MINDEO

MD5 Series Barcode Scanner

User Manual

Version: MD5_UM_EN_V1.1.9

Warning: Ensure that the optional DC adapter works at +5V, especially for the RS-232 interface cable.

NOTICE:

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. A standard packing includes a scanner, a PS2 cable and a CD (or a user manual). Accessories include a RS-232 cable, a 5V adaptor and a USB cable.

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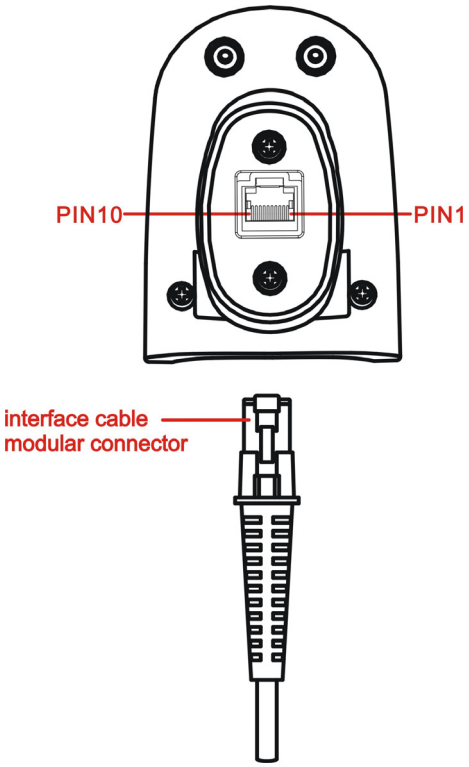
Technical specifications

Table 1-1 Technical specifications

Input voltage	5 VDC ± 0.25V	
Power	650 mW (Operating); 1000 mW (Max.)	
Current	130 mA (Operating); 200 mA (Max.)	
Standby current	<50mA	
Laser	650nm laser diode	
Scan repetition rate	100 ± 10 scans/second	
Scanning angle	±60°, ±65°, ±42° (Skew, Pitch, Roll)	
Decode capability	UPC-A, UPC-E, EAN-13, EAN-8, ISBN/ISSN, Code 39, Code 39 full ASCII, Code 32, 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	
Indicator	Beeper, LED	
Interface supported	Keyboard wedge, RS-232, USB keyboard, USB virtual COM	
Operating mode	Hand-held, Auto-detection (Optional)	
Dimensions	Height × Width × Depth: 9.1cm × 6.9cm × 18.8cm	
Weight	238g, without cable	
Cable	Straight 2.0m	
Connector type	RJ-45 phone jack connector	
Case material	PC+TPU	
Temperature	0° to 50°C (32° to 120°F), Operating; -40° to 60°C (-40° to 140°F), Storage	
Humidity	5% to 95% (non-condensing)	
Programming method	Manual (reading special barcode)	
Program upgrade	Online	
Decoding depth & Min. element width	(1 mil = 0.0254mm) **Long-Range series** 5 mil: 35-160mm 10 mil: 20-320mm 15 mil: 25-440mm 20 mil: 30-565mm 30 mil: 40-740mm 55 mil: 75-985mm	 **High-Density series** 3 mil: 45-90mm 5 mil: 22-130mm 10 mil: 12-225mm 15 mil: 20-305mm 20 mil: 25-395mm 55 mil: 80-730mm
Safety	Laser safety: EN60825-1, Class 1 ESD: 15 kV area discharge; 8 kV contact discharge EMC: EN 55022, EN 55024 Electrical safety: EN 60950-1 Drop resistance: Multiple 5.0m (16.4 ft) drops to concrete Protection class: IP65	

Cable connector pin-outs descriptions



Cable connector interface pin-outs

The pin-outs descriptions in Table 1 apply to the cable connector on the scanner and are for reference only.

Table 1-2 Cable connector pin-outs descriptions

Pin	RS232	Keyboard (PS2)	USB
1	Power (+5V)	Power (+5V)	Power (+5V)
2	+3.3V (for interface auto selection purpose)	Ground (for interface auto selection purpose)	+3.3V (for interface auto selection purpose)
3	Ground	Ground	Ground
4	+3.3V (for interface auto selection purpose)	Reserved	Ground (for interface auto selection purpose)
5	TxD	KeyClock	Reserved
6	RxD	KeyData	Reserved
7	Reserved	TermClock	Reserved
8	Reserved	TermData	Reserved
9	CTS	Reserved	D-
10	RTS	Reserved	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

Table 2 Default setting for each barcode

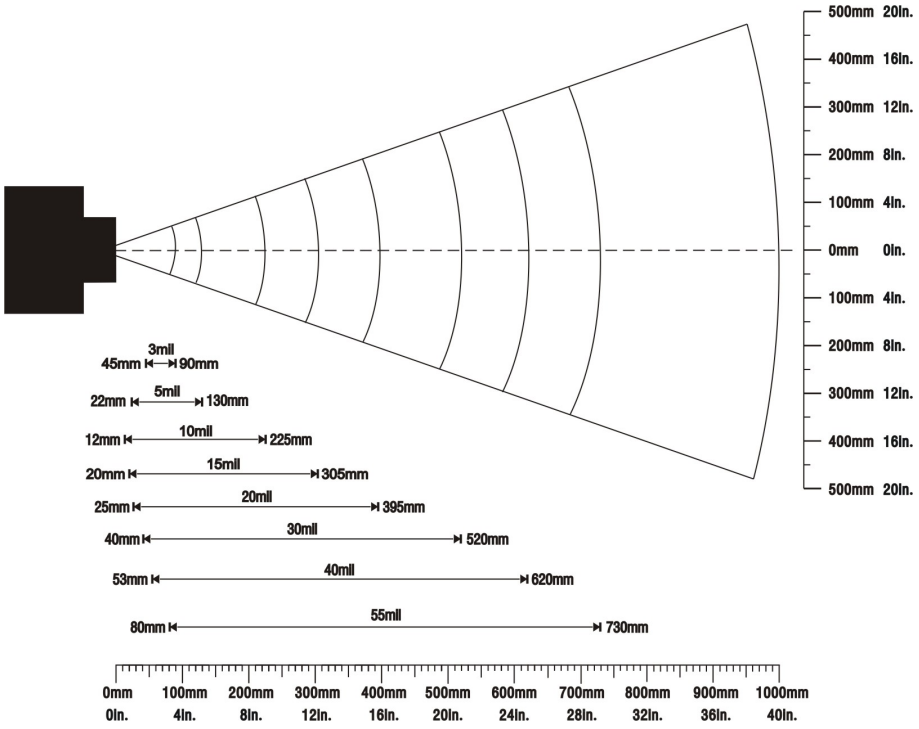
Code type	Read enable	Check digit verification	Check digit transmission	Min. code length	Proprietary code ID	AIM code ID
UPC-A	√	√	√	(12)[2]	A	]Em
UPC-E	√	√	√	(8)[2]	D	]Em
UPC-E1	√	√	√	(8)[2]	D	]Em
EAN-13	√	√	√	(13)[2]	A	]Em
EAN-8	√	√	√	(8)[2]	C	]Em
ISBN/ISSN[1]	√	√	√	(13)[2]	A	]Em
Code 39	√	-	-	1	M	]Am
Interleaved 2 of 5	√	-	-	6	I	]Im
Industrial 2 of 5	√	-	-	4	H	]Im
Matrix 2 of 5	√	-	-	6	X	]Im
Codabar	√	-	-	4	N	]Fm
Code 128	√	√	-	1	K	]Cm
UCC/EAN 128	√	√	-	1	K	]Cm
ISBT 128	√	√	-	1	K	]Cm
Code 93	√	√	-	1	L	]Gm
Code 11	-	√	-	4	V	-
MSI/Plessey	-	-	-	4	O	]Mm
UK/Plessey	√	√	-	1	U	]Mm
China Post	√	-	-	(11)[2]	T	]Im
China Finance	√	-	-	(10)[2]	Y	-
GS1 DataBar	√	-	-	(16)[2]	R	]em
GS1 DataBar Truncated[3]	√	-	-	(16)[2]	R	]em
GS1 DataBar Limited	√	-	-	(16)[2]	R	]em
GS1 DataBar Expanded	√	-	-	1	R	]em

Note: [1]The settings for ISBN/ISSN and EAN-13 must be the same.

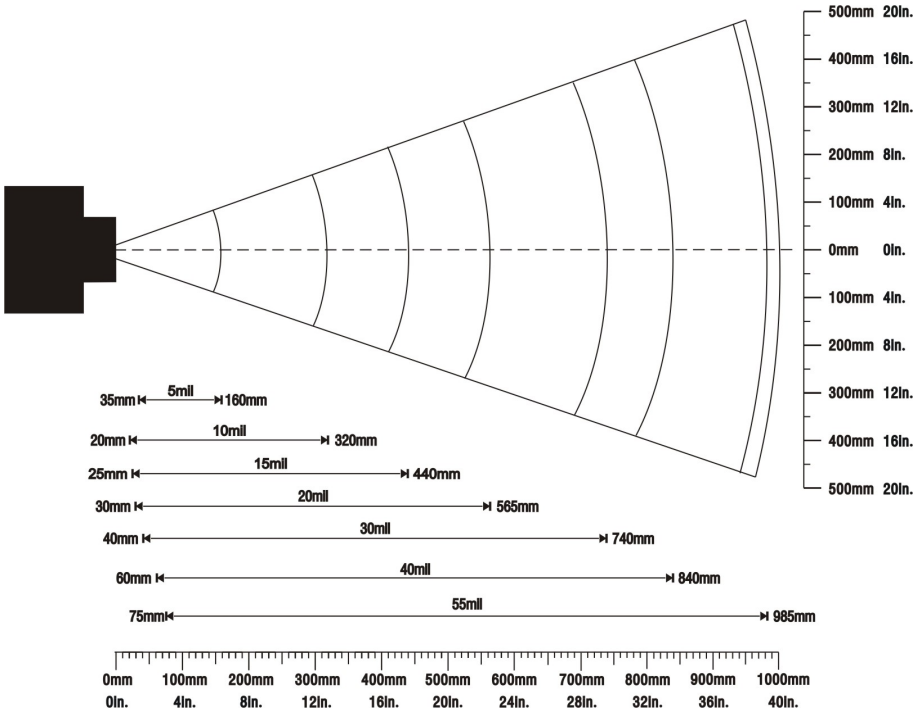
[2] Fixed-length barcodes.

[3]The settings for GS1 DataBar Truncated and GS1 DataBar must be the same.

Decode zone

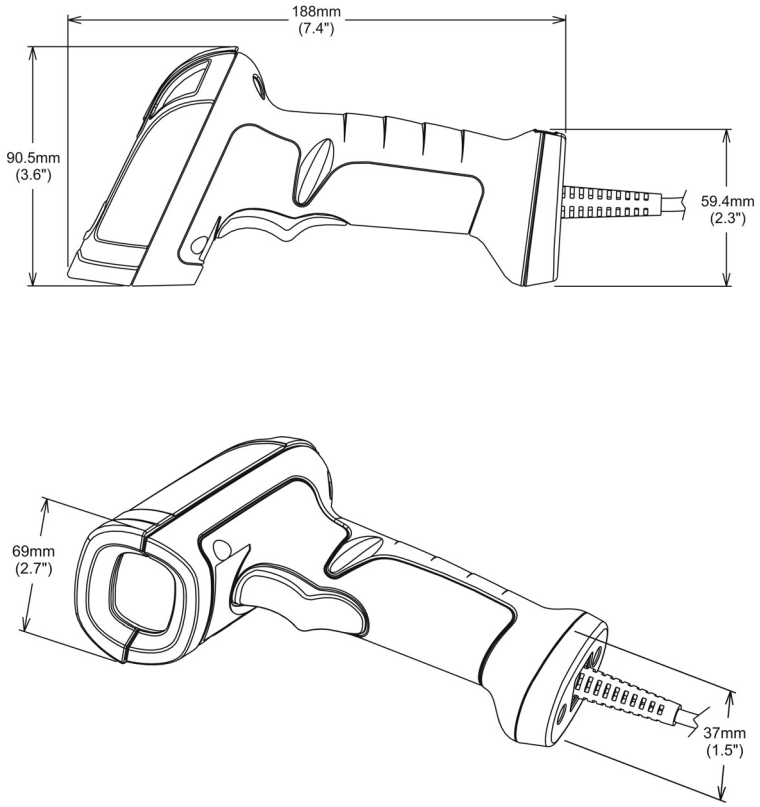


High-Density series



Long-Range series

Dimensions



Parts of the scanner

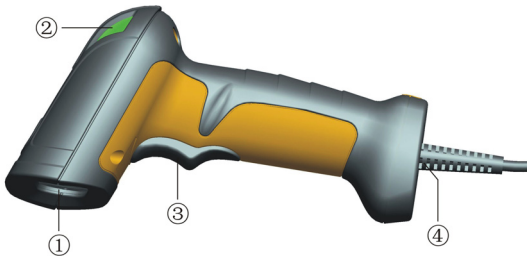


Figure 1

① Exit window

② LED

③ Trigger

④ Cable interface port

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 - keyboard wedge

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

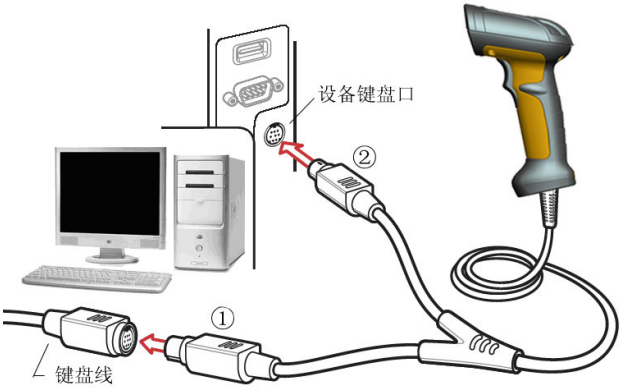


Figure 2

Installation - RS-232

1. Connect the other end of the interface cable to the serial port on the host. Tighten the two screws to secure the connector to the port.
2. If the host does not have power supply (on PIN 9), connect the external power supply (DC adapter) to the RS-232 cable.

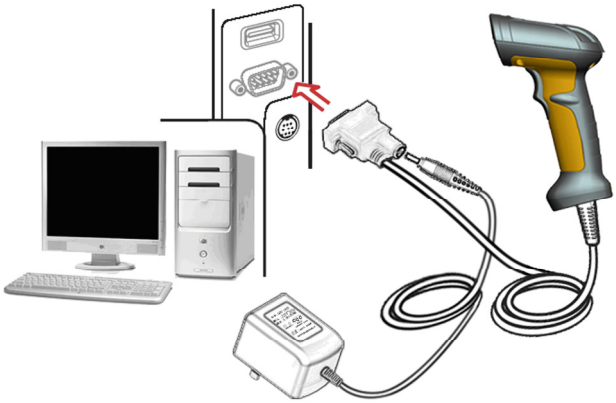


Figure 3

Installation - USB

The scanner attaches directly to a USB host, and is powered by it. No additional power supply is required.

1. Plug the series A connector in the USB host, or an available port of the terminal.
2. Windows will automatically detect the USB device.

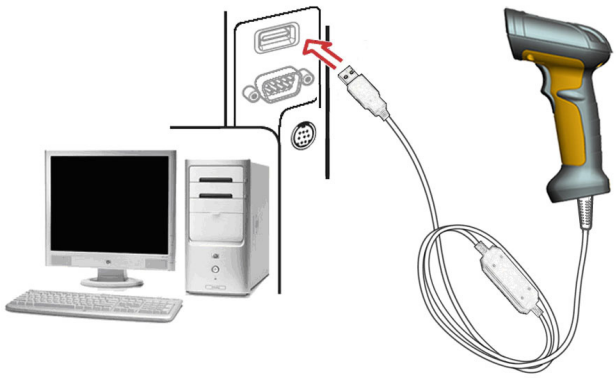


Figure 5

Scanning modes

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

RIGHT

WRONG

Figure 5

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.
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.

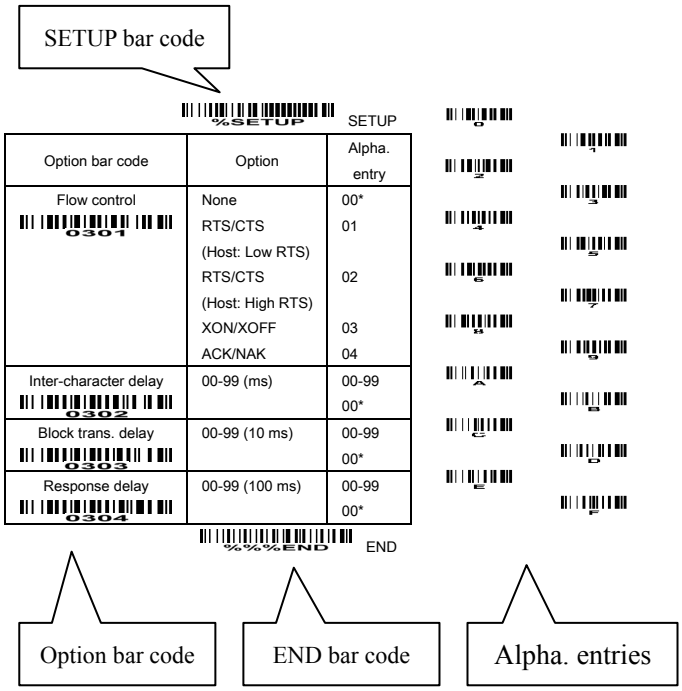


Figure 7

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: “0x54” (T)

When the scanner received the above command, it will start barcode scanning following the setting of Scanning mode. If the scanner is in the mode of “Auto-detection”, the scanner will have a single scan, then returns to “Auto-detection” mode.

2) Stop command: “0x50” (P)

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

3) Restart command: “0x35” (R)

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

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).

Interface selection

This scanner supports interfaces such as keyboard wedge, RS-232 serial wedge, and USB interface. In most of the cases, simply selecting an appropriate cable provided by the manufacturer will work for a specific interface.

Interface selection:

Auto detection-By setting this function, the scanner will automatically detect the keyboard wedge, RS-232 or USB interface for user.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Interface selection 0101	Auto detection (Keyboard wedge /RS-232/USB)	00*
	Keyboard wedge	01
	RS-232	02
	USB	03

%%%END END

Keyboard wedge interface

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 reversion: By setting enable, the status of Caps Lock key (i.e. being pressed ON or OFF) on the keyboard is simulated in a reversion 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.

A guide of setting while the scanned data is incorrectly displayed on the host

- If some characters are missed or some additional characters are incorrectly displayed on the host, set the Inter-byte delay (0208) to be "01" or greater value.
- If some capital character (e.g. "A") or compound-key-characters (e.g."shift+", "Ctrl + ", "Alt+") are displayed incorrectly, set the Delay-after-compound-key to be "01" or greater value.
- If some digits are incorrectly displayed as some symbol characters (e.g. "1" and "2" are displayed incorrectly as "!" and "@"), set the Clock period (0203) to be greater value (e.g. 04, 05).

Option bar code	Option	Alpha. entry
Keyboard type 0201	IBM AT, PS/2	00*
	Apple Mac compatibles	01
Keyboard layout 0202	USA	00*
	Turkish F	01
	Turkish Q	02
	French	03
	Italian	04
	Spanish	05
	Slovak	06
	Denmark	07
	Japanese	08
	German	09
	Belgian	10
	Russian	11
Clock period 0203	60us	00
	70us	01
	80us	02*
	90us	03
	100us	04
	200us	05
Delay-after-compound-key 0204	0ms	00*
	10ms	01
	20ms	02
	40ms	03
	80ms	04
Numeric key 0205	Alphabetic key	00*
	Numeric keypad	01
	Alt+ keypad	02
Power-on simulation 0206	Disable	00*
	Enable	01
Inter-character delay 0207	0ms	00*
	5ms	01
	10ms	02
	20ms	03
	40ms	04
	80ms	05
Inter-byte delay 0208	1ms	00*
	2ms	01
	4ms	02
	8ms	03
Caps Lock reversion 0209	Disable	00*
	Enable	01
Caps Lock override	Disable	00*

%SETUP SETUP

Option bar code	Option	Alpha. entry
0210	Enable	01

%%%END END

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 0301	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 0302	0ms 5ms 10ms 20ms 40ms 80ms	00* 01 02 03 04 05
Reserved 0303		
Response delay 0304	00-99 (100ms)	00-99 00*
Baud rate 0305	300 600 1200 2400 4800 9600 19200 38400 57600 115200	00 01 02 03 04 05* 06 07 08 09
Parity 0306	None Odd Even	00* 01 02
Data bit 0307	8 bits 7 bits	00* 01
Stop bit 0308	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 emulate a regular RS232-based COM port. If a Microsoft Windows PC is connected to the scanner, a driver is required to install on the connected PC. The driver will use the next available COM Port number. The driver and the installation guide can be found in the associated CD and on the manufacturer's website. A Windows-based software COM_Text is recommended to display the barcode data in text format. COM_Text emulates some kind of serial-key typing.

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

Simple COM Port Emulation- Please contact the manufacturer for the instruction.

Keyboard layout: The scanner supports different national keyboard layouts.

Inter-character delay: This delay is inserted after each data character transmitted. By selecting, the user can change the output speed of the scanner to match the speed of the host USB communication port.

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.

%SETUP SETUP

Option bar code	Option	Alpha. entry
USB device type 0901	HID keyboard	00*
	HID keyboard for Apple Mac	01
	USB virtual COM	02
	Simple COM Port Emulation	03
Keyboard layout 0902	USA	00*
	Turkish F	01
	Turkish Q	02
	French	03
	Italian	04
	Spanish	05
	Slovak	06
	Denmark	07
	Japanese	08
	German	09
	Belgian	10
	Russian	11
Inter-character delay 0903	0ms	00
	5ms	01*
	10ms	02
	20ms	03
	40ms	04
	60ms	05
Numeric key 0904	Alphabetic key	00*
	Numeric keypad	01
	Alt+ keypad	02

%%%END END

Hand-held scan & some global settings

Scanning mode:

Good-read off-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.

Momentary-The trigger button acts as a switch. Press button to activate scanning and release button to stop 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.

Alternate continue-The trigger button acts as a toggle switch. Press button to activate or stop scanning.

Continue-The scanner always keeps scanning, and it does not matter when the trigger button is pressed or duration is elapsed.

Timeout off-The trigger button must be pressed once to activate scanning. The light source of scanner stops scanning when no code is successful decoded after the Stand-by duration elapsed.

Same barcode delay time: If a barcode has been scanned and output once successfully, the laser beam must be off or moved away from the barcode beyond delay time to active scanning the same barcode. When this feature is set to be “0xFF”, then the delay time is indefinite.

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 symbol 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 symbols with fixed-length, e.g. UPC-A, UPC-E, EAN-13, EAN-8 and China Post.

Global G1-G6 string selection: The scanner offer one or two string group for ALL symbols. By setting one or two digits to indicate which string group you want to apply. You may refer to the chapters of “String setting” and “String position & Number of truncated leading/ending character”.

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

All valid settings include 00, 01, 02, 03, 04, 05, 06, 10, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23, 24, 25, 26, 30, 31, 32, 33, 34, 35, 36, 40, 41, 42, 43, 44, 45, 46, 50, 51, 52, 53, 54, 55, 56, 60, 61, 62, 63, 64, 65 and 66.

Element amendment: If it is enabled, the scanner can read the barcode comprised with bars and spaces in different scale.

Character output restraint:

Printable character only- If this option is selected, the scanner will output the printable characters only,

i.e. in ASCII from 20H to 7EH.

Alphanumeric character only- If this option is selected, the scanner will output the alphanumeric characters only, i.e. “A”-“Z”, “a”-“z”, “0”-“9”.

Decoder optimization: If it is enabled, the scanner will optimize the decoder with error correction. This function is not effective for all types of barcodes.

Data output delay in continue-scan mode: If it is enabled, in the continue-scan mode, the scanner can store the data while continue-scanning. The scanner will output the data after the predefined delay elapsed. The maximum storage of data is 1000 characters. If this parameter is set to be “00”, the scanner will not store data. And if the parameter is set to be “FF”, the scanner will output data after stopping scanning.

Enter sleeping-mode delay: The scanner will enter sleeping mode if the scanner has been in the idle mode after the predefined delay elapsed. The scanner will be awakened by pressing the trigger once.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Scanning mode 0401	Good-read off Momentary Alternate continue Continue Timeout off	00 01* 02 03 04
Standby duration 0402	01-99 (second)	01-99 04*
Same barcode delay time 0403	00-FF_{16} (50ms)	00-FF_{16} 08*
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 G1-G6 string selection 0407	00-66	00-66 00*
Element amendment 0408	Disable Enable	00 01*
Character output restraint 0409	None Printable character only Alphanumeric character only	00* 01 02
Decoder optimization 0410	Disable Enable	00 01*
Data output delay in continue-scan mode 0411	00-99 (100ms) FF (Never)	00-FF_{16} 00*
Enter sleeping-mode delay 0412	15 min 30 min 60 min Never	00 01* 02 03

%%%END END

Indication

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

LED indication: After each successful reading, the LED above the scanner will light up to indicate a good barcode reading.

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

Beep tone duration: This parameter can be adjusted for a good reading upon favorite usage.

Volume of beeper: This parameter can be adjusted for different level of the volume of the beeper.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Power on alert 0501	Disable Enable	00 01*
LED indication 0502	Disable Enable	00 01*
Beeper indication 0503	Disable Enable	00 01*
Beep tone duration 0504	01-09 (10ms)	01-09 05*
Volume of beeper 0505	Low Middle High	00 01 02*

%%%END END

Auto-detection scan

Auto-detect sensor: 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.

Operating mode:

In-stand-auto-detection- The scanner must be placed in the stand to enable Auto-detect sensor.

Auto-detection-always-ON- Auto-detect sensor is always enabled regardless of the placement of the scanner.

In-stand-continue- The scanner must be placed in the stand to enable the scanning mode to be set as continue.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Auto-detect sensor 0601	Disable Enable	00 01*
Operation mode 0602	In-stand-auto-detection Auto-detection-always-ON In-stand-continue	00* 01 02
Stand-by duration 0603	00-99 (second)	00-99 04*

%%%END END

One step setting

%0602D02%

UPC-A

Read: Format

System character	Data digits (10 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

System character	Data digits (10 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.

Truncate system character- The system character of UPC-A data can be truncated when the feature is enabled.

Add country code- The country code (“0” for USA) can be added when the feature is enabled.

%SETUP SETUP

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_{16} (ASCII)	00-FF_{16} <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 Truncate system character Add country code	00* 01 02 03 04
Reserved 1108		

%%%END END

UPC-E

Read: Format

System character “0”	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

System character “0”	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.

Truncate system character- The system character “0” of UPC-E data can be truncated when the feature is enabled.

%SETUP SETUP

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_{16} (ASCII)	00-FF_{16} <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 Truncate system character	00* 01 02 03 04
Reserved 1208		

%%%END END

UPC-E1

Read: Format

System character “1”	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

System character “1”	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.

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 characters can be truncated when the feature is enabled.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Read 3401	Disable Enable	00 01*
Check digit verification 3402	Disable Enable	00 01*
Check digit trans. 3403	Disable Enable	00 01*
Code ID setting 3404	00-FF_{16} (ASCII)	00-FF_{16} <D>*
Insert group selection 3405	00-66	00-66 00*
Supplement digits 3406	None 2 digits 5 digits 2 or 5 digits	00* 01 02 03
Truncation/Expansion 3407	None Reserved Expand to EAN-13 Expand to UPC-A Truncate system character	00* 01 02 03 04
Reserved 3408		

%%%END END

EAN-13 (ISBN/ISSN)

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.

EAN-13 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, or Bookland EAN) 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 symbol.

Example:

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

Barcode “9771005180004”, Output: “10051805”.

ISBN/ISSN code ID setting: Refer to Code ID setting of UPC-A.

%SETUP SETUP

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*
EAN-13 code ID setting 1304	$00\text{-}FF_{16}$ (ASCII)	$00\text{-}FF_{16}$ <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		
ISBN/ISSN code ID setting 1309	$00\text{-}FF_{16}$ (ASCII)	$00\text{-}FF_{16}$ <B>*

%%%END END

EAN-8

Read:

Format

Data digits (7 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 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

Data digits (7 digits)	Check digit	Supplement Digits 2 or 5

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

%SETUP SETUP

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

%%%END END

Code 39 (Code 32, Trioptic 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 symbol 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 symbol 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 "⋆"s. 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	$00\text{-}FF_{16}$ (ASCII)	$00\text{-}FF_{16}$ <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

Note 1: If Trioptic Code 39 is set Enable, Code 39 is forced Enable.

Note 2: If Code 39 is set Disable, Trioptic Code 39 is forced Disable.

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 Symbol 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_{16} (ASCII)	00-FF_{16} <I>*
Insert group selection 1607	00-66	00-66 00*
Reserved 1608		

%%%END END

Industrial 2 of 5

Read:

Format

Data digits (variable)

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_{16} (ASCII)	00-FF_{16} <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	$00\text{-}FF_{16}$ (ASCII)	$00\text{-}FF_{16}$ <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.

%SETUP SETUP

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_{16} (ASCII)	00-FF_{16} <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

%%%END END

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_{16} (ASCII)	00-FF_{16} <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.

%SETUP SETUP

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_{16} (ASCII)	00-FF_{16} <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

%%%END END

ISBT 128

Read:

Format

“=” or “&”	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.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Read 3301	Disable Enable	00 01*
Check digit verification 3302	Disable Enable	00 01*
Check digit transmission 3303	Disable Reserved	00* 01
Max. code length 3304	00-99	00-99 00*
Min. code length 3305	00-99	00-99 01*
Code ID setting 3306	00-FF_{16} (ASCII)	00-FF_{16} <K>*
Insert group selection 3307	00-66	00-66 00*
Reserved 3308	-	-

%%%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.

%SETUP SETUP

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	$00\text{-}FF_{16}$ (ASCII)	$00\text{-}FF_{16}$ <L>*
Insert group selection 2107	00-66	00-66 00*
Reserved 2108		

%%%END END

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_{16} (ASCII)	00-FF_{16} <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_{16} (ASCII)	00-FF_{16} <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	$00\text{-}FF_{16}$ (ASCII)	$00\text{-}FF_{16}$ <U>*
Insert group selection 2407	00-66	00-66 00*
Reserved 2408		

%%%END END

China Post

Read:

Format

11 Data digits

Max. /Min. code length: Refer to Max./Min. code length of Code 39. The code length of China Post is 11.

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		
Max. code length 2604	00-99	00-99 11*
Min. code length 2605	00-99	00-99 11*
Code ID setting 2606	$00\text{-}FF_{16}$ (ASCII)	$00\text{-}FF_{16}$ <T>*
Insert group selection 2607	00-66	00-66 00*
Reserved 2608		

%%%END END

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 2701	Disable Enable	00 01*
Code ID setting 2702	00-FF$_{16}$ (ASCII)	00-FF$_{16}$ <R >*
Insert group selection 2703	00-66	00-66 00*
Conversion 2704	None UCC/EAN 128 UPC-A or EAN-13	00* 01 02
Reserved 2705		

%%%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_{16} (ASCII)	00-FF_{16} <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_{16} (ASCII)	00-FF_{16} <R >*
Insert group selection 2905	00-66	00-66 00*
Conversion 2906	None UCC/EAN 128	00* 01
Reserved 2907		

%%%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.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Read 3201	Disable Enable	00 01*
Max. code length 3202	00-99	00-99 10*
Min. code length 3203	00-99	00-99 10*
Check digit verification 3204	Disable Reserved	00* 01
Leading character 5/6/7/8/9 converted to A/B/C/D/E 3205	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 3206	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 3207	00-FF_{16} (ASCII)	00-FF_{16} <Y>*
Insert group selection 3208	00-66	00-66 00*

%%%END END

%%LLDS

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.

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:**

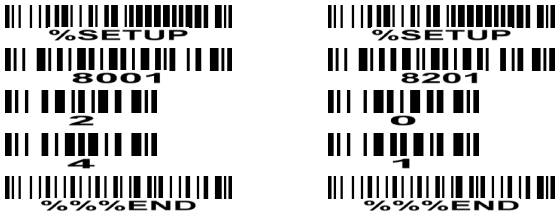
They are appended to the data automatically when a barcode is decoded.

Example: Add a symbol of "$" as a prefix for all symbols.

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 "8005".
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 symbols.

Original code data	"0 0 0 1 2 3 4 5 6"
Output code data	"1 2 3 4 5 6"

Steps: scan the following data in order.

%SETUP 8010 3 0 %%%END

%SETUP 8011 F F %%%END

%SETUP 0407 0 5 %%%END

Testing barcode:

000123456

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".

Single character C1/C2 replacement: By setting, a defined character in the data string can be replaced by another defined character. The C1 and C2 replacement are applied simultaneously.

Example: Replace all the "A" character in a data string to be "B" character.

Original code data	"1 2 3 A 5 A"
Output code data	"1 2 3 B 5 B"

Steps: scan the following barcodes in order. The ASCII value for "A" is 41, and the ASCII value for "B" is 42.

%SETUP 8014 4 1 4 2 %%%END

Testing barcode:

123A5A

%SETUP SETUP

Option bar code	Option	Alpha. entry
Prefix string setting 8001	0-22 characters None	00-FF$_{16}$ 00*
Suffix string setting 8002	0-22 characters <ENTER>	00-FF$_{16}$ 0D0A*
Preamble string setting 8003	0-22 characters None	00-FF$_{16}$ 00*
Postamble string setting 8004	0-22 characters None	00-FF$_{16}$ 00*
Insert G1 string setting 8005	0-22 characters None	00-FF$_{16}$ 00*
Insert G2 string setting 8006	0-22 characters None	00-FF$_{16}$ 00*
Insert G3 string setting 8007	0-22 characters None	00-FF$_{16}$ 00*
Insert G4 string setting 8008	0-22 characters None	00-FF$_{16}$ 00*
FN1 substitution string setting 8009	0-4 characters <SP>	00-FF$_{16}$ 20*
Truncate leading G5 string setting 8010	A un-defined character 1-22 defined characters <0>	00 01-7F$_{16}$ 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$_{16}$ 30*
Repeat of a G6 character setting 8013	Once Defined times Un-defined times (All)	01* 01-22 FF
Single character C1 replacement 8014	<0000>	0000* 0000-FFFF $_{16}$
Single character C2 replacement 8015	<0000>	0000* 0000-FFFF $_{16}$

%%%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.

%SETUP SETUP

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		

%%%END END

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

Prefix transmission: By setting Enable, prefix will be appended before the data transmitted.

Suffix transmission: By setting Enable, suffix will be appended after the data is transmitted.

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

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.

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.

Transmit the first N data characters only: The scanner supports to only transmit the first N data characters of a barcode. The number of N can be set as a digit between 1 and 99.

Transmit the last N data characters only: The scanner supports to only transmit the last N data characters of a barcode. The number of N can be set as a digit between 1 and 99.

%SETUP SETUP

Option bar code	Option	Alpha. entry
Prefix transmission 8201	Disable Enable	00* 01
Suffix transmission 8202	Disable Enable	00 01*
Code name transmission 8203	Disable Enable	00* 01
Preamble transmission 8204	Disable Enable	00* 01
Postamble transmission 8205	Disable Enable	00* 01
Code ID transmission 8206	Disable Proprietary ID AIM ID	00* 01 02
Code length transmission 8207	Disable Enable	00* 01
Case conversion 8208	Disable Upper (data only) Lower (data only) Upper (whole string) Lower (whole string)	00* 01 02 03 04
FN1 substitution transmission 8209	Disable Keyboard wedge/USB RS-232 Keyboard wedge/USB/RS-232	00* 01 02 03
All-non-printable-character string transmission with string setting 8210	Disable Enable	00* 01
Transmit the first N data characters only 8211	All 01-99	99* 01-99
Transmit the last N data characters only 8212	All 01-99	99* 01-99

%%%END END

Test Chart

UPC-A

6 59871 23231 9

UPC-E

0 232310 7

EAN-8

0123 4510

EAN-13

1 234567 891019

Code 39

0189-.+$AZ

Code 32

A908765439

Code 128

01AZ[+-*/]za98

Interleaved 2 of 5

0123456789

Industrial 2 of 5

(Default setting: Read disable)

0123456789

Matrix 2 of 5

9876543210

Code 93

01AZ+-/*az89

UCC/EAN 128

01AZ[}+-az54

Code 11

(Default setting: Read disable)

123456789-0

Test Chart (Continued)

MSI/Plessey

(Default setting: Read disable)

0123456789

UK/Plessey

01ABEF89

ISBN/ISSN

9 780194 315104

China Post

5478963214 5

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.	Be sure proper host is selected. For RS-232, ensure the scanner's communication parameters match the host's settings. 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.
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:

a) According to different barcode printing software, the method of printing following barcode is different.

b) 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

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F