

# MINDEO

## FS380 Fixed Barcode Scanner

User Manual



Version: FS380\_UM\_EN\_V1.2.4



## Notice

Make sure you carefully read the following information to ensure that your barcode scanner is able to perform at the level for which it is designed.

1. All software, including firmware, furnished to the user is on a licensed basis.
2. The right is reserved to make changes to any software or product to improve reliability, function, or design.
3. The material in this manual is subject to change without notice.
4. The manufacturer assumes no responsibility for any loss or claims by third parties which may arise from the use of this manual.
5. A standard kit contains: a fixed scanner (with USB or RS232 cable) and a CD-ROM (containing software and electrical manuals). A 5V AC/DC adaptor for RS232 cable is optional.
6. Do not throw or drop the scanner or otherwise subject it to strong impact, which can damage the scanner, interrupt program execution, corrupt memory contents, or otherwise interfere with proper operation.
7. Sudden temperature changes can cause condensation to form on the scanner's case. Operating the scanner while condensation is present can interfere with proper operation. Take care to avoid conditions that cause the formation of condensation. If condensation does form, wait until it dries completely before using the scanner.



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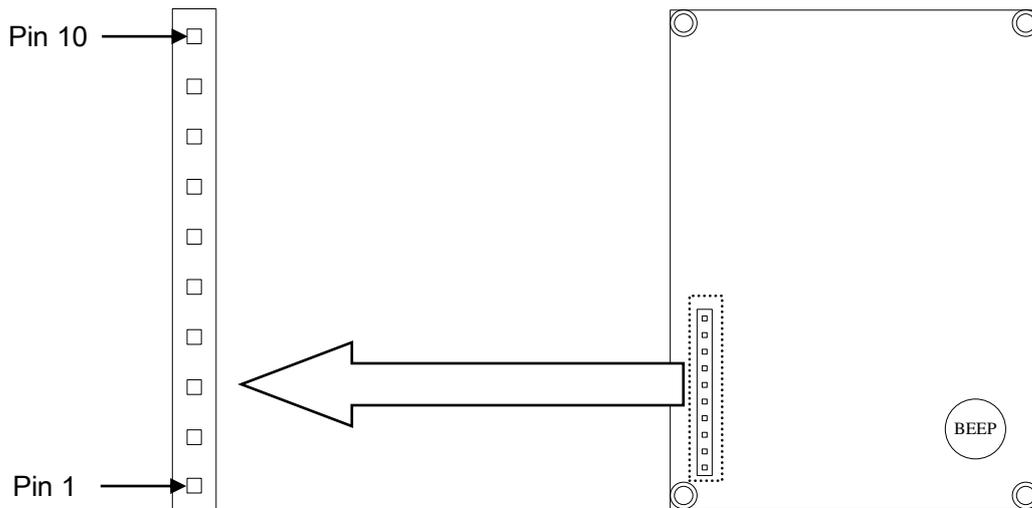
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## Technical specifications

<b>Input voltage</b>	5 VDC $\pm$ 0.25V	
<b>Power</b>	425 mW (Operating); 500 mW (Max.)	
<b>Current</b>	85 mA (Operating); 100 mA (Max.)	
<b>Standby current</b>	<250 $\mu$ A	
<b>Laser</b>	650nm laser diode	
<b>Decoding rate</b>	200 times/sec	
<b>Scanning angle</b>	$\pm$ 60 °, $\pm$ 65 °, $\pm$ 42 °(Skew, Pitch, Roll)	
<b>Decode capability</b>	UPC-A, UPC-E, EAN-13, EAN-8, ISBN/ISSN, Code 39, Code 39 full ASCII, Code 32(Italian pharmacy, a variant of code 39), Trioptic Code 39, Interleaved 2 of 5, Industrial 2 of 5, Matrix 2 of 5, Codabar(NW7), Code 128, Code 93, Code 11(USD-8), MSI/Plessey, UK/Plessey, UCC/EAN 128, China Post, China Finance, GS1 DataBar (formerly RSS) variants	
<b>Indicator</b>	Beeper	
<b>Interface supported</b>	RS-232, USB	
<b>Operating mode</b>	Hand-held, Command control, Auto-detection	
<b>Dimensions</b>	Height $\times$ Width $\times$ Depth: 9.6cm $\times$ 7.7cm $\times$ 2.4cm	
<b>Weight</b>	175g (with RS232 cable) / 155g (with USB cable)	
<b>Cable</b>	RS232 cable, straight 2.0m / USB cable, straight 1.5m	
<b>Connector type</b>	RJ-45 phone jack connector	
<b>Case material</b>	ABS	
<b>Temperature</b>	0 °to 50 °C (32 °to 120 °F), Operating; -40 °to 60 °C (-40 °to 140 °F), Storage	
<b>Humidity</b>	5% to 95% (non-condensing)	
<b>Programming method</b>	Manual (reading special barcode) / PC software	
<b>Program upgrade</b>	Online	
<b>Decoding depth &amp; Min. element width</b>	(1 mil = 0.0254mm) <b>Long-Range series</b> 5 mil: 40-110mm 10 mil: 10-280mm 13 mil: 15-315mm 16 mil: 25-385mm 35 mil: 145-630mm	<b>High-Density series</b> 3 mil: 5-50mm 10 mil: 10-85mm 13 mil: 10-150mm 16 mil: 25-165mm 35 mil: 145-295mm
<b>Safety</b>	Laser safety: EN60825-1, Class 1 EMC: EN 55022, EN 55024 Electrical safety: EN 60950-1 Drop resistance: Multiple 1.5m (5ft) drops to concrete Protection class: IP64	

## Pin assignment



Pin	RS232	USB
1	Power (+5V)	Power (+5V)
2	+3.3V ( for interface auto selection purpose)	+3.3V ( for interface auto selection purpose)
3	Ground	Ground
4	+3.3V ( for interface auto selection purpose)	Ground (for interface auto selection purpose)
5	TxD	Reserved
6	RxD	Reserved
7	Reserved	Reserved
8	Reserved	Reserved
9	CTS	D-
10	RTS	D+

Note: Voltage level of all RS232 Pin-outs (RxD, TxD, CTS and RTS) is 0V for logic low and 3.3V for logic high.

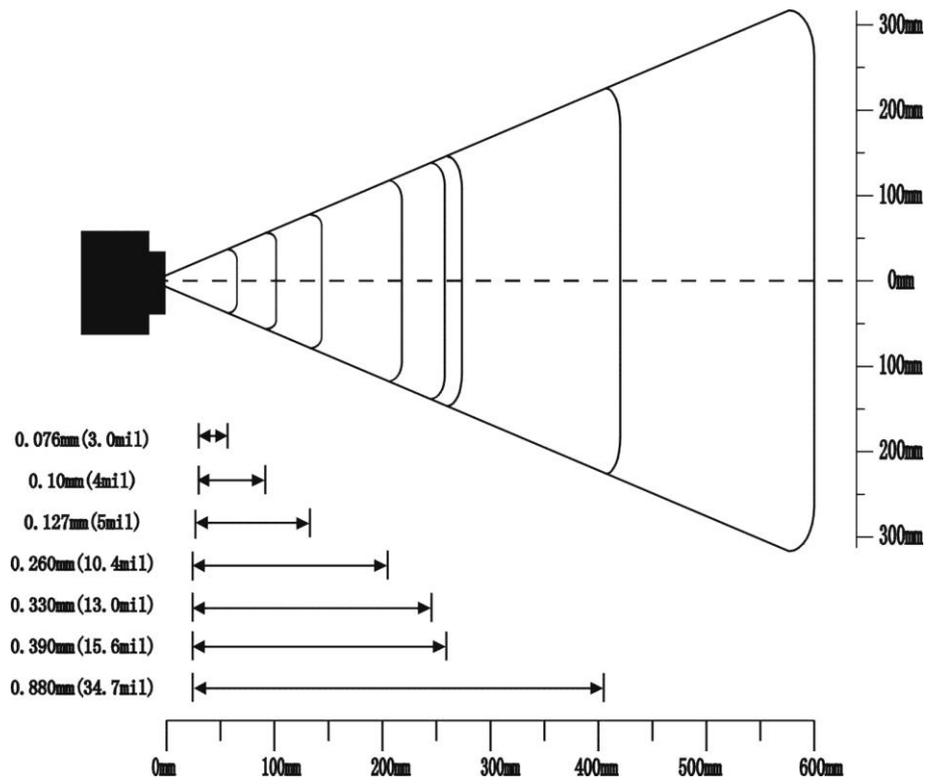
## Default setting for each barcode

Code type	Read enable	Check digit verification	Check digit transmission	Minimal code length	Proprietary code ID	AIM code ID
UPC-A	√	√	√	(12) <sup>2</sup>	A	JEm
UPC-E	√	√	√	(8) <sup>2</sup>	D	JEm
EAN-13	√	√	√	(13) <sup>2</sup>	A	JEm
EAN-8	√	√	√	(8) <sup>2</sup>	C	JEm
ISBN/ISSN <sup>1</sup>	√	√	√	(13) <sup>2</sup>	A	JXm
Code 39	√	-	-	4	M	JAm
Interleaved 2 of 5	√	-	-	6	I	JIm
Industrial 2 of 5	-	-	-	4	H	JIm
Matrix 2 of 5	√	-	-	4	X	JIm
Codabar	√	-	-	4	N	JFm
Code 128	√	√	-	1	K	JCm
Code 93	√	√	-	1	L	JGm
Code 11	-	√	-	4	V	-
MSI/Plessey	-	-	-	4	O	JMm
UK/Plessey	√	√	-	1	U	JMm
UCC/EAN 128	√	√	-	1	K	JCm
China Post	√	-	-	(11) <sup>2</sup>	T	JIm
China Finance	√	-	-	(10) <sup>2</sup>	Y	-
RSS-14	√	-	-	(16) <sup>2</sup>	RS	Jem
RSS-14 Limited	√	-	-	(16) <sup>2</sup>	RL	Jem
RSS-14 Expanded	√	-	-	1	RE	Jem

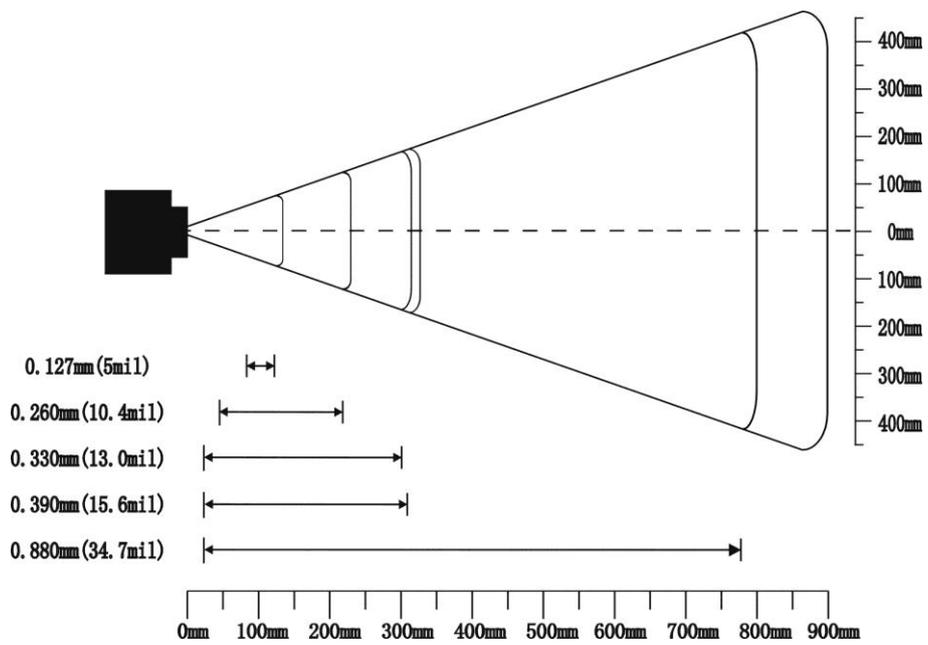
Note: <sup>1</sup>The settings for ISBN/ISSN and EAN-13 must be the same.

<sup>2</sup> Fixed-length barcodes.

# Decode zone

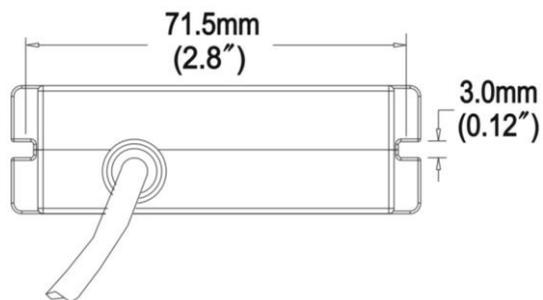
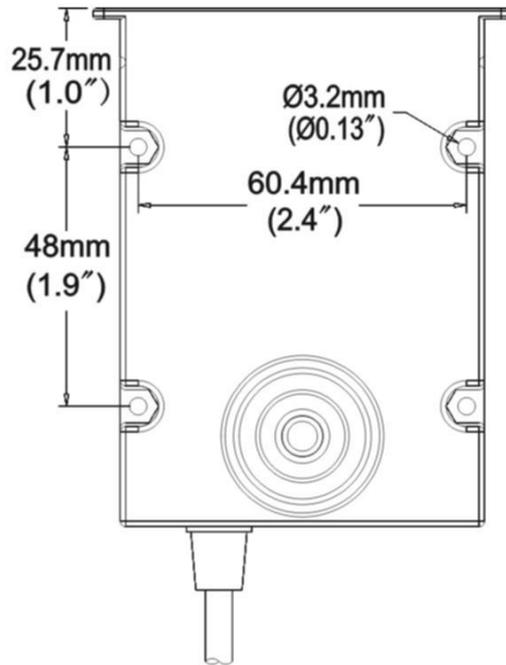
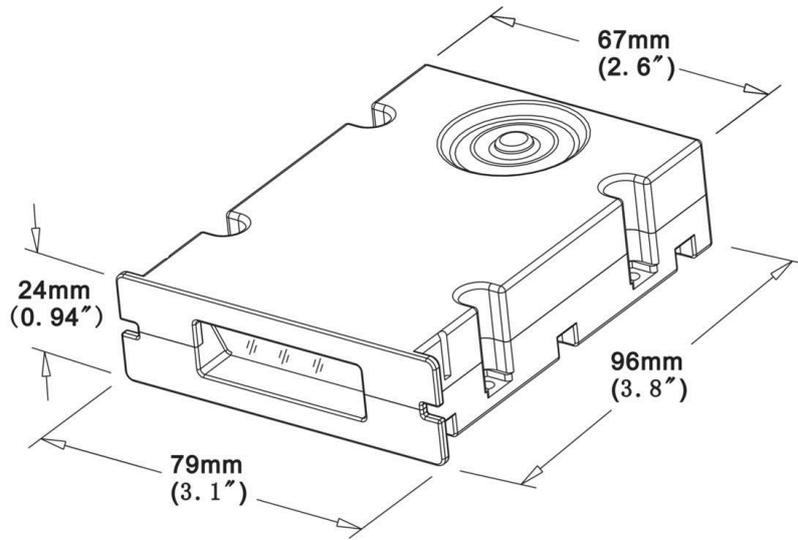


High-density series

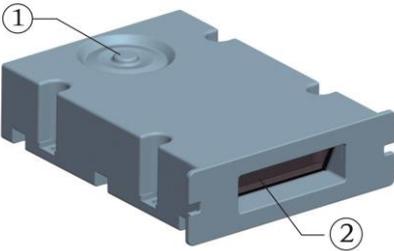


Long-range series

# Dimensions



# Parts of the scanner



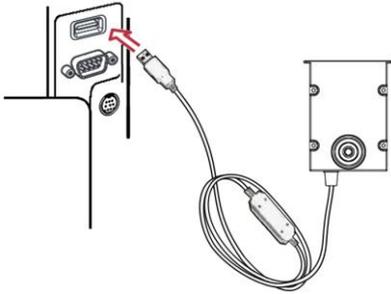
- ① Button
- ② Exit window

## Introduction to installation

Note: If any of the below operation is incorrect, turn off the power immediately and check the scanner for any improper connections. Go through all steps again.

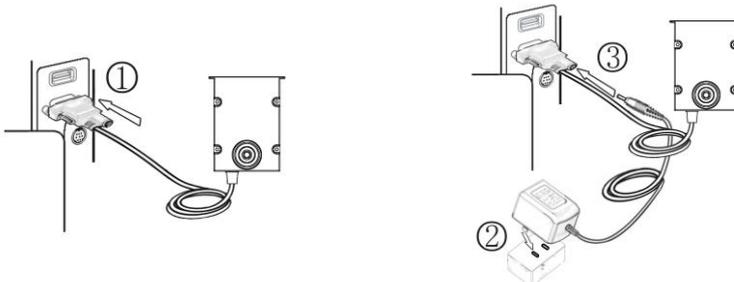
### Installation - with USB cable

1. Plug the USB cable into the USB port of the computer.
2. Windows gives message on “new hardware found – USB HID input device found”, then driver will be installed on request.
3. After successfully installing the new hardware, message will be given: “hardware installed successfully and ready to use”.
4. If any problem encounters during the installation process, please unplug the USB cable from the computer and repeat step 1-3.



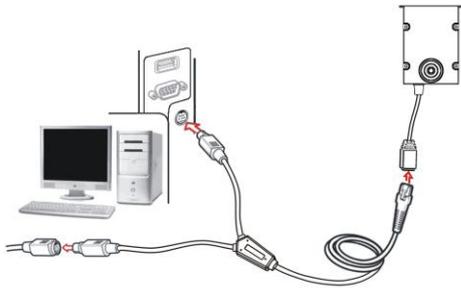
### Installation - with RS232 cable

1. Connect the DB9 serial communication cable with the COM port of the computer.
2. Plug the AC/DC adaptor provided by the manufacturer into an electrical outlet.
3. Plug the output of the AC/DC adaptor into the power terminal of the RS232 connector.

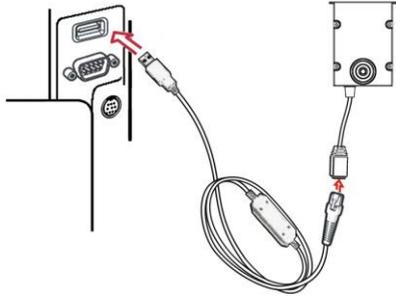


### Installation - keyboard wedge

1. Switch off the host and unplug the keyboard connector.
2. Attach the modular connector of the Y-cable to the cable interface port on the scanner.
3. Connect the round male DIN host connector of the Y-cable to the keyboard port on the host device.
4. Connect the round female DIN keyboard connector of the Y-cable to the keyboard.
5. Ensure that all connections are secure.
6. Switch on the host system.



7. Note that the PS2 cable can be replaced by USB cable, as shown in below. The installation guide please refer to the description of “Installation –USB cable” in this chapter.



# Scanning

When the scanner is scanning, ensure the scan line crosses every bar and space of the symbol.



RIGHT



WRONG

## Programming instruction

Refer to the next page, the steps of programming are:

1. Scan the **SETUP** bar code on the parameter setting part.
2. Enter the option mode by scanning the **Option bar code**.
3. To the right of the option barcode, the necessary alphanumeric inputs are listed. Scan these alphanumeric entries from the **back foldout** page.
4. Scan the **END** bar code, listed on the lower right hand corner of each parameter setting part.
5. Notes that only one parameter can be setup at each time.
6. During the process of programming, LED is lighting to indicate the programming correctness. LED will go off if any incorrect programming operation performed.
7. After each successful programming, LED will go off and the scanner will beep twice.
8. Throughout the programming bar code menus, the factory default settings are indicated with asterisks (\*).

**Example:** to set **Flow control** to be XON/XOFF.

**Steps:** Scan the following barcodes in order.



## Operate the scanner by receiving command via UART

Note:

- 1- The information in this chapter is provided for the scanner with RS232 cable or USB cable.
- 2- If the scanner is with USB cable, the setting of **USB device type** must be set as “USB virtual COM”. Please refer to chapter of “USB interface”.
- 3- Please read the chapter of “Scanning & some global settings” about the setting of **Scanning mode** in details.

UART parameter should be set as below:

- (1) Baud rate: 9600 bps;
- (2) Data bits: 8 bits;
- (3) Stop bit: 1 bit;
- (4) Parity check bit: None;
- (5) Flow control: None.

### Guide of control command: all commands are sent by UART

- 1) Start command: “0xA0, 0x12, 0x34, 0x55”

When the scanner received the above command, it will start barcode scanning following the setting of **Scanning mode**. If the **Scanning mode** is set as “Auto-detection”, the scanner will start “Single scan” mode once, then returns to “Auto-detection” mode.

- 2) Stop command: “0xA0, 0x12, 0x34, 0xA5”

If the **Scanning mode** is set as “Continue scan”, and the scanner received the above command, it will stop barcode scanning and act as in an idle mode.

- 3) Restart command: “0xA0, 0x12, 0x34, 0x35”

Once the scanner received the above command, it will restart.

- 4) Sleep command: “0xA0, 0x12, 0x34, 0x75”

Once the scanner received the above command, it will enter sleeping mode. The scanner will awake, when it received Start command or the button on the scanner is pressed.

### Returning message from the scanner

- 1) A successful decode

Once the scanner successfully decoded a barcode, the scanner will stop scanning and returns the barcode data to the Host.

- 2) Not a successful decode

Once the scanner failed to decode a barcode before stopping scanning, the scanner will return a message to the Host. The message is set as “0x25, 0x25, 0x4E, 0x6F, 0x52, 0x65, 0x61, 0x64” (%%NoRead).

Note this function can be disabled by setting “Return message indication (0506)”.

## Keyboard wedge

**Keyboard type:** As a keyboard interface, the scanner supports most of the popular PCs and IBM terminals.

**Keyboard layout:** The scanner supports different national keyboard layouts.

**Clock period:** According to the PS2 protocol, the clock is provided by the device, e.g. keyboard or scanner, with the period between 60us to 100us.

**Delay-after-compound-key:** In some rare occasions, machine with low speed PS2 communication port would require a free time gap following the press/release of the compound key (Shift, Ctrl or Alt).

**Numeric key:**

**Alphabetic key-** the scanner will output code result as alphabetic key.

**Numeric key-** the scanner will output code result as pressing numeric keypad ( '0', '1', '2', '3', '4', '5', '6', '7', '8', '9', '.', '+', '-', '/', '\*' only).

**Alt+ keypad-** the scanner will output code result as pressing Alt+ numeric key (on keypad). Note that the Num Lock control key must be ON. This setting can be specially adapted for use with different national keyboard layout.

**Power-on simulation:** All of the PCs check the keyboard status during power-on self test. It simulates keyboard timing and passes keyboard present status to the PC during power-on.

**Inter-character delay:** This delay is inserted after each data character transmitted.

**Inter-byte delay:** This delay is inserted after each byte transmitted. Normally a character is comprised of three or above bytes.

**Block trans. delay:** It is a delay timer between barcode data output. This feature is used to transfer continually with shorter barcode data.

**Caps Lock status:** By selecting *Caps Lock "ON"* or *Caps Lock "OFF"*, the scanner will output data string based on the information on the Caps Lock status.

**Caps Lock override:** If this function is enabled, on AT or AT notebook hosts, the keyboard ignores the state of the Caps Lock key. Therefore, an 'A' in the bar code is sent as an 'A' no matter what the state of the keyboard's Caps Lock key.



Option bar code	Option	Alpha. entry
Keyboard type  0201	IBM AT, PS/2 Apple Mac compatibles Reserved	00* 01 02
Keyboard layout  0202	USA Turkish F Turkish Q French Italian Spanish	00* 01 02 03 04 05

Option bar code	Option	Alpha. entry
	Slovak Denmark Japanese	06 07 08
Clock period  <b>0203</b>	60us 70us 80us 90us 100us 200us	00 01 02* 03 04 05
Delay-after-compound-key  <b>0204</b>	0ms 10ms 20ms 40ms 80ms	00* 01 02 03 04
Numeric key  <b>0205</b>	Alphabetic key Numeric keypad Alt+ keypad	00* 01 02
Power-on simulation  <b>0206</b>	Disable Enable	00* 01
Inter-character delay  <b>0207</b>	0ms 5ms 10ms 20ms 40ms 80ms	00* 01 02 03 04 05
Inter-byte delay  <b>0208</b>	1ms 2ms 4ms 8ms	00* 01 02 03
Caps Lock status  <b>0209</b>	OFF ON	00* 01
Caps Lock override  <b>0210</b>	Disable Enable	00* 01
Reserved  <b>0211</b>		

## RS-232 interface

### Flow control:

**None**-The communication only uses TxD and RxD signals without any hardware or software handshaking protocol.

**RTS/CTS**-If the scanner wants to send the barcode data to host computer, it will issue the RTS signal first, wait for the CTS signal from the host computer, and then perform the normal data communication. If there is no replied CTS signal from the host computer after the timeout duration, the scanner will issue an error indication. By setting (Host idle: Low RTS) or (Host idle: High RTS), the scanner can be set to match the Serial Host RTS line.

**XON/XOFF**-An XOFF character turns the scanner transmission off until the scanner receives an XON character.

**ACK/NAK**-After transmitting data, the scanner expects either an ACK (acknowledge) or NAK (not acknowledge) response from the host. When a NAK is received, the scanner transmits the same data again and waits for either an ACK or NAK. After three unsuccessful attempts to send data when NAKs are received, the scanner issues an error indication and discards the data.

**Inter-character delay:** Refer to Inter-character delay of Keyboard wedge.

**Response delay:** This delay is used for serial communication of the scanner when it waits for a handshaking acknowledgment from the host.

||||| %SETUP SETUP

Option bar code	Option	Alpha. entry
Flow control       <b>0301</b>	None RTS/CTS (Host idle: Low RTS) RTS/CTS (Host idle: High RTS) XON/XOFF ACK/NAK	00* 01 02 03 04
Inter-character delay       <b>0302</b>	0ms 5ms 10ms 20ms 40ms 80ms	00* 01 02 03 04 05
Reserved       <b>0303</b>		
Response delay       <b>0304</b>	00-99 (100ms)	00-99 00*
Baud rate       <b>0305</b>	300 600 1200 2400 4800 9600 19200 38400 57600 115200	00 01 02 03 04 05* 06 07 08 09
Parity       <b>0306</b>	None Odd Even	00* 01 02
Data bit       <b>0307</b>	8 bits 7 bits	00* 01
Stop bit       <b>0308</b>	One bit Two bits	00* 01

||||| %%%END END

## USB interface

### USB device type:

**HID keyboard**– By setting, the scanner is used as a USB HID keyboard emulation device. The keyboard layout setting follows the setting of keyboard layout in the chapter of Keyboard wedge.

**USB virtual COM**– By setting, the scanner is used as a USB virtual COM emulation device. A software driver is required to install on the connected PC. The information can be found in the associated CD.

Note: when changing USB Device Types, the scanner automatically restarts.

**Keyboard layout:** The scanner supports different national keyboard layouts.

**Host comm. port speed:** By selecting, the user can change the output speed of the scanner to match the speed of the host USB communication port. Generally, set 00 or 01 to work with high communication speed. If some output characters of barcode have been missed, the user may need to set 07 or 08 to slow the data transmission speed of the scanner.

### Numeric key:

**Alphabetic key**- the scanner will output code result as alphabetic key.

**Numeric key**- the scanner will output code result as pressing numeric keypad ( '0', '1', '2', '3', '4', '5', '6', '7', '8', '9', '.', '+', '-', '/', '\*' only).

**Alt+ keypad**- the scanner will output code result as pressing Alt+ numeric key (on keypad). Note that the Num Lock control key must be ON. This setting can be specially adapted for use with different national keyboard layout.



Option bar code	Option	Alpha. entry
USB device type  0901	HID keyboard HID keyboard for Apple Mac USB virtual COM	00* 01 02
Keyboard layout  0902	USA Turkish F Turkish Q French Italian Spanish Slovak Denmark Japanese	00* 01 02 03 04 05 06 07 08
Host comm. port speed  0903	0-8 ( 0: highest; 8: lowest )	00-08 02*
Numeric key  0904	Alphabetic key Numeric keypad Alt+ keypad	00* 01 02



## Indication of decode success

**Power on alert:** After power-on the scanner will generate an alert signal to indicate a successful self-test.

**Beeper indication:** After each successful reading, the scanner will beep to indicate a good barcode reading, and its beep tone duration is adjustable.

**Return message indication:** By enable, the scanner will transmit “NoRead” to the host if a symbol does not decode during the timeout period of before the trigger is released. Any enabled prefix or suffixes are appended around this message. By disable, no message is sent to the host in any case.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Power on alert  0501	Disable Enable	00 01*
Beeper indication  0503	Disable Enable	00 01*
Return message indication  0506	Disable Enable	00 01*

 %%%END END

## Scanning & some global settings

### Scanning mode:

**Single scan**-The trigger button must be pressed once to activate scanning. The light source of scanner stops scanning when there is a successful reading or no code is decoded after the **Stand-by duration** elapsed.

**Continue scan**-The trigger button acts as a toggle switch. Press button to activate or stop continue-scanning mode. The mode is not affected by the setting of **Stand-by duration**.

**Auto-detection**-By setting Enable, the scanner will start operating if any nearby object has been detected. The laser light of scanner stops scanning when there is a successful reading or no code is decoded after the **Stand-by duration** elapsed. Once the laser light stops scanning, the present object must be removed to enable auto-detect sensor.

**Same barcode delay time:** If the same barcode has been scanned more than once within delay time, the scanner only output code data once.

**Double confirm:** If it is enabled, the scanner will require a several times of same-decoded-data to confirm a valid reading.

**Global Max./Min. code length:** These two lengths are defined as the valid range of decoded barcode data length. Make sure that the minimum length setting is no greater than the maximum length setting, or otherwise the labels of the symbology will not be readable. In particular, the same value can be set for both minimum and maximum reading length to force the fixed length barcode decoded.

Notes: 1. Please set the max./min. length for individual barcode in later sections, if special demand is requested.

2. The number of check digits is included in max./min. code length.

3. These two settings have no effect on the symbologies with fixed-length, e.g. UPC-A, UPC-E, EAN-13, EAN-8 and China Post.

**Global insertion group selection:** The scanner offer one or two insertion group for ALL symbologies. By setting one or two digits to indicate which insertion group you want to insert. You may refer to the chapters of String setting and Insert string position.

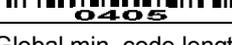
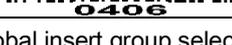
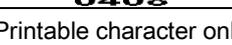
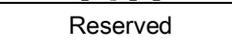
Example: Group 1 → set 01 or 10. Group 2 and 4 → set 24 or 42.

All valid settings include 00, 01, 02, 03, 04, 10, 11, 12, 13, 14, 20, 21, 22, 23, 24, 30, 31, 32, 33, 34, 40, 41, 42, 43 and 44.

**Element amendment:** If it is enabled, the scanner is capable of reading the barcode comprised with bars and spaces in different scale.

**Printable character only:** If it is enabled, the scanner will output the printable characters only, i.e. in ASCII code from 20H to 7EH.

 %SETUP      SETUP

Option bar code	Option	Alpha. entry
Scanning mode✕  0401	Single scan Continue scan <sup>1</sup> Auto-detection <sup>2</sup>	00* 01 02
Standby duration  0402	00-99 (second)	00-99 04*
Same barcode delay time  0403	00-99 (50ms)	00-99 01*
Double confirm  0404	00-09 (00: no )	00-09 00*
Global max. code length  0405	04-99	04-99 99*
Global min. code length  0406	01-99	01-99 04*
Global insert group selection  0407	00-44	00-44 00*
Element amendment  0408	Disable Enable	00 01*
Printable character only  0409	Disable Enable	00* 01
Reserved  0410		

 %%%END      END

Note✕: 1) The scanner supports command sent by UART, and the scanning mode follows the setting.  
2) This setting will not return to default setting, while the scanner reads the setting barcode of Default value initialization, “%%%DEF”. 3) This setting supports quick setting below.

Note 1: In the “Continue scan” mode, the button acts as a toggle switch.

Note 2: In the “Auto-detection” mode, the scanner starts “Single scan” once when the button is pressed.

Scanning mode quick set
Single scan  SM-SIN
Continue scan  SM-CON
Auto detection  SM-AUT

# UPC-A

Read: Format

Leading zero	Data digits (11 digits)	Check digit
--------------	-------------------------	-------------

**Check digit verification:** The check digit is optional.

**Check digit trans.:** By setting Enable, check digit will be transmitted.

**Code ID setting:** Code ID is a one-or-two-character string used to represent the symbol upon a succeeding reading. If you want application to transmit Code ID, you must set **Code ID transmission** to be enabled. Refer to the chapter of String transmission.

**Insertion group selection:** Refer to **Global insertion group selection** of the chapter of Hand-held scan & some global settings.

**Supplement digits:** The Supplement digits barcode is the supplemental 2 or 5 characters.

Format

Leading zero	Data digits (11 digits)	Check digit	Supplement digits 2 or 5
--------------	-------------------------	-------------	--------------------------

**Truncation/Expansion:**

**Truncate leading zeros-** The leading “0” digits of UPC-A data characters can be truncated when the feature is enabled.

**Expand to EAN-13-** It extends to 13-digits with a “0” leading digit when the feature is enabled.



Option bar code	Option	Alpha. entry
Read  1101	Disable Enable	00 01*
Check digit verification  1102	Disable Enable	00 01*
Check digit trans.  1103	Disable Enable	00 01*
Code ID setting  1104	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <A>*
Insert group selection  1105	00-66	00-66 00*
Supplement digits  1106	None 2 digits 5 digits 2 or 5 digits	00* 01 02 03
Truncation/Expansion  1107	None Truncate leading zeros Expand to EAN-13	00* 01 02
Reserved  1108		



# UPC-E

Read: Format

Leading zero	Data digits (6 digits)	Check digits
--------------	------------------------	--------------

**Check digit verification:** The check digit is optional and made as the sum of the numerical value of the data digits.

**Check digit trans.:** By setting Enable, check digit will be transmitted.

**Code ID setting:** Refer to **Code ID setting** of UPC-A.

**Insertion group selection:** Refer to **Insertion group selection** of UPC-A.

**Supplement digits:**

Format

Leading zero	Data digits (6 digits)	Check digit	Supplement digits 2 or 5
--------------	------------------------	-------------	--------------------------

**Truncation/Expansion:**

**Truncate leading zeros-** Refer to **Truncation/Expansion** of UPC-A.

**Expand to EAN-13-** It extends to 13-digits with “0” digits when the feature is set to be enabled.

Example: Barcode “0123654”,

Output: “0012360000057”.

**Expand to UPC-A-** It extends to 12-digits when the feature is set to be enabled.



Option bar code	Option	Alpha. entry
Read  1201	Disable Enable	00 01*
Check digit verification  1202	Disable Enable	00 01*
Check digit trans.  1203	Disable Enable	00 01*
Code ID setting  1204	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <D>*
Insert group selection  1205	00-66	00-66 00*
Supplement digits  1206	None 2 digits 5 digits 2 or 5 digits	00* 01 02 03
Truncation/Expansion  1207	None Truncate leading zeros Expand to EAN-13 Expand to UPC-A	00* 01 02 03
Reserved  1208		



# UPC-E1

Read: Format

System character "1"	Data digits (6 digits)	Check digits
----------------------	------------------------	--------------

**Check digit verification:** The check digit verification is optional.

**Check digit trans.:** By setting Enable, check digit will be transmitted.

**Code ID setting:** Refer to 

Code ID setting
-----------------

 of UPC-A.

**Insertion group selection:** Refer to 

Insertion group selection
---------------------------

 of UPC-A.

**Supplement digits:**

Format

System character "1"	Data digits (6 digits)	Check digit	Supplement digits 2 or 5
----------------------	------------------------	-------------	--------------------------

**Truncation/Expansion:**

**Expand to EAN -13** - It extends to 13-digits with "0" digits when the feature is enabled.

**Expand to UPC-A** - It extends to 12-digits when the feature is set to be enabled.

**Truncate system character** - The system character "1" of UPC-E1 data can be truncated when the feature is enabled.

Option barcode	Option	Alpha. entry
Read  <b>3401</b>	Disable Enable	00 01*
Check digit verification  <b>3402</b>	Disable Enable	00 01*
Check digit trans.  <b>3403</b>	Disable Enable	00 01*
Code ID setting  <b>3404</b>	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <D>*
Insert group selection  <b>3405</b>	00-66	00-66 00*
Supplement digits  <b>3406</b>	None 2 digits 5 digits 2 or 5 digits	00* 01 02 03
Truncation/Expansion  <b>3407</b>	None Expand to EAN-13 Expand to UPC-A Truncate system character	00* 02 03 04

# EAN-13

Read:

Format

Data digits (12 digits)	Check digit
-------------------------	-------------

**Check digit verification:** The check digit is optional and made as the sum of the numerical value of the data digits.

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

**Supplement digits:**

Format

Data digits (12 digits)	Check digit	Supplement digits 2 or 5
-------------------------	-------------	--------------------------

**ISBN/ISSN:** The ISBN (International Standard Book Number) and ISSN (International Standard Serial Number) are two kinds of barcode for books and magazines. The ISBN is 10 digits with leading “978” and the ISSN is 8 digits with leading “977” of the EAN-13 symbology.

Example:

Barcode “9780194315104”, Output: “019431510X”.

Barcode “9771005180004”, Output: “10051805”.



Option bar code	Option	Alpha. entry
Read  1301	Disable Enable	00 01*
Check digit verification  1302	Disable Enable	00 01*
Check digit transmission  1303	Disable Enable	00 01*
Code ID setting  1304	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <A>*
Insert group selection  1305	00-66	00-66 00*
Supplement digits  1306	None 2 digits 5 digits 2 or 5 digits	00* 01 02 03
ISBN/ISSN conversion  1307	Disable Enable	00* 01
Reserved  1308		



# EAN-8

Read:

Format



**Check digit verification:** The check digit is optional and made as the sum of the numerical value of the data digits.

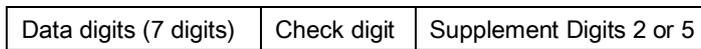
**Check digit trans.:** By setting Enable, check digit will be transmitted.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

**Supplement digits:**

Format



**Truncation/Expansion:** Refer to Truncation/Expansion of UPC-A.



Option bar code	Option	Alpha. entry
Read  <b>1401</b>	Disable Enable	00 01*
Check digit verification  <b>1402</b>	Disable Enable	00 01*
Check digit trans.  <b>1403</b>	Disable Enable	00 01*
Code ID setting  <b>1404</b>	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <A>*
Insert group selection  <b>1405</b>	00-66	00-66 00*
Supplement digits  <b>1406</b>	None 2 digits 5 digits 2 or 5 digits	00* 01 02 03
Truncation/Expansion  <b>1407</b>	None Truncate leading zero Expand to EAN-13	00* 01 02
Reserved  <b>1408</b>		



## Code 39

### Read:

#### Format

★	Data digits (variable)	Check digit (optional)	★
---	------------------------	------------------------	---

**Check digit verification:** The check digit is optional and made as the sum module 43 of the numerical value of the data digits.

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Each symbology has own max./min. code length. If both setting of max./min. code length are "00"s, the setting of global max./min. code length is effective. The length is defined as to the actual barcode data length to be sent. Label with length exceeds these limits will be rejected. Make sure that the minimum length setting is no greater than the maximum length setting, or otherwise all the labels of the symbology will not be readable. In particular, you can see the same value for both minimum and maximum reading length to force the fixed length barcode decoded.

**Code ID setting:** Refer to 

Code ID setting
-----------------

 of UPC-A.

**Insertion group selection:** Refer to 

Insertion group selection
---------------------------

 of UPC-A.

**Start/End transmission:** The start and end characters of Code 39 are "★". You can transmit all data digits including two "★"s.

**"★" as data character:** By setting Enable, "★" can be recognized as data character.

**Convert Code 39 to Code 32:** Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Note that Code 39 must be enabled in order for this parameter to function.

#### Format of Code 32

"A" (optional)	Data digits (8 digits)	Check digit
----------------	------------------------	-------------

**Code 32 Prefix "A" transmission:** By setting Enable, the prefix character "A" can be added to all Code 32 barcodes.

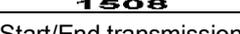
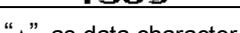
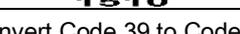
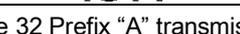
**Trioptic Code 39 read:** Trioptic Code 39 is a variant of Code 39 used in the marking of magnetic tapes and computer cartridges. Trioptic Code 39 symbols always contain six characters.

#### Format

\$	Data digits (6 digits)	\$
----	------------------------	----

**Trioptic Code 39 Start/End transmission:** The start and end characters of Trioptic Code 39 are "\$"s. You can transmit all data digits including two "\$"s.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  1501	Disable Enable	00 01*
Check digit verification  1502	Disable Enable	00* 01
Check digit transmission  1503	Disable Enable	00* 01
Max. code length  1504	00-99	00-99 00*
Min. code length  1505	00-99	00-99 01*
Code ID setting  1506	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <M>*
Insert group selection  1507	00-66	00-66 00*
Format  1508	Standard Full ASCII	00* 01
Start/End transmission  1509	Disable Enable	00* 01
"*" as data character  1510	Disable Enable	00* 01
Convert Code 39 to Code 32  1511	Disable Enable	00* 01
Code 32 Prefix "A" transmission  1512	Disable Enable	00* 01
Trioptic Code 39 read  1513	Disable Enable	00 01*
Trioptic Code 39 Start/End transmission  1514	Disable Enable	00* 01

 %%%END END

## Interleaved 2 of 5

Read:

Format

Data digits (Variable)	Check digit (optional)
------------------------	------------------------

**Check digit verification:** The check digit is made as the sum module 10 of the numerical values of all data digits. There are two optional check digit algorithms: the specified Uniform Symbology Specification (USS) and the Optical Product Code Council (OPCC).

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  1601	Disable Enable	00 01*
Check digit verification  1602	Disable USS OPCC	00* 01 02
Check digit transmission  1603	Disable Enable	00* 01
Max. code length  1604	00-99	00-99 00*
Min. code length  1605	00-99	00-99 06*
Code ID setting  1606	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <I>*
Insert group selection  1607	00-66	00-66 00*
Reserved  1608		

 %%%END END

## Industrial 2 of 5

Read:

Format

Data digits (variable)	Check digit (optional)
------------------------	------------------------

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  1701	Disable Enable	00* 01
Max. code length  1702	00-99	00-99 00*
Min. code length  1703	00-99	00-99 00*
Code ID setting  1704	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <H>*
Insert group selection  1705	00-66	00-66 00*
Reserved  1706		

 %%%END END

## Matrix 2 of 5

Read:

Format

Data digits (variable)	Check digit (optional)
------------------------	------------------------

**Check digit verification:** The check digit is made as the sum module 10 of the numerical values of all data digits.

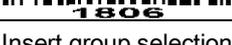
**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  1801	Disable Enable	00 01*
Check digit verification  1802	Disable Enable	00* 01
Check digit transmission  1803	Disable Enable	00* 01
Max. code length  1804	00-99	00-99 00*
Min. code length  1805	00-99	00-99 06*
Code ID setting  1806	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <X>*
Insert group selection  1807	00-44	00-44 00*
Reserved  1808		

 %%%END END

# Codabar

Read:

Format

Start	Data digits (variable)	Check digit (optional)	End
-------	------------------------	------------------------	-----

**Check digit verification:** The check digit is made as the sum module 16 of the numerical values of all data digits.

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Refer to **Max./Min. code length** of Code 39.

**Code ID setting:** Refer to **Code ID setting** of UPC-A.

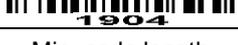
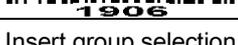
**Insertion group selection:** Refer to **Insertion group selection** of UPC-A.

**Start/End type:** Codabar has four pairs of Start/End pattern; you may select one pair to match your application.

**Start/End transmission:** Refer to **Start/End transmission** of Code 39.

**Start/End character equality:** By setting Enable, the start and end character of a Codabar barcode must be the same.



Option bar code	Option	Alpha. entry
Read  1901	Disable Enable	00 01*
Check digit verification  1902	Disable Enable	00* 01
Check digit transmission  1903	Disable Enable	00* 01
Max. code length  1904	00-99	00-99 00*
Min. code length  1905	00-99	00-99 00*
Code ID setting  1906	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <N>*
Insert group selection  1907	00-66	00-66 00*
Start/End type  1908	ABCD/ABCD abcd/abcd ABCD/TN*E abcd/tn*e	00* 01 02 03
Start/End transmission  1909	Disable Enable	00* 01
Start/End character equality  1910	Disable Enable	00* 01



# Code 128

Read:

Format

Data digits (variable)	Check digit (optional)
------------------------	------------------------

**Check digit verification:** The check digit is made as the sum module 103 of all data digits.

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

**Truncate leading zeros:** The leading “0” digits of Code 128 barcode characters can be truncated when the feature is enabled.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  2001	Disable Enable	00 01*
Check digit verification  2002	Disable Enable	00 01*
Check digit transmission  2003	Disable Reserved	00* 01
Max. code length  2004	00-99	00-99 00*
Min. code length  2005	00-99	00-99 01*
Code ID setting  2006	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <K>*
Insert group selection  2007	00-66	00-66 00*
Truncate leading zeros  2008	Disable All leading “0”s Only the first “0”	00* 01 02

 %%%END END

# UCC/EAN 128

Read:

Format

Data digits (variable)	Check digit (optional)
------------------------	------------------------

**Check digit verification:** The check digit is made as the sum module 103 of all data digits.

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max. /Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

**Truncate leading zeros:** Refer to Truncate leading zeros of Code 128.



Option bar code	Option	Alpha. entry
Read 2501	Disable Enable	00 01*
Check digit verification 2502	Disable Enable	00 01*
Check digit transmission 2503	Disable Reserved	00* 01
Max. code length 2504	00-99	00-99 00*
Min. code length 2505	00-99	00-99 01*
Code ID setting 2506	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <K>*
Insert group selection 2507	00-66	00-66 00*
Truncate leading zeros 2508	Disable All leading "0"s Only the first "0"	00* 01 02



## ISBT 128

Read:

Format

"=" or "&"	Data digits (variable)	Check digit (optional)
------------	------------------------	------------------------

**Check digit verification:** The check digit verification is optional.

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

 %SETUP SETUP

Option barcode	Option	Alpha. entry
Read  <b>3301</b>	Disable Enable	00 01*
Check digit verification  <b>3302</b>	Disable Enable	00 01*
Check digit transmission  <b>3303</b>	Disable Reserved	00* 01
Max. code length  <b>3304</b>	00-99	00-99 00*
Min. code length  <b>3305</b>	00-99	00-99 01*
Code ID setting  <b>3306</b>	00- FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <K>*
Insert group selection  <b>3307</b>	00-66	00-66 00*

 %%%END END

# Code 93

Read:

Format

Data digits (variable)	2 check digits (optional)
------------------------	---------------------------

**Check digit verification:** The check digit is made as the sum module 47 of the numerical values of all data digits.

**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.



Option bar code	Option	Alpha. entry
Read  2101	Disable Enable	00 01*
Check digit verification  2102	Disable Enable	00 01*
Check digit transmission  2103	Disable Enable	00* 01
Max. code length  2104	00-99	00-99 00*
Min. code length  2105	00-99	00-99 01*
Code ID setting  2106	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <L>*
Insert group selection  2107	00-66	00-66 00*
Reserved  2108		



# Code 11

Read:

Format

Data digits (variable)	Check digit 1 (optional)	Check digit 2 (optional)
------------------------	--------------------------	--------------------------

**Check digit verification:** The check digit is presented as the sum module 11 of all data digits.

**Check digit transmission:** By setting Enable, check digit 1 and check digit 2 will be transmitted upon your selected check digit verification method.

**Max./Min. code length:** Refer to **Max./Min. code length** of Code 39.

**Code ID setting:** Refer to **Code ID setting** of UPC-A.

**Insertion group selection:** Refer to **Insertion group selection** of UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  2201	Disable Enable	00* 01
Check digit verification  2202	Disable One digit Reserved Reserved	00 01* 02 03
Check digit transmission  2203	Disable Enable	00* 01
Max. code length  2204	00-99	00-99 00*
Min. code length  2205	00-99	00-99 00*
Code ID setting  2206	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <V>*
Insert group selection  2207	00-66	00-66 00*
Reserved  2208		

 %%%END END

# MSI/Plessey

Read:

Format

Data digits (variable)	Check digit 1 (optional)	Check digit 2 (optional)
------------------------	--------------------------	--------------------------

**Check digit verification:** The MSI/Plessey has one or two optional check digits. There are three methods of verifying check digits, i.e. Mod10, Mod10/10 and Mod 11/10. The check digit 1 and check digit 2 will be calculated as the sum module 10 or 11 of the data digits.

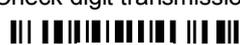
**Check digit transmission:** By setting Enable, check digit 1 and check digit 2 will be transmitted upon your selected check digit verification method.

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  2301	Disable Enable	00* 01
Check digit verification  2302	Disable 1 digit (mod 10) Reserved Reserved	00* 01 02 03
Check digit transmission  2303	Disable Enable	00* 01
Max. code length  2304	00-99	00-99 00*
Min. code length  2305	00-99	00-99 00*
Code ID setting  2306	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <O>*
Insert group selection  2307	00-66	00-66 00*
Reserved  2308		

 %%%END END

## UK/Plessey

Read:

Format

Data digits (variable)	2 check digits (optional)
------------------------	---------------------------

**Check digit verification:** The UK/Plessey has one or two optional check digits. The check digit 1 and check digit 2 will be calculated as the sum module 10 or 11 of the data digits.

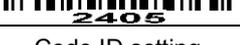
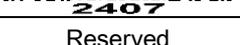
**Check digit transmission:** By setting Enable, check digit will be transmitted.

**Max./Min. code length:** Refer to Max./Min. code length of Code 39.

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  2401	Disable Enable	00* 01
Check digit verification  2402	Disable Enable	00 01*
Check digit transmission  2403	Disable Enable	00* 01
Max. code length  2404	00-99	00-99 00*
Min. code length  2405	00-99	00-99 01*
Code ID setting  2406	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <U>*
Insert group selection  2407	00-66	00-66 00*
Reserved  2408		

 %%%END END

# China Post

Read:

Format

11 Data digits

Code ID setting: Refer to Code ID setting of UPC-A.

Insertion group selection: Refer to Insertion group selection of UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  2601	Disable Enable	00 01*
Reserved  2602		
Reserved  2603		
Reserved  2604		
Reserved  2605		
Code ID setting  2606	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <T>*
Insert group selection  2607	00-66	00-66 00*
Reserved  2608		

 %%%END END

## China Finance

*Note: This type of barcode is not Omni-directionally decodable. The encodable character set includes numeric 0 to 9. Among the symbol of 0 to 9, 0 and 2, 4 and 9, 5 and 8, 6 and 7, have the symmetrical pattern; the pattern of 1 and 3 is symmetrical.*

### Read:

Format

10 Data digits

**Max./Min. code length:** Refer to **Max./Min. code length** of Code 39.

**Check digit verification:** The check digit is made as the sum module 10 of the numerical values of all data digits.

**Leading character 5/6/7/8/9 converted to A/B/C/D/E:** By setting, leading character 5/6/7/8/9 can be converted to A/B/C/D/E.

**Leading character assignment:** By setting, only the barcode with the assigned leading character can be output.

**Code ID setting:** Refer to **Code ID setting** of UPC-A.

**Insertion group selection:** Refer to **Insertion group selection** of UPC-A.



Option bar code	Option	Alpha. entry
Read  <b>3201</b>	Disable Enable	00 01*
Max. code length  <b>3202</b>	00-99	00-99 10*
Min. code length  <b>3203</b>	00-99	00-99 10*
Check digit verification  <b>3204</b>	Disable Reserved	00* 01
Leading character 5/6/7/8/9 converted to A/B/C/D/E  <b>3205</b>	Disable Enable Only 5 converted to A Only 6 converted to B Only 7 converted to C Only 8 converted to D Only 9 converted to E	00 01* 02 03 04 05 06
Leading character assignment  <b>3206</b>	Disable Assigned to 0 Assigned to 5(A) Assigned to 6(B) Assigned to 7(C) Assigned to 8(D) Assigned to 9(E) Assigned to 1 Assigned to 2 Assigned to 3 Assigned to 4	00 01* 02 03 04 05 06 07 08 09 10
Code ID setting  <b>3207</b>	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <Y>*
Insert group selection  <b>3208</b>	00-66	00-66 00*



**Laser Light Direction Setting:** By scanning the barcode above, the decoding direction of the scanner's laser light is from left to right. By scanning the up-side-down barcode above, the decoding direction of the scanner's laser light is from right to left.

## GS1 DataBar (GS1 DataBar Truncated)

GS1 DataBar Truncated is structured and encoded the same as the standard GS1 DataBar format, except its height is reduced to a 13 modules minimum; while GS1 DataBar should have a height greater than or equal to 33 modules.

**Read:**

Format

16 Data digits

**Code ID setting:** Refer to Code ID setting of UPC-A.

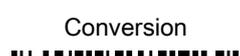
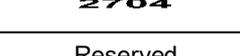
**Insertion group selection:** Refer to Insertion group selection of UPC-A.

**Conversion:**

**UCC/EAN 128-** Refer to Code ID transmission of String transmission, ]Cm will be identified as AIM ID.

**UPC-A or EAN-13-** Barcode beginning with a single zero as the first digit has the leading "010" stripped and the barcode reported as EAN-13. Barcode beginning with two or more zeros but not six zeros has the leading "0100" stripped and the barcode reported as UPC-A.

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  <b>2701</b>	Disable Enable	00 01*
Code ID setting  <b>2702</b>	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <R >*
Insert group selection  <b>2703</b>	00-66	00-66 00*
Conversion  <b>2704</b>	None UCC/EAN 128 UPC-A or EAN-13	00* 01 02
Reserved  <b>2705</b>		

 %%%END END

# GS1 DataBar Limited

Read:

Format

16 Data digits

**Code ID setting:** Refer to **Code ID setting** of UPC-A.

**Insertion group selection:** Refer to **Insertion group selection** of UPC-A.

**Conversion:** Refer to **Conversion** of GS1 DataBar (GS1 DataBar Truncated).

 %SETUP SETUP

Option bar code	Option	Alpha. entry
Read  2801	Disable Enable	00 01*
Code ID setting  2802	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <R >*
Insert group selection  2803	00-66	00-66 00*
Conversion  2804	None UCC/EAN 128 UPC-A or EAN-13	00* 01 02
Reserved  2805		

 %%%END END

# GS1 DataBar Expanded

Read:

Format

Data characters (variable)

**Code ID setting:** Refer to Code ID setting of UPC-A.

**Insertion group selection:** Refer to Insertion group selection of UPC-A.

**Conversion:**

**UCC/EAN 128-** Refer to Code ID transmission of String transmission, ]Cm will be identified as AIM ID.


%SETUP
SETUP

Option bar code	Option	Alpha. entry
Read  2901	Disable Enable	00 01*
Max. code length  2902	00-99	00-99 00*
Min. code length  2903	00-99	00-99 01*
Code ID setting  2904	00-FF <sub>16</sub> (ASCII)	00-FF <sub>16</sub> <R >*
Insert group selection  2905	00-66	00-66 00*
Conversion  2906	None UCC/EAN 128	00* 01
Reserved  2907		


%%%END
END



# G1-G6 & FN1 substitution string setting

## Format of barcode data transmission

Prefix	Code name	Preamble	Code ID	Code length	Code data	Code ID	Postamble	Suffix
--------	-----------	----------	---------	-------------	-----------	---------	-----------	--------

**Suffix string setting:** The <enter> key is represented in different ASCII when it is applied by different OS. For a Windows/DOS OS, <enter> is represented as <CR><LF> (0x0D 0x0A); for an APPLE MAC OS, <enter> is represented as <CR> (0x0D); for a Linux/Unix OS, <enter> is represented as <LF> (0x0A).

### Prefix/Suffix string setting: & Preamble/Postamble string setting:

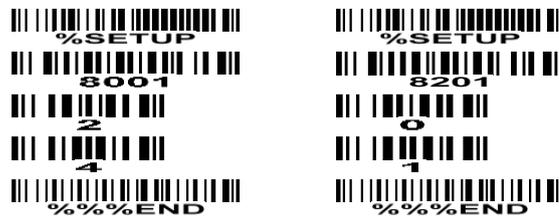
They are appended to the data automatically when a barcode is decoded.

Example: Add a symbol of “\$” as a prefix for all symbologies.

Steps:

- 1) Scan **SETUP** and **Prefix string setting** barcode.
- 2) Use the ASCII table to find the value of \$→24.
- 3) Scan **2** and **4** from the barcode on the foldout back page.
- 4) Scan **END** barcode.

Scanning steps: Scan the following barcodes in order.



**Insert G1/G2/G3/G4 string setting:** The scanner offers 4 positions and 4 character strings to insert among the symbol.

Example: Set G1 string to be “AB”.

Original code data	“1 2 3 4 5 6”
Output code data	“1 2 A B 3 4 5 6”

Steps:

- 1) Scan **SETUP** and **Insert G1 string setting** barcode.
- 2) Use the ASCII table to find the value of A→41, B→42.
- 3) Scan **4, 1** and **4, 2** from the barcode on the foldout back page.
- 4) Scan **END** barcode.
- 5) Refer to the chapter of G1-G4 string position & Code ID position.
- 6) Refer to the chapter of Hand-held scan & some global settings.



Testing barcode:



**FN1 substitution string setting:** The FN1 character (0x1D) in an UCC/EAN128 barcode, or a Code 128 barcode, or a GS1 DataBar barcode can be substituted with a defined string.

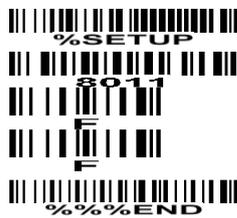
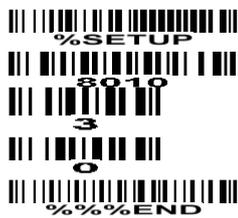
**Truncate leading G5 string setting:** By setting, a defined leading character or string can be truncated. Also a single character can be un-defined.

**Repeat of a G5 character setting:** While G5 is set as a single defined/un-defined character, G5 can also be set to be repeated. This setting is ignored when the truncate number is more than the barcode data characters. The option of “FF” for this setting is not active while the option of **Truncate leading G5 string setting** is “00”.

Example: Truncate all leading zeros for all symbologies.

Original code data	“0001 2 3 4 5 6”
Output code data	“1 2 3 4 5 6”

Steps:



Testing barcode:



**Truncate ending G6 string setting:** By setting, a defined ending character or string can be truncated. Also a single character can be un-defined.

**Repeat of a G6 character setting:** While G5 is set as a single defined/un-defined character, G6 can also be set to be repeated. This setting is ignored when the truncate number is more than the barcode data characters. The option of “FF” for this setting is not active while the option of **Truncate ending G6 string setting** is “00”.

||||| %SETUP SETUP

Option bar code	Option	Alpha. entry
Prefix string setting       8001	0-22 characters None	00-FF <sub>16</sub> 00*
Suffix string setting       8002	0-22 characters <ENTER>	00-FF <sub>16</sub> 0A0D*
Preamble string setting       8003	0-22 characters None	00-FF <sub>16</sub> 00*
Postamble string setting       8004	0-22 characters None	00-FF <sub>16</sub> 00*
Insert G1 string setting       8005	0-22 characters None	00-FF <sub>16</sub> 00*
Insert G2 string setting       8006	0-22 characters None	00-FF <sub>16</sub> 00*
Insert G3 string setting       8007	0-22 characters None	00-FF <sub>16</sub> 00*
Insert G4 string setting       8008	0-22 characters None	00-FF <sub>16</sub> 00*
FN1 substitution string setting       8009	0-4 characters <SP>	00-FF <sub>16</sub> 20*
Truncate leading G5 string setting       8010	A un-defined character 1-22 defined characters <0>	00 01-7F <sub>16</sub> 30*
Repeat of a G5 character setting       8011	Once Defined times Un-defined times (All)	01* 01-22 FF
Truncate ending G6 string setting       8012	A un-defined character 1-22 defined characters <0>	00 01-7F <sub>16</sub> 30*
Repeat of a G6 character setting       8013	Once Defined times Un-defined times (All)	01* 01-22 FF

||||| %%%END END

# G1-G4 string position & Code ID position

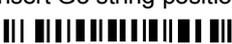
## Format of barcode data transmission

Prefix	Code name	Preamble	Code ID	Code length	Code data	Code ID	Postamble	Suffix
--------	-----------	----------	---------	-------------	-----------	---------	-----------	--------

**Insert G1/G2/G3/G4 string position:** The scanner offers 4 positions to insert strings among the symbol. In case of the insertion position is greater than the length of the symbol, the insertion of string is not effective.

**Code ID position:** It is allowed to select different positions of code ID placement.



Option bar code	Option	Alpha. entry
Insert G1 string position  8101	00-99	00-99 00*
Insert G2 string position  8102	00-99	00-99 00*
Insert G3 string position  8103	00-99	00-99 00*
Insert G4 string position  8104	00-99	00-99 00*
Code ID position  8105	Before code data After code data	00* 01
Reserved  8106		
Reserved  8107		



## String transmission

*Note: The information in this chapter is closely related to the chapter of String setting.*

### Format of barcode data transmission

Prefix	Code name	Preamble	Code ID	Code length	Code data	Code ID	Postamble	Suffix
--------	-----------	----------	---------	-------------	-----------	---------	-----------	--------

**Preamble transmission:** By setting Enable, preamble will be appended before the data transmitted.

**Postamble transmission:** By setting Enable, postamble will be appended after the data is transmitted.

**Code ID transmission:** Code ID can be transmitted in the format of either Proprietary ID or AIM ID. Refer to the chapter of Default setting for each barcode.

**Code length transmission:** The length of code data string can be transmitted before the code data when Enable is selected. The length is represented by a number with two digits.

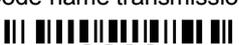
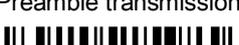
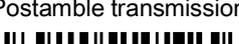
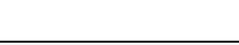
**Code name transmission:** By setting Enable, code name will be transmitted before code data.

**Case conversion:** The characters within code data or the whole output string can be set in either upper case or lower case.

**FN1 substitution transmission:** The scanner supports a FN1 substitution feature for keyboard wedge, USB and RS-232 interface. The replacement string of FN1 can be chosen by user (see chapter of G1-G6 & FN1 substitution string setting).

**All-non-printable-character string transmission with string setting:** By setting enable, all string settings, e.g. Preamble transmission or Insert G1 string setting, are active for an all-non-printable-character string. Here a non-printable character means a character with ASCII value between 0x00 to 0x1F.


 %SETUP SETUP

Option bar code	Option	Alpha. entry
Prefix transmission  <b>8201</b>	Disable Enable	00* 01
Suffix transmission  <b>8202</b>	Disable Enable	00 01*
Code name transmission  <b>8203</b>	Disable Enable	00* 01
Preamble transmission  <b>8204</b>	Disable Enable	00* 01
Postamble transmission  <b>8205</b>	Disable Enable	00* 01
Code ID transmission  <b>8206</b>	Disable Proprietary ID AIM ID	00* 01 02
Code length transmission  <b>8207</b>	Disable Enable	00* 01
Case conversion  <b>8208</b>	Disable Upper (data only) Lower (data only) Upper (whole string) Lower (whole string)	00* 01 02 03 04
FN1 substitution transmission  <b>8209</b>	Disable Keyboard wedge/USB RS-232 Keyboard wedge/USB/RS-232	00* 01 02 03
All-non-printable-character string transmission with string setting  <b>8210</b>	Disable Enable	00* 01


 %%%END END

# Test Chart

UPC-A  
  
6 59871 23231 9

UPC-E  
  
0 232310 7

UPC-E1  
  
1 6 5 4 3 2 1 4

EAN-8  
  
0123 4510

EAN-13  
  
1 234567 891019

Code 39  
  
\*0189-+ \$AZ\*

Code 32  
  
A908765439

Interleaved 2 of 5  
  
0123456789

Industrial 2 of 5  
(Default setting: Read disable)  
  
0123456789

Matrix 2 of 5  
  
9876543210

Code 93  
  
01AZ+ - / \* az89

Code 11  
(Default setting: Read disable)  
  
123456789-0

Test Chart (Continued)

Code 128



01AZ[+~\*/]za98

UCC/EAN 128



01AZ[+~\*/]za98

ISBT 128



=1234 56789

MSI/Plessey

(Default setting: Read disable)



0123456789

UK/Plessey



01ABEF89

ISBN/ISSN



9 780194 315104

China Post



54789632145

GS1 DataBar (GS1 DataBar Truncated)



1234567890123

GS1 DataBar Limited



987654321012

GS1 DataBar Expanded



Ab\_09+yZ

## Troubleshooting

Problem	Possible causes	Possible solutions
Nothing happens when you follow the operating instructions, or the scanner displays erratic behavior.	No power to the scanner.	Check the system power. Ensure the power supply is connected.
	Incorrect cables.	Use the original cables.
	Connections are loose.	Check for loose cable connections.
Laser comes on, but the scanner does not decode.	Bar code symbol is unreadable.	Check the symbol to make sure it is not defaced. Try scanning test symbols of the same bar code type.
	Scanner is not programmed for the correct bar code type.	Be sure the scanner is programmed to read the type of bar code you are scanning.
	Distance between scanner and bar code is incorrect.	Move the scanner closer to or further from the bar code.
Scanned data is incorrectly displayed on the host.	Scanner is not programmed to work with the host. Check scanner host type parameters or editing options.	<p>Be sure proper host is selected.</p> <p>For RS-232, ensure the scanner's communication parameters match the host's settings.</p> <p>For a USB-HID keyboard or a keyboard wedge configuration, ensure the system is programmed for the correct keyboard type and language, and the CAPS LOCK key is in the correct state.</p>
Other circumstances.		Contact your distributor or the manufactory support centre.

## Maintenance

Cleaning the exit window is the only maintenance required. A dirty window may affect scanning accuracy.

1. Do not allow any abrasive material to touch the window.
2. Remove any dirt particles with a damp cloth.
3. Wipe the window using a tissue moistened with water.
4. Do not spray water or other cleaning liquids directly into the window.
5. Use a piece of soft and dry cloth when cleaning the scanner.

## ASCII Table

		for keyboard wedge		for RS-232	
H L	0	1	0	1	
0	Null		NUL	DLE	
1	Up	F1	SOH	DC1	
2	Down	F2	STX	DC2	
3	Left	F3	ETX	DC3	
4	Right	F4	EOT	DC4	
5	PgUp	F5	ENQ	NAK	
6	PgDn	F6	ACK	SYN	
7		F7	BEL	ETB	
8	Bs	F8	BS	CAN	
9	Tab	F9	HT	EM	
A		F10	LF	SUB	
B	Home	Esc	VT	ESC	
C	End	F11	FF	FS	
D	Enter	F12	CR	GS	
E	Insert	Ctrl+	SO	RS	
F	Delete	Alt+	SI	US	

Notes: The 2nd and the 3rd columns above are used for keyboard wedge only.

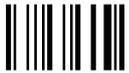
H L	2	3	4	5	6	7
0	SP	0	@	P	`	p
1	!	1	A	Q	a	q
2	“	2	B	R	b	r
3	#	3	C	S	c	s
4	\$	4	D	T	d	t
5	%	5	E	U	e	u
6	&	6	F	V	f	v
7	‘	7	G	W	g	w
8	(	8	H	X	h	x
9	)	9	I	Y	i	y
A	*	:	J	Z	j	z
B	+	;	K	[	k	{
C	,	<	L	\	l	
D	-	=	M	]	m	}
E	.	>	N	^	n	~
F	/	?	O	_	o	DEL

Example: ASCII “A” = “41”.

## Barcode representing non-printable character

Notes to make the following barcode:

- According to different barcode printing software, the method of printing following barcode is different.
- If using CODESOFT software, firstly read the information through “Help→Index→Code128→Special input syntax”. Also refer to ASCII table. For example, if we wish to make “F1” barcode, select “code128”, then select “CODE A” type, and input “{DOC1}” as data.



**Up** ↑



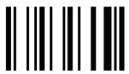
**Down** ↓



**Left** ←



**Right** →



**Page Up**



**Page Down**



**Backspace**



**Tab**



**Home**



**End**



**Enter**



**Insert**



**Delete**



**F1**



**F2**



**F3**



**F4**



**F5**



**F6**



**F7**



**F8**



**F9**



**F10**



**Esc**



**F11**



**F12**

## Return default parameters & others



**%%%DEF**

**WARNING: Default value initialization**

If you wish to return the scanner to all the factory default settings, scan the barcode above.



**%%%VER**

**Firmware version list**

If you wish to display the firmware version, scan the barcode above.

## Configuration alphanumeric entry barcode



To finish parameter setting, please scan the bar code below.

