8-bit byte of all zeros shall be transmitted before each of the above ASCII characters(bytes).

[1] ISO/IEC 15424:2008

# Symbol Code Identifier

### Code characters

| Code char. | Symbology | Code char. | Symbology |
|---|---|---|---|
| A | Code 39 | a | reserved |
| B | Telepen | b | reserved |
| C | Code 128 | c | Channel Code |
| D | Code One | d | Data Matrix |
| E | EAN/UPC | e | RSS and EAN.UCC Composite |
| F | Codabar | f | reserved |
| G | Code 93 | g | reserved |
| H | Code 11 | h | reserved |
| I | Interleaved 2 of 5 | i | reserved |
| J | reserved | j | reserved |
| K | Code 16K | k | reserved |
| L | PDF417 and MicroPDF417 | l | reserved |
| M | MSI | m | reserved |
| N | Anker | n | reserved |
| O | Codablock | o | OCR (Optical Character Recognition) |
| P | Plessey Code | p | PosiCode |
| Q | QR Code and QR Code 2005 | q | reserved |
| R | Straight 2 of 5 (with two bar start/stop codes) | r | reserved |
| S | Straight 2 of 5 (with three bar start/stop codes) | s | SuperCode |
| T | Code 49 | t | reserved |
| U | MaxiCode | u | reserved |
| V | reserved | v | reserved |
| W | reserved | w | reserved |
| X | Other bar code | x | reserved |
| Y | System expansion | y | reserved |
| Z | Non-bar code | z | Aztec Code |

### Modifier Characters

Each symbology has a different set of optional features.These are listed in the following subclauses.

### Code39

Code character: **A**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No check character validation nor full ASCII processing; all data transmitted as decoded |
| 1 | Modulo 43 check character validated and transmitted |
| 3 | Modulo 43 check character validated but not transmitted |
| 4 | Full ASCII character conversion performed; no check character validation |
| 5 | Full ASCII character conversion performed; modulo 43 check character validated and transmitted |
| 7 | Full ASCII character conversion performed; modulo 43 check character validated but not transmitted |

### Telepen

Code character: **B**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Full ASCII mode |
| 1 | Double density numeric only mode |
| 2 | Double density numeric followed by full ASCII |
| 4 | Full ASCII followed by double density numeric |

**Code 128**

Code character: **C**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Standard data packet. No FNC1 in first or second symbol character position after start character |
| 1 | GS1-128 data packet - FNC1 in first symbol character position after start character |
| 2 | FNC1 in second symbol character position after start character |
| 4 | Concatenation according to International Society for Blood Transfusion specifications has been performed; concatenated data follows |

**Channel Code**

Code character: **c**

| *Modifier character value* | *Option* |
|---|---|
| 3 | Channel 3 decoded |
| 4 | Channel 4 decoded |
| 5 | Channel 5 decoded |
| 6 | Channel 6 decoded |
| 7 | Channel 7 decoded |
| 8 | Channel 8 decoded |
| 9 | Composite format |

**Code One**

Code character: **D**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No special characters in first or second symbol character position |
| 1 | FNC1 implied in first symbol character position |
| 2 | FNC1 in second symbol character position |
| 4 | Pad character in first symbol character position. The first data character in the symbol will define the escape character. When this character is a \ it indicates that the symbol contains ECI escape sequences. |

**Data Matrix**

Code character: **d**

| *Modifier character value* | *Option* |
|---|---|
| 0 | ECC 000 to ECC 140 |
| 1 | ECC 200 |
| 2 | ECC 200, FNC1 in first or fifth position |
| 3 | ECC 200, FNC1 in second or sixth position |
| 4 | ECC 200, ECI protocol implemented |
| 5 | ECC 200, FNC1 in first or fifth position, ECI protocol implemented |
| 6 | ECC 200, FNC1 in second or sixth position, ECI protocol implemented |

**EAN/UPC**

**Code character: E**

EAN/UPC symbols with supplements should be considered as two separate symbols. The first symbol is the main data packet, and the second symbol is the 2 or 5 digit supplement. These two symbols should be transmitted separately, each with its own symbology identifier. Provision is, however, made for the option of transmission of both symbols as a single data packet.

| *Modifier character value* | *Option* |
|---|---|
| 0 | Standard data packet, i.e. 13 digits for EAN-13, UPC-A and UPC-E (does not include add-on data) |
| 1 | Two digit add-on data only |
| 2 | Five digit add-on data only |
| 3 | Combined data packet comprising 13 digits from EAN-13, UPC-A or UPC-E symbol and 2 or 5 digits from add-on symbol |
| 4 | Data packet comprising 8 digits from EAN-8 symbol |

**RSS(Reduced Space Symbology) and EAN. UCC Composite**

Code character: **e**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Standard data packet |
| 1 | Data packet containing the data following an encoded symbol separator character |
| 2 | Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol |
| 3 | Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol |

**NOTE 1** The protocol for "]e2"corresponds to the protocol defined for PDF417 using Symbology Identifier "]L2", and the protocol for"]e3"corresponds to the protocol defined for PDF417 using Symbology Identifier "]L1".

**NOTE 2** When transmitting data from EAN. UCC Composite symbols, two separate transmissions from the reader are required. The data from the EAN/UPC component is prefixed with a symbology identifier in accordance with 4.4.7. Modifier character values 1,2 and 3 shall not be used when transmitting data from RSS symbols.

When GS1-128 emulation option is enabled in the reader, each data packet(except the data from an EAN/UPC component) shall be prefixed with a symbology identifier of "]C1".

**Codabar**

Code character: **F**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Standard Codabar symbol. No special processing. |
| 1 | ABC Codabar (American Blood Commission) concatenate/message append performed |
| 2 | Reader has validated the check character |
| 4 | Reader has stripped the check character before transmission |

**Code 93**

**Code character:G**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No options specified at this time. Always transmit 0 |

## Code 11

Code character: **H**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Single modulo 11 check character validated and transmitted |
| 1 | Two modulo 11 check characters validated and transmitted |
| 3 | Check character(s) validated but not transmitted |

## Interleaved 2 of 5

Code character: **I**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No check character validation |
| 1 | Modulo 10 symbol check character validated and transmitted |
| 3 | Modulo 10 symbol check character validated but not transmitted |

## Code 16K

Code character: **K**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No special characters in first or second symbol character position after start character |
| 1 | FNC1 implied or explicit in first symbol character position after start character |
| 2 | FNC1 in second symbol character position after start character |
| 4 | Pad character in first symbol character position after start character |

## PDF417 and MicroPDF417

| *Modifier character value* | *Option* |
|---|---|
| 0 | Reader set to conform with protocol defined in 1994 PDF417 symbology specifications |
| 1 | Reader set to follow protocol of ISO/IEC 15438 for Extended Channel Interpretation (All data characters 92 doubled) |
| 2 | Reader set to follow protocol of ISO/IEC 15438 for Basic Channel Interpretation (Data characters 92 are not doubled) |
| 3 | Code 128 emulation: implied FNC1 in first position |
| 4 | Code 128 emulation: implied FNC1 after initial letter or pair of digits |
| 5 | Code 128 emulation: no implied FNC1 |

NOTE Modifier values 3, 4 and 5 are applicable only to MicroPDF417 symbols.

## MSI

Code character: **M**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Modulo 10 symbol check character validated and transmitted |
| 1 | Modulo 10 symbol check character validated but not transmitted |

## Anker Code

Code character: **N**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No options specified at this time. Always transmit 0 |

### Codablock

Code character: **O**

| *Modifier character value* | *Option* |
|---|---|
| 4 | Codablock F: FNC1 not used |
| 5 | Codablock F: FNC1 in first data character position; subsequent occurrences converted to ASCII 29 (GS) |
| 6 | Codablock A |

### OCR

Code character: **o**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Unspecified font |
| 1 | OCR-A |
| 2 | OCR-B |
| 3 | Other font |

### Plessey Code

Code character: **P**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No options specified at this time. Always transmit 0 |

### PosiCode

Code character: **p**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Standard data packet. No FNC1 in first or second symbol character position after Start Character |
| 1 | FNC1 preceding the first data character |
| 2 | FNC1 immediately following an AIM application indicator |

### QR Code

Code character: **Q**

| *Modifier character value* | *Option* |
|---|---|
| 0 | QR Code Model 1 symbol (in accordance with AIM ISS 97-001) |
| 1 | QR Code 2005 symbol, ECI protocol not implemented |
| 2 | QR Code 2005 symbol, ECI protocol implemented |
| 3 | QR Code 2005 symbol, ECI protocol not implemented, FNC1 implied in first position |
| 4 | QR Code 2005 symbol, ECI protocol implemented, FNC1 implied in first position |
| 5 | QR Code 2005 symbol, ECI protocol not implemented, FNC1 implied in second position |
| 6 | QR Code 2005 symbol, ECI protocol implemented, FNC1 implied in second position |

### Straight 2 of 5(with 2 bar start/stop codes)

Code character: **R**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No check character validation |
| 1 | Modulo 7 check character validated and transmitted |
| 3 | Modulo 7 check character validated but not transmitted |

### Straight 2 of 5(with 3 bar start/stop codes)

Code character: **S**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No options specified at this time. Always transmit 0 |

### SuperCode

Code character: **s**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Symbol conforming to LLD0 (Null Interpretation), using the obsolete SuperCode specification |
| 1 | Symbol conforming to LLD1, using the obsolete SuperCode specification |
| 2 | Basic Channel Mode Operation: symbol conforming to LLD2 or 3 |
| 3 | Extended Channel Mode Operation: symbol conforming to LLD2 or 3. Reader automatically set to follow the Extended Channel Interpretation protocol |
| 4 | Symbol conforming to a closed system LLD. Decoder set for all functions of Symbol Structure Header, including error correction. For option 4, the value of the reserved LLD (4 to 14) shall be transmitted as a two digit decimal value as fourth and fifth characters of the Symbology Identifier |

### Code 49

Code character: **T**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No special characters in the first or second data character positions |
| 1 | FNC1 in the first data character position |
| 2 | FNC1 in the second data character position |
| 4 | FNC2 in the first data character position |

### MaxiCode

Code character: **U**

| *Modifier character value* | *Option* |
|---|---|
| 0 | Symbol in Mode 4 or 5 |
| 1 | Symbol in Mode 2 or 3 |
| 2 | Symbol in Mode 4 or 5, ECI protocol implemented |
| 3 | Symbol in Mode 2 or 3, ECI protocol implemented in secondary message |

### Other barcode

Code character: **X**

For symbologies or symbology options not covered by this International Standard, code character X with the following options may be assigned by the decoder manufacturer to identify those symbologies and options implemented in the reader.

| *Modifier character value* | *Option* |
|---|---|
| 0 to F | May be assigned by the decoder manufacturer |

## Aztec Code

Code character: **z**

| *Modifier character value* | *Option* |
|---|---|
| 0 | No options |
| 1 | FNC1 preceding 1st message character |
| 2 | FNC1 following an initial letter or pair of digits |
| 3 | ECI protocol implemented |
| 4 | FNC1 preceding 1st message character, ECI protocol implemented |
| 5 | FNC1 following an initial letter or pair of digits, ECI protocol implemented |
| 6 | Structured Append header included |
| 7 | Structured Append header included, FNC1 preceding 1st message character |
| 8 | Structured Append header included, FNC1 following an initial letter or pair of digits |
| 9 | Structured Append header included, ECI protocol implemented |
| A | Structured Append header included, FNC1 preceding 1st message character, ECI protocol implemented |
| B | Structured Append header included, FNC1 following an initial letter or pair of digits, ECI protocol implemented |
| C | Aztec Rune decoded |