



MS339 Handheld Image Scanner

User Manual



Version: MS339_UM_EN_V2.1.3

Notice



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

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 USB cable and a quick guide. Accessories include a stand, a RS-232 cable, and a 5 VDC adaptor.

Contents

| | |
|----------------------------------------------------------------------------------------|-----|
| Notice | i |
| Contents | iii |
| 1 Specifications | 1 |
| 1-1 Technical specifications | 1 |
| 1-2 Default setting for each barcode | 3 |
| 2 Get started | 4 |
| 2-1 Dimensions..... | 4 |
| 2-3 Cable connector pin-outs descriptions..... | 5 |
| 2-4 Installation and uninstallation of cable | 7 |
| 2-4-1 Installation - USB..... | 7 |
| 2-4-2 Installation - RS-232..... | 7 |
| 2-4-3 Uninstallation of cable | 8 |
| 2-5 Assembling the stand..... | 9 |
| 2-6 Auto-detection | 10 |
| 3 Programming..... | 11 |
| 3-1 Example 1: Single-parameter setting by scanning 1D barcodes..... | 11 |
| 3-2 Example 2: Multiple-parameter setting by scanning a QR code barcode | 12 |
| 3-3 Operate the scanner by receiving command via UART | 13 |
| 3-4 Interface selection | 13 |
| 3-5 RS-232 interface | 15 |
| 3-6 USB interface | 17 |
| 3-7 Scan mode & some global settings..... | 22 |
| 3-8 Indication | 29 |
| 3-9 Decode illumination and decode aiming pattern..... | 31 |
| 3-10 Other settings..... | 32 |
| Note 1 : The instruction of calibrating the aimer in vertical centering direction..... | 35 |
| Note 2 : Scan barcode or send command to enter upgrade mode | 35 |
| 3-11 UPC-A | 36 |
| 3-12 UPC-E | 38 |
| 3-13 UPC-E1 | 40 |
| 3-14 EAN-13 (ISBN/ISSN) | 41 |
| 3-15 EAN-8..... | 44 |
| 3-16 Code 39 (Code 32, Trioptic Code 39)..... | 45 |
| 3-17 Interleaved 2 of 5 | 50 |
| 3-18 Industrial 2 of 5 (Discrete 2 of 5)..... | 52 |
| 3-19 Matrix 2 of 5..... | 53 |
| 3-20 Codabar..... | 55 |

| | |
|-----------------------------------------------------------|-------------------------------------|
| 3-21 Code 128..... | 57 |
| 3-22 UCC/EAN 128..... | 59 |
| 3-23 ISBT 128..... | 61 |
| 3-24 Code 93..... | 63 |
| 3-25 Code 11..... | 65 |
| 3-26 MSI/Plessey..... | 67 |
| 3-27 UK/Plessey..... | 69 |
| 3-28 China Post..... | 71 |
| 3-29 GS1 DataBar (GS1 DataBar Truncated)..... | 72 |
| 3-30 GS1 DataBar Limited..... | 74 |
| 3-31 GS1 DataBar Expanded..... | 75 |
| 3-32 PDF417..... | 76 |
| 3-33 MicroPDF417 Code..... | 76 |
| 3-34 QR Code..... | 78 |
| 3-35 MicroQR Code..... | 79 |
| 3-36 Data Matrix..... | 80 |
| 3-37 Han Xin Code..... | 81 |
| 3-38 Aztec Code..... | Error! Bookmark not defined. |
| 3-39 G1-G6 & C1-C3 & FN1 substitution string setting..... | 87 |
| 3-40 G1-G4 string position & Code ID position..... | 92 |
| 3-41 String transmission..... | 92 |
| 4 Maintenance..... | 96 |
| 5 Barcode representing non-printable character..... | 97 |
| 6 ASCII Table..... | 98 |
| 7 Test barcode..... | 99 |
| 8 Return default parameters & list firmware version..... | 101 |
| 9 Configuration alphanumeric entry barcode..... | 102 |

1 Specifications

1-1 Technical specifications

| | | | |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------|
| Dimensions | Height × Width × Depth : 90 mm × 62.8 mm × 153 mm | | |
| Weight | 132 g, without cable | | |
| Cable | Straight 2.0 m | | |
| Connector Type | RJ-45 phone jack connector | | |
| Case Material | PC+TPU | | |
| Exit Window Material | Tempered glass | | |
| Indicator | Beeper, LED | | |
| Interface Supported | RS-232, USB Keyboard, USB virtual COM | | |
| Operating Mode | Hand-held, Auto-detection | | |
| Programming Method | Manual (reading special barcode) | | |
| Firmware Upgrade | Online | | |
| Input Voltage | 5 ± 0.25 VDC | | |
| Current | Standby: 160 mA , Scanning: 300 mA (Max:480 mA) | | |
| Image Size | 1280 × 800 pixels | | |
| Light Source | Illumination : 5000 K , white LED Aiming: 525 nm peak wavelength, green LED | | |
| Imager Field of View | Horizontal: 41°, vertical: 28° | | |
| Scanning Angle | ±70°, ±75°, 360° (skew, pitch, roll) | | |
| Print Contrast | 20% minimum reflective difference | | |
| Decoding Capability | 1D: UPC-A, UPC-E, UPC-E1, EAN-13, EAN-8, ISBN (Bookland EAN), ISSN, Code 39, Code 39 full ASCII, Code 32, Trioptic Code 39, Interleaved 2 of 5, Industrial 2 of 5 (Discrete 2 of 5), Matrix 2 of 5, Codabar (NW7), Code 128, UCC/EAN 128, ISBT 128, Code 93, Code 11 (USD-8), MSI/Plessey, UK/Plessey, China Post, GS1 DataBar (formerly RSS) variants | | |
| | 2D: PDF417, QR Code, DataMatrix, Han Xin Code, Aztec Code, MicroQR Code, MicroPDF417, CodaBlock F Code | | |
| Minimum Resolution | HD : 1D (Code 39) : 3mil SR : 1D (Code 128) : 4mil | | |
| Decoding Depth | | High Density Series | Standard Range Series |
| | 3 mil Code39 (3 chars) | 25 mm – 50 mm | / |
| | 4 mil Code128 (9 chars) | 10 mm – 90 mm | 30 mm – 90 mm |
| | 5 mil Code39 (3 chars) | 5 mm – 115 mm | 20 mm – 120 mm |
| | 13 mil UPC (6 chars) | 0 mm – 250 mm | 0 mm – 280 mm |
| | 20 mil Code39 (1 char) | 15 mm – 340 mm | 15 mm – 430 mm |

| | | | |
|-------------|------------------------------------------------------------------------------|----------------|----------------|
| | 6.7 mil PDF417 (20 chars) | 10 mm – 100 mm | 15 mm – 120 mm |
| | 10 mil QR (20 chars) | 0 mm – 155 mm | 0 mm – 165 mm |
| | 10 mil DM (20 chars) | 0 mm – 160 mm | 0 mm – 165 mm |
| | 20 mil QR (20 chars) | 0 mm – 270 mm | 0 mm – 340 mm |
| Temperature | -10° to 50°C (14° to 122°F), operating; -20° to 70°C (-4° to 158°F), storage | | |
| Humidity | 5% to 95% (non-condensing) | | |

| | | | |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Safety | EMC: EN55032, EN55035 Electrical Safety: EN62368-1 Photobiological Safety: EN62471:2008 Light Levels: 0 to 100,000 Lux Sealing: IP52 Drop Resistance: Withstands multiple 2.0 m drops to concrete | | |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

1-2 Default setting for each barcode

| Code type | Read enable | Check digit verification | Check digit transmissio | Min. code length | Proprietary code ID | AIM code ID |
|------------------------------------|-------------|--------------------------|-------------------------|-------------------|---------------------|-------------|
| UPC-A | √ | √ | √ | (12) ¹ | A | JE0 |
| UPC-E | √ | √ | √ | (8) ² | D | JE0 |
| UPC-E1 | - | √ | √ | (8) ² | D | JE0 |
| EAN-13 | √ | √ | √ | (13) ² | A | JE0 |
| EAN-8 | √ | √ | √ | (8) ² | C | JE4 |
| ISBN (Bookland EAN) | √ | √ | √ | (13) ² | B | JE0 |
| Code 39 | √ | - | - | 1 | M | JA0 |
| Interleaved 2 of 5 | √ | - | - | 6 | I | JI0 |
| Industrial 2 of 5 | - | - | - | 4 | H | JS0 |
| Matrix 2 of 5 | √ | - | - | 6 | X | JX0 |
| Codabar | √ | - | - | 4 | N | JF0 |
| Code 128 | √ | √ | - | 1 | K | JC0 |
| UCC/EAN 128 | √ | √ | - | 1 | K | JC1 |
| ISBT 128 | √ | √ | - | 1 | K | JC0 |
| Code 93 | √ | √ | - | 1 | L | JG0 |
| Code 11 | - | √ | - | 4 | V | JH3 |
| MSI/Plessey | - | - | - | 4 | O | JM1 |
| UK/Plessey | - | √ | - | 1 | U | JP0 |
| China Post | √ | - | - | (11) ² | T | JX0 |
| GS1 DataBar | √ | - | - | (16) ² | R | Je0 |
| GS1 DataBar Truncated ² | √ | - | - | (16) ² | R | Je0 |
| GS1 DataBar Limited | √ | - | - | (16) ² | R | Je0 |
| GS1 DataBar Expanded | √ | - | - | 1 | R | Je0 |

¹ Fixed-length barcodes.

² The settings for GS1 DataBar Truncated and GS1 DataBar must be the same.

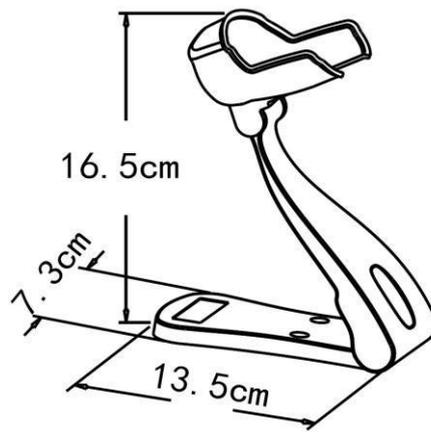
| | | | | | | |
|------------------|---|---|---|---|---|-----|
| PDF417 | √ | - | - | - | p | JL2 |
| MicroPDF417 | | | | | p | JL2 |
| DataMatrix | √ | - | - | - | d | Jd1 |
| QR code | √ | - | - | - | q | JQ1 |
| MicroQR Code | - | - | - | - | q | JQ1 |
| Han Xin Code | - | - | - | - | h | JX0 |
| Aztec Code | - | - | - | - | a | Jz0 |
| CodaBlock F Code | - | - | - | - | c | JO4 |

Note: ¹The settings for ISBN/ISSN and EAN-13 must be the same except the code ID.

2 Get started

2-1 Dimensions





2-2 Parts of the scanner

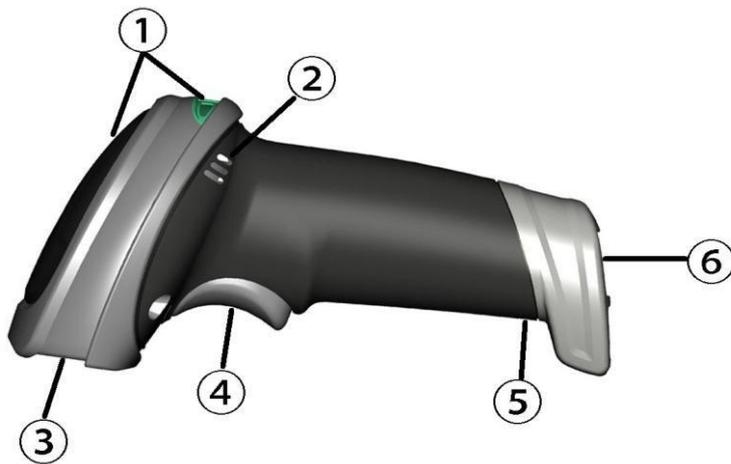


Figure 2-1

- ① LED
- ② Beeper
- ③ Scan window
- ④ Trigger
- ⑤ Release-hole of the cable
- ⑥ Cable interface port

2-3 Cable connector pin-outs descriptions

The scanner provides a RJ-45 cable connector.

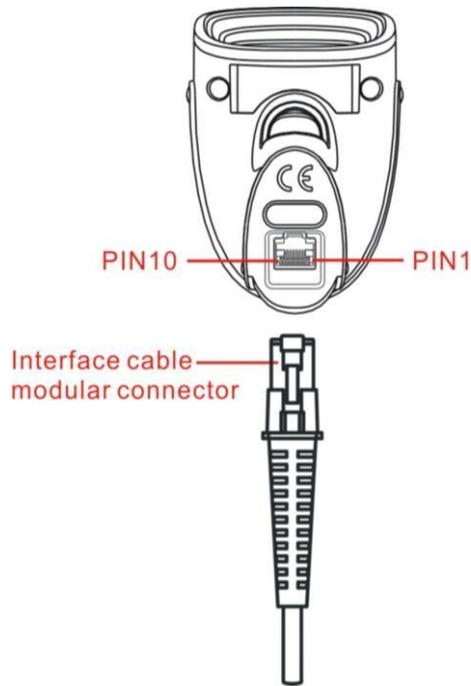


Figure 2-2 Cable connector interface pin-outs

The pin-outs descriptions in Table 2-1 apply to the cable connector on the scanner and are for reference only.

Table 2-1 Cable connector pin-outs descriptions

| Pin | RS232 | USB |
|-----|--------------------------------------------------|--------------------------------------------------|
| 1 | Power (+5V) | Power (+5V) |
| 2 | Reserved | Reserved |
| 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.

2-4 Installation and uninstallation of cable

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.

2-4-1 Installation - USB

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

1. Refer to Figure 2-3, connect the USB interface cable to the bottom of the scanner.
2. Plug the series A connector in the USB host, or an available port of the terminal.
3. Windows will automatically detect the USB device.

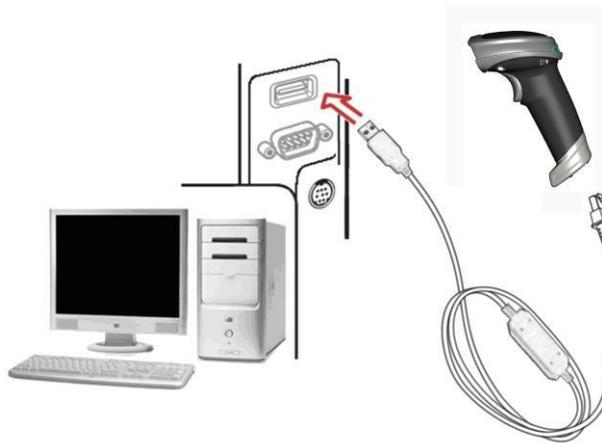


Figure 2-3

2-4-2 Installation - RS-232

1. Connect the RS-232 interface cable to the bottom of the scanner.
2. 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.
3. If the host does not have power supply (on PIN 9), connect the external power supply (DC adapter) to the RS-232 cable.

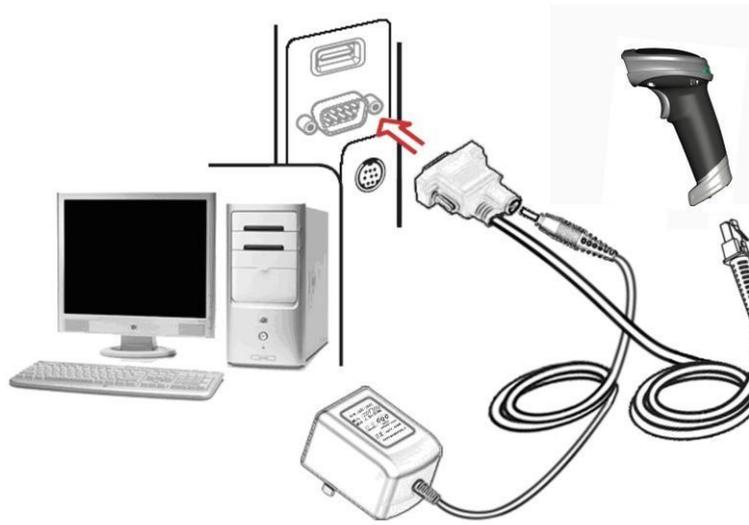


Figure 2-4

2-4-3

Uninstallation of cable

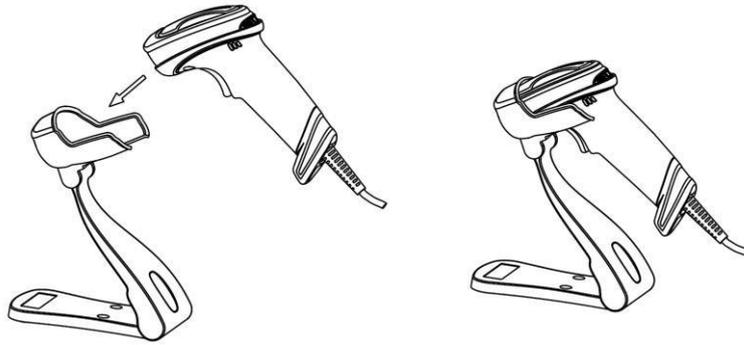


Figure 2-5

Remove the interface cable:

1. Find the release-hole.
2. Insert a thin wire into the hole and pull out the cable gently.

2-5 Assembling the stand



Note: The stand is an optional accessory.

2-6 Auto-detection

Note: The stand is an optional accessory.

1. To scan a bar code, present the bar code and ensure that the scan angle from the scan window can cover the symbol.
2. Upon successful decode, the scanner beeps and the LED lights.
3. When the scanner stops scanning, the present bar code must be removed to active next scanning.



Figure 2-6

The scanner offers 2 methods to enable/ disable Auto-detection quickly.

3 Programming

3-1 Example 1: Single-parameter setting by scanning 1D barcodes

Important notes:

1. During the process of programming, LED is lighting to indicate the programming correctness. LED will go off if any incorrect programming operation performed.
2. After each successful programming, LED will go off and the scanner will beep twice.
3. Throughout the programming barcode menus, the factory default settings are indicated with asterisks (*).

Two programming modes have been provided as bellows:

① Single-scan setting

- Scan the appropriate **Single-scan setting** (e.g. **%0101D00%**) according to the user's demand.

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

Steps: Scan the following barcode.

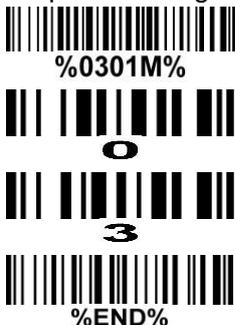


② Multiple-scan setting

- Step 1. Scan the **Option barcode** (e.g. **%0101M%**) according to the user's demand.
- Step 2. To the right of the option barcode, the necessary alphanumeric inputs are listed. Scan two alphanumeric entries from **0** to **9** or **A** to **F**, refer to [10 Configuration alphanumeric entry barcode](#).
- Step 3. Repeat Step 2, if more user parameters input are required.
- Step 4. Scan the **%END%** barcode, listed on the lower left hand corner of each parameter setting part.

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

Steps: Referring to [3-6 RS-232 interface](#), scan the following barcodes in order.

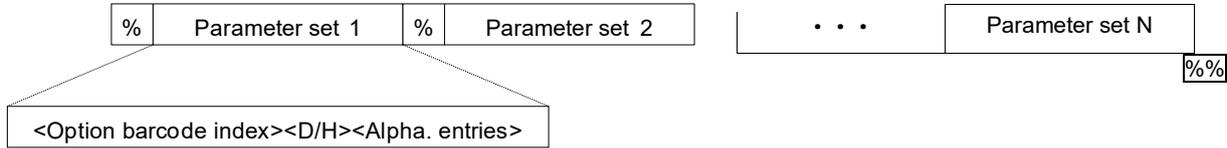


3-

2 Example 2: Multiple-parameter setting by scanning a QR code barcode

User can customize a QR code to set multiple parameters. The scanner can set multiple parameters by scanning this single QR code barcode.

1. The data format of the QR code barcode is as following.



Note that:

- <Option barcode index> means the corresponding 4 digits of Option barcode.
- <D/H> means “D” or “H” character. D means that the type of alphanumeric entry is decimal; and H means that the type of alphanumeric entry is hexadecimal.
- <Alpha. entries> is a character string with various length of 2, 4, or other values.

Example: Set 0401->03 (decimal); 8002->0D0A (hexadecimal); 8202->01 (decimal). The customized QR code barcode contents and symbol are as following.

`%0401D03%8002H0D0A%8202D01%`



2. Notes of making QR code barcode

The model is chosen as M2. Other requirements, e.g. ECC level, Start mode, etc, are not specified.

Other notes

- The contents of a QR code barcode can include several same <Option barcode index> associated with same or different <Alpha. entries>. In the case of with different <Alpha. entries>, the latest <Alpha. entries> is the valid one.

3-

- If any one of the parameter settings is invalid, the total setting is failed. The invalid setting can be caused by one of the following problems: invalid <Option barcode index>, invalid type of <D/H>, invalid type, length or value range of <Alpha. entries>, etc.

3 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 [3-6 USB interface](#).
- 3- Please read [3-7 Scan mode & some global settings](#) about the setting of **Scan 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: “0x16 0x54 0x0D”

When the scanner received the above command, it will start barcode scanning following the setting of **Scan mode**.

- 2) Stop command: “0x16 0x55 0x0D”

If the **Scan 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.

4 Interface selection

This scanner supports interfaces such as 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.

3-

Interface selection:

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

| Multiple-scan setting | | | Single-scan setting |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|----------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Interface selection  %0101M% | Auto detection (RS-232/USB) | 00* |  %0101D00% * |
| | RS232 | 01 |  %0101D01% |
| | USB | 02 |  %0101D02% |
|  %END% | | | |

3-5 RS-232 interface

Host type:

Standard- The scanner is connected to a standard RS-232 interface.

OPOS/JPOS- The scanner is connected to a POS terminal which may be necessary to install the OPOS/JPOS driver to be compatible with the manufacturer's scanner. The OPOS/JPOS driver is provided by the scanner manufacturer; please contact the scanner manufacturer for the instruction.

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: This delay is inserted after each data character transmitted.

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

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Host type  %0310M% | Standard | 00* |  %0310D00% * |
| | OPOS/JPOS | 01 |  %0310D01% |
| Flow control  %0301M% | None | 00* |  %0301D00% * |
| | RTS/CTS (Host idle: Low RTS) | 01 |  %0301D01% |
| | RTS/CTS (Host idle: High RTS) | 02 |  %0301D02% |
| | XON/XOFF | 03 |  %0301D03% |

| | | | |
|-----------------------------------------------------------------------------------------------------------------------|----------------|-------|------------------------------------------------------------------------------------------------------|
| | ACK/NAK | 04 |  %0301D04% |
| Inter-character delay  %0302M% | 0 ms | 00* |  %0302D00% * |
| | 5 ms | 01 |  %0302D01% |
| | 10 ms | 02 |  %0302D02% |
| | 20 ms | 03 |  %0302D03% |
| | 40 ms | 04 |  %0302D04% |
| | 80 ms | 05 |  %0302D05% |
| Response delay  %0304M% | 00-99 (100 ms) | 00-99 | |
| | | 00* |  %0304D00% * |
| Baud rate  %0305M% | 300 | 00 |  %0305D00% |
| | 600 | 01 |  %0305D01% |
| | 1200 | 02 |  %0305D02% |
| | 2400 | 03 |  %0305D03% |
| | 4800 | 04 |  %0305D04% |
| | 9600 | 05* |  %0305D05% * |

| Multiple-scan setting | | | Single-scan setting |
|------------------------------------------------------------------------------------------------------------|----------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| | 19200 | 06 |  %0305D06% |
| | 38400 | 07 |  %0305D07% |
| | 57600 | 08 |  %0305D08% |
| | 115200 | 09 |  %0305D09% |
|  Parity bit %0306M% | None | 00* |  %0306D00% * |
| | Odd | 01 |  %0306D01% |
| | Even | 02 |  %0306D02% |
|  Data bit %0307M% | 8 bits | 00* |  %0307D00% * |
| | 7 bits | 01 |  %0307D01% |
|  Stop bit %0308M% | One bit | 00* |  %0308D00% * |
| | Two bits | 01 |  %0308D01% |
|  %END% | | | |

3-6 USB interface

USB device type:

HID keyboard– By setting, the scanner is used as a USB HID keyboard emulation device.

HID keyboard for Apple Mac– By setting, the scanner is compatible with Apple Mac.

USB virtual COM– By setting, the scanner emulates 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 Type, the scanner automatically restarts.

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

HID for OPOS/JPOS- The scanner is connected to a POS terminal which may be necessary to install the OPOS/JPOS driver to be compatible with the manufacturer's scanner. The OPOS/JPOS driver is provided by the scanner manufacturer; please contact the scanner manufacturer for the instruction. Keyboard layout: The scanner supports different national keyboard layouts. Commonly an appropriate encoding system must be selected. Please refer to [Character encoding system](#) of [3-7 Scan mode & some global settings](#) for details.

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.

USB function code: It can support the output and prohibition of non-printable-characters, as well as the output and prohibition of function codes corresponding to non-printable-characters.

The host port polling interval: Refers to the time interval for host port polling. Through this setting, the user can change the host the polling interval to adapt to the requirements to the PC host.

| Multiple-scan setting | | | Single-scan setting |
|-------------------------------------------------------------------------------------------------------------------|----------------------------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| USB device type  %0901M% | HID keyboard | 00* |  %0901D00% * |
| | HID keyboard for Apple Mac | 01 |  %0901D01% |
| | USB virtual COM | 02 |  %0901D02% |
| | Simple COM Port Emulation | 03 |  %0901D03% |
| | HID for OPOS/JPOS | 04 |  %0901D04% |
| Keyboard layout  %0902M% | USA | 00* |  %0902D00% * |
| | Turkish F | 01 |  %0902D01% |

| | | |
|--------------|----|----------------------------------------------------------------------------------------------------|
| Turkish Q | 02 |  %0902D02% |
| French | 03 |  %0902D03% |
| Italian | 04 |  %0902D04% |
| Spanish | 05 |  %0902D05% |
| Slovak | 06 |  %0902D06% |
| Denmark | 07 |  %0902D07% |
| Japanese | 08 |  %0902D08% |
| German | 09 |  %0902D09% |
| Belgian | 10 |  %0902D10% |
| Russian | 11 |  %0902D11% |
| Czech | 12 |  %0902D12% |
| Thai | 13 |  %0902D13% |
| Hungary | 14 |  %0902D14% |
| Swiss German | 15 |  %0902D15% |

| Multiple-scan setting | | | Single-scan setting |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| | Portugal | 16 |  %0902D16% |
| | Ukraine | 17 |  %0902D17% |
| Character encoding system  %0413M% | Refer to 3-7 Scan mode & some global settings. | | |

| | | | |
|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------|
| Inter-character delay  %0903M% | 0 ms | 00 |  %0903D00% |
| | 5 ms | 01* |  %0903D01% * |
| | 10 ms | 02 |  %0903D02% |
| | 20 ms | 03 |  %0903D03% |
| | 40 ms | 04 |  %0903D04% |
| | 60 ms | 05 |  %0903D05% |
| Numeric key  %0904M% | Alphabetic key | 00* |  %0904D00% * |
| | Numeric keypad | 01 |  %0904D01% |
| | Alt + keypad | 02 |  %0904D02% |
| | GBK | 03 |  %0904D03% |
| | BIG5 | 04 |  %0904D04% |
| | THAI | 05 |  %0904D05% |
| USB function code  %0905M% | Output non-printing characters | 00 |  %0905D00% |
| | Output function codes corresponding to non-printable-characters. | 01* |  %0905D01% * |
| | Prohibition output of non-printable-character | 03 |  %0905D03% |
| The host port polling interval  %0906M% | 1 ms | 00 |  %0906D00% |
| | 2 ms | 01* |  %0906D01% * |
| Multiple-scan setting | | | Single-scan setting |
| Option barcode | Option | Alpha. entry | |
| | 5 ms | 02 |  %0906D02% |
| | 8 ms | 03 |  %0906D03% |
| Key value transmission mode | Discontinuous transmission | 00 |  %0907D00% |

| | | | |
|----------------------------------------------------------------------------------------------|-------------------------|-----|---------------------------------------------------------------------------------------------------|
|  %0907M% | Continuous transmission | 01* |  %0907D01%* |
|  %END% | | | |

3-7 Scan mode & some global settings

Scan 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.

Good-read on-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.

Auto-detection- Good-read on – By setting Enable, the scanner will start operating if any nearby object has been detected. The scanner stops scanning when no code is successful decoded after the

Stand-by duration elapsed. Once the scanner stops scanning, the present object must be removed to

enable **Auto-detection**.

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

Working mode of **Auto-detection**:

In stand- The scanner must be placed in the stand to enable **Auto-detection**. When the scanner is not in stand, the **Scan mode** will be **Momentary**. Note: This function is only valid when the **Scan mode** is **Auto-detection**.

Always ON- **Auto-detection** is always enabled regardless of the placement of the scanner. Note: This function is only valid when the **Scan mode** is **Auto-detection**.

Barcode detection: In image auto-induction mode, barcode detection means that the scanner detects an object similar to a barcode to trigger decoding, such as text, graphics, barcodes, and so on.

Barcode detection delay: The barcode detection delay means that the detection function is enabled when no object is detected within the set delay.

Same barcode delay time for 1D symbols: This feature is activated only when the **Scan mode** is in alternate or continuous mode. Once a 1D barcode has been scanned and output successfully, the optics module's lights must be off or moved away from the barcode beyond delay time to active a next scanning on the same barcode.

Same barcode delay time for 2D symbols: This feature is activated only when the **Scan mode** is in alternate or continuous mode. Once a 2D barcode has been scanned and output successfully, the optics module's lights must be off or moved away from the barcode beyond delay time to active a next scanning on the same barcode.

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 for 1D symbol: These two lengths are defined as the valid range of

22

decoded 1D 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 [3-39 G1-G6 & C1-C3 & FN1 substitution string setting](#) and [3-40 G1-G4 string position & Code ID 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, 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.

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.

Character encoding system: A character encoding system consists of a code that pairs each character from a given repertoire. Common examples include Morse code, the Baudot code, the ASCII and Unicode. If the data received does not display with the proper characters, it may be because the barcode being scanned was created using a character encoding system that is different from the one the host program is expecting. Try alternate options to find the proper one.

Complete data output before next decode attempt: This setting is active only when **USB device type** is set as "HID keyboard" or "HID keyboard for Apple Mac", refer to [3-6 USB interface](#). If it is enabled, the scanner will not start next decode attempt until previous data output is completed.

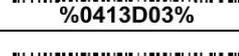
Sleep mode: If it is enabled, the scanner will go to sleep when no code is successful decoded after the **Sleep mode delay** elapsed.

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Scan mode  %0401M% | Good-read off | 00 |  %0401D00% |
| | Momentary | 01* |  %0401D01% * |
| | Good-read on | 04 |  %0401D04% |
| | Auto-detection- Good-read on | 06 |  %0401D06% |
| | Auto-detection- Good-read off | 07 |  %0401D07% |
| Working mode of Auto-detection  %0602M% | In stand | 00* |  %0602D00% * |
| | Always on | 01 |  %0602D01% |
| Barcode detection  %0604M% | Disable* | 00* |  %0604D00% * |
| | Enable | 01 |  %0604D01% |
| Barcode detection delay  %0606M% | Always detection | 00 |  %0606D00% |
| | 5 seconds | 01 |  %0606D01% |
| | 10 seconds | 02 |  %0606D02% |
| | 30 seconds | 03 |  %0606D03% |
| | 60 seconds | 04 |  %0606D04% |
| | Never detection | 05* |  %0606D05% * |
| Standby duration  %0402M% | 4 seconds | 00* |  %0402D00% * |
| | 8 seconds | 01 |  %0402D01% |
| | 16 seconds | 02 |  %0402D02% |
| | 24 seconds | 03 |  %0402D03% |

| | | |
|-------------|----|--------------------------------------------------------------------------------------------------|
| 30 seconds | 04 |  %0402D04% |
| 1 minute | 05 |  %0402D05% |
| 1.5 minutes | 06 |  %0402D06% |

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| | 2 minutes | 07 |  %0402D07% |
| | 5 minutes | 08 |  %0402D08% |
| | 7 minutes | 09 |  %0402D09% |
| | 10 minutes | 10 |  %0402D10% |
| | 15 minutes | 11 |  %0402D11% |
| | 20 minutes | 12 |  %0402D12% |
| | 30 minutes | 13 |  %0402D13% |
| | 45 minutes | 14 |  %0402D14% |
| | 1 hour | 15 |  %0402D15% |
| Same barcode delay time for 1D symbol  %0403M% | 00-FF ₁₆ (50 ms) | 00-FF ₁₆ | |
| | | 00 |  %0403H00% |
| | | 08* |  %0403H08% * |
| Same barcode delay time for 2D symbol  %0415M% | 00-FF ₁₆ (50 ms) | 00-FF ₁₆ | |
| | | 00 |  %0415H00% |
| | | 08* |  %0415H08% * |
| Double confirm  %0404M% | 00-09 (00: no) | 00-09 | |
| | | 00* |  %0404D00% * |
| Global max. code length for 1D symbol  %0405M% | 01-99 | 01-99 | |
| | | 99* |  %0405D99% * |

| | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-----------------------------------------------------------------------------------------------------------|
| Global min. code length for 1D symbol  %0406M% | 01-99 | 01-99 | |
| | | 04* |  %0406D04% * |
| Global G1-G6 string selection | 00-66 | 00-66 | |

| Multiple-scan setting | | | Single-scan setting |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|-------------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
|  %0407M% | | 00* |  %0407D00% * |
| Element amendment  %0408M% | Disable | 00 |  %0408D00% |
| | Enable | 01* |  %0408D01% * |
| Character output restraint  %0409M% | None | 00* |  %0409D00% * |
| | Printable character only | 01 |  %0409D01% |
| | Alphanumeric character only | 02 |  %0409D02% |
| Decoder optimization  %0410M% | Disable | 00 |  %0410D00% |
| | Enable | 01* |  %0410D01% * |
| Character encoding system  %0413M% | ASCII | 00* |  %0413D00% * |
| | UTF-8 | 01 |  %0413D01% |
| | Windows-1251 | 02 |  %0413D02% |
| | Simplified Chinese | 03 |  %0413D03% |
| | Traditional Chinese | 04 |  %0413D04% |
| | Windows-1250 | 05 |  %0413D05% |
| | KOI8R | 06 |  %0413D06% |
| | Japanese | 07 |  %0413D07% |

| | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|----------------------------------------------------------------------------------------------------|
| Complete data output before next decode attempt  %0414M% | Disable | 00 |  %0414D00% |
| | Enable | 01* |  %0414D01% * |
| Sleep mode  %0416M% | Disable | 00 |  %0416D00% |
| | Deep sleep | 01* |  %0416D01% * |
| | Idle mode | 02 |  %0416D02% |
| | Shallow sleep | 03 |  %0416D03% |
| Multiple-scan setting | | | Single-scan setting |
| Option barcode | Option | Alpha. entry | |
|  %END% | | | |

3-8 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.

Duration of successful decoding: 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.

Tone of beeper: This parameter can be adjusted for a favorite ring tone.

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Power on alert  %0501M% | Disable | 00 |  %0501D00% |
| | Enable | 01* |  %0501D01% * |
| LED indication  %0502M% | Disable | 00 |  %0502D00% |
| | Enable | 01* |  %0502D01% * |
| Beeper indication  %0503M% | Disable | 00 |  %0503D00% |
| | Enable | 01* |  %0503D01% * |
| Duration of successful decoding  %0504M% | 01-99 (10 ms) | 01-99 | |
| | | 05* |  %0504D05% * |
| Volume of beeper  %0505M% | Low | 00 |  %0505D00% |
| | Middle | 01 |  %0505D01% |
| | High | 02* |  %0505D02% * |
| Tone of beeper  %0506M% | Low | 00 |  %0506D00% |
| | Middle | 01 |  %0506D01% |
| | High | 02* |  %0506D02% * |


 %END%

3-9 Decode illumination and decode aiming pattern

Decode illumination mode: Enable illumination causes the scanner to turn on the illumination to aid decoding. Disable illumination to turn off illumination for the scanner during decoding. Better quality images could be obtained with illumination support. The effectiveness of the illumination decreases as the distance to the target increases.

Decode aiming pattern: When this option is enabled, the scanner will project the aiming pattern during the code capture.

Level of decode illumination: This parameter can be adjusted for different level of decode illumination.

Illumination mode of Auto-detection:

Always off- Illumination LED will be always turned off.

Enable illumination in low light conditions- In low light conditions, the scanner will turn on illumination LED automatically to ensure normal work. While in other light conditions, the illumination LED will be turned off automatically.

Always on- Illumination LED will be always turned on.

Note: This function is only valid in Auto-detection mode.

| Multiple-scan setting | | | Single-scan setting |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. Entry | |
| Decode illumination mode  %9001M% | Always Off | 00 |  %9001D00% |
| | Always On | 01 |  %9001D01% |
| | Flashing | 02 |  %9001D02% |
| | Always On when reading | 03* |  %9001D03% * |
| Decode aiming pattern  %9002M% | Always Off | 00 |  %9002D00% |
| | Always On | 01 |  %9002D01% |
| | On before reading | 02 |  %9002D02% |
| | On when reading | 03* |  %9002D03% * |
| Level of decode illumination  %9003M% | Low | 01 |  %9003D01% |
| | Middle | 02 |  %9003D02% |
| | High | 03* |  %9003D03% * |
| Illumination mode of Auto-detection  %0605M% | Always off | 00 |  %0605D00% |
| | Enable illumination in low light conditions | 01* |  %0605D01% * |
| | Always on | 02 |  %0605D02% |
|  %END% | | | |

3-10 Other settings

1D symbols read: A global setting of 1D symbols readability.

2D symbols read: A global setting of 2D symbols readability.

Vertical centering read: By setting Enable, the scanner reads only the barcode centered by the aimer in vertical direction. However, the scanner will read either one of two barcodes which are positioned horizontally. See example below.

Mobile screen read: By setting enable, the scanner can read barcodes on a mobile screen better.

However, this will slow the reading speed of normal barcodes a little bit.

| Multiple-scan setting | | | Single-scan setting |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| 1D symbols read  %1005M% | Follow respective 1D symbol setting | 00* |  %1005D00% * |
| | All 1D OFF | 01 |  %1005D01% |
| 2D symbols read  %1001M% | Follow respective 2D symbol setting | 00* |  %1001D00% * |
| | All 2D OFF | 01 |  %1001D01% |
| | All 2D ON | 02 |  %1001D02% |
| | Only PDF417 ON | 03 |  %1001D03% |
| | Only QR code ON | 04 |  %1001D04% |
| | Only Data Matrix ON | 05 |  %1001D05% |
| | Only MaxiCode ON | 06 |  %1001D06% |
| | Only Aztec Code ON | 07 |  %1001D07% |
| | Only Han Xin Code ON | 08 |  %1001D08% |
| Vertical centering read  %1004M% | Disable | 00* |  %1004D00% * |
| | Enable | 01 |  %1004D01% |
| Mobile screen read  %1007M% | Disable | 00 |  %1007D00% |
| | Enable | 01* |  %1007D01% * |
|  %END% | | | |

Note 1 : The instruction of calibrating the aimer in vertical centering direction

1. Scan the barcode on this page. The scanner will give three musical short beeps to indicate entering calibration mode.
2. Press the trigger of the scanner while maintaining the distance of about 15cm between the scan window of the scanner and this paper. After a few seconds, the scanner will give three short beeps to indicate a successful calibration, or a long beep to indicate a failed calibration.
3. If the calibration is failed in step 2, please repeat the steps 1-2. If it is not succeed after a multiple times of calibration, please contact your local dealer or the manufacturer for further instruction.



Note 2 : Scan barcode or send command to enter upgrade mode

| | |
|------------------------------------|---------------------------------------------------------------------------------------------------|
| Scan barcode to enter upgrade mode |  <p>%NMUGD</p> |
| Send command to enter upgrade mode | Send command 0x16 0x4D 0x0D 0x25 0x4E 0x4D 0x55 0x47 0x44 0x2E by USB virtual COM or RS232 COM. |

3-11 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 [3-41 String transmission](#).

Insertion group selection: Refer to **Global insertion group selection** of [3-7 Scan mode & 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.

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|---------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1101M% | Disable | 00 |  %1101D00% |
| | Enable | 01* |  %1101D01% * |
| Check digit verification  %1102M% | Disable | 00 |  %1102D00% |
| | Enable | 01* |  %1102D01% * |
| Check digit trans.  %1103M% | Disable | 00 |  %1103D00% |
| | Enable | 01* |  %1103D01% * |

| | | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|----------------------------------------------------------------------------------------------------|
| Code ID setting  %1104M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <A>* |  %1104H41% * |
| Insert group selection  %1105M% | 00-44 | 00-44 | |
| | | 00* |  %1105D00% |
| Supplement digits  %1106M% | None | 00* |  %1106D00% * |
| | 2 digits | 01 |  %1106D01% |
| | 5 digits | 02 |  %1106D02% |
| | 2 or 5 digits | 03 |  %1106D03% |
| Truncation/Expansion  %1107M% | None | 00* |  %1107D00% * |
| | Truncate leading zeros | 01 |  %1107D01% |
| | Expand to EAN-13 | 02 |  %1107D02% |
| | Truncate system character | 03 |  %1107D03% |
| | Add country code | 04 |  %1107D04% |


%END%

3-12 UPC-E

Read:

Format

| | | |
|----------------------|------------------------|-------------|
| System character "0" | Data digits (6 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 [3-11 UPC-A](#).

Insertion group selection: Refer to

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

 of [3-11 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 [3-11 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.

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1201M% | Disable | 00 |  %1201D00% |
| | Enable | 01* |  %1201D01% * |
| Check digit verification  %1202M% | Disable | 00 |  %1202D00% |
| | Enable | 01* |  %1202D01% * |
| Check digit trans.  %1203M% | Disable | 00 |  %1203D00% |
| | Enable | 01* |  %1203D01% * |
| Code ID setting  %1204M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <D>* |  %1204H44% * |

| | | | |
|------------------------------------------------------------------------------------------------------------------------|---------------------------|-------|----------------------------------------------------------------------------------------------------|
| Insert group selection  %1205M% | 00-44 | 00-44 | |
| | | 00* |  %1205D00% * |
| Supplement digits  %1206M% | None | 00* |  %1206D00% * |
| | 2 digits | 01 |  %1206D01% |
| | 5 digits | 02 |  %1206D02% |
| | 2 or 5 digits | 03 |  %1206D03% |
| Truncation/Expansion  %1207M% | None | 00* |  %1207D00% * |
| | Truncate leading zeros | 01 |  %1207D01% |
| | Expand to EAN-13 | 02 |  %1207D02% |
| | Expand to UPC-A | 03 |  %1207D03% |
| | Truncate system character | 04 |  %1207D04% |



3-13 UPC-E1

Read:

Format

| | | |
|----------------------|------------------------|-------------|
| System character "1" | Data digits (5 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 [3-11 UPC-A](#).

Insertion group selection: Refer to

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

 of [3-11 UPC-A](#).

Supplement digits:

Format

| | | | |
|----------------------|------------------------|-------------|--------------------------|
| System character "1" | Data digits (5 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 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 can be truncated when the feature is enabled.

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %3401M% | Disable | 00* |  %3401D00% * |
| | Enable | 01 |  %3401D01% |
| Check digit verification  %3402M% | Disable | 00 |  %3402D00% |
| | Enable | 01* |  %3402D01% * |
| Check digit trans.  %3403M% | Disable | 00 |  %3403D00% |
| | Enable | 01* |  %3403D01% * |
| Code ID setting  %3404M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <D>* |  %3404H44% * |
| Insert group selection  %3405M% | 00-44 | 00-44 | |
| | | 00* |  %3405D00% * |
| Supplement digits  %3406M% | None | 00* |  %3406D00% * |
| | 2 digits | 01 |  %3406D01% |
| | 5 digits | 02 |  %3406D02% |
| | 2 or 5 digits | 03 |  %3406D03% |
| Truncation/Expansion  %3407M% | None | 00* |  %3407D00% * |
| | Expand to EAN-13 | 02 |  %3407D02% |
| | Expand to UPC-A | 03 |  %3407D03% |
| | Truncate system character | 04 |  %3407D04% |
|  %END% | | | |

3-14 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 [3-11 UPC-A](#).

Insertion group selection: Refer to [Insertion group selection](#) of [3-11 UPC-A](#).

Supplement digits:

Format

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

ISBN/ISSN conversion: 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 [3-11 UPC-A](#).

| Multiple-scan setting | | | Single-scan setting |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1301M% | Disable | 00 |  %1301D00% |
| | Enable | 01* |  %1301D01% * |
| Check digit verification  %1302M% | Disable | 00 |  %1302D00% |
| | Enable | 01* |  %1302D01% * |
| Check digit transmission  %1303M% | Disable | 00 |  %1303D00% |
| | Enable | 01* |  %1303D01% * |
| EAN-13 code ID setting  %1304M% | 00-FF ₁₆ | 00-FF ₁₆ | |
| | (ASCII) | <A>* |  %1304H41% * |
| Insert group selection  %1305M% | 00-44 | 00-44 | |
| | | 00* |  %1305D00% * |
| Supplement digits  %1306M% | None | 00* |  %1306D00% * |
| | 2 digits | 01 |  %1306D01% |
| | 5 digits | 02 |  %1306D02% |
| | 2 or 5 digits | 03 |  %1306D03% |
| ISBN/ISSN conversion  %1307M% | Disable | 00* |  %1307D00% * |
| | Enable | 01 |  %1307D01% |
| ISBN/ISSN code ID setting  %1309M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | * |  %1309H42% * |



3-15 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 3-11 UPC-A.

Insertion group selection: Refer to

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

 of 3-11 UPC-A.

Supplement digits:

Format

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

Truncation/Expansion: Refer to

| |
|----------------------|
| Truncation/Expansion |
|----------------------|

 of 3-11 UPC-A.

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1401M% | Disable | 00 |  %1401D00% |
| | Enable | 01* |  %1401D01% * |
| Check digit verification  %1402M% | Disable | 00 |  %1402D00% |
| | Enable | 01* |  %1402D01% * |
| Check digit trans.  %1403M% | Disable | 00 |  %1403D00% |
| | Enable | 01* |  %1403D01% * |
| Code ID setting  %1404M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <C>* |  %1404H42% * |
| Insert group selection  %1405M% | 00-44 | 00-44 | |
| | | 00* |  %1405D00% * |
| Supplement digits  %1406M% | None | 00* |  %1406D00% * |
| | 2 digits | 01 |  %1406D01% |
| | 5 digits | 02 |  %1406D02% |
| | 2 or 5 digits | 03 |  %1406D03% |
| Truncation/Expansion  %1407M% | None | 00* |  %1407D00% * |
| | Truncate leading zero | 01 |  %1407D01% |
| | Expand to EAN-13 | 02 |  %1407D02% |
|  %END% | | | |

3-16 Code 39 (Code 32, Trioptic Code 39)

Read:

Format

| | | | |
|---------------------|------------------------|------------------------|-------------------|
| Start character (*) | Data digits (variable) | Check digit (optional) | End character (*) |
|---------------------|------------------------|------------------------|-------------------|

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 3-11 UPC-A.

Insertion group selection: Refer to Insertion group selection of 3-11 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

| | | |
|----------------------|------------------------|--------------------|
| Start character (\$) | Data digits (6 digits) | End character (\$) |
|----------------------|------------------------|--------------------|

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.

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|---------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1501M% | Disable | 00 |  %1501D00% |
| | Enable | 01* |  %1501D01% * |
| Check digit verification  %1502M% | Disable | 00* |  %1502D00% * |
| | Enable | 01 |  %1502D01% |
| Check digit transmission  %1503M% | Disable | 00* |  %1503D00% * |
| | Enable | 01 |  %1503D01% |

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. code length  %1504M% | 00-99 | 00-99 | |
| | | 99* |  %1504D99% * |
| Min. code length  %1505M% | 00-99 | 00-99 | |
| | | 01* |  %1505D01% * |
| Code ID setting  %1506M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <M>* |  %1506H4D% * |
| Insert group selection  %1507M% | 00-44 | 00-44 | |
| | | 00* |  %1507D00% * |
| Format  %1508M% | Standard | 00* |  %1508D00% * |
| | Full ASCII | 01 |  %1508D01% |
| Start/End transmission  %1509M% | Disable | 00* |  %1509D00% * |
| | Enable | 01 |  %1509D01% |
| "*" as data character  %1510M% | Disable | 00* |  %1510D00% * |
| | Enable | 01 |  %1510D01% |
| Convert Code 39 to Code 32 | Disable | 00* |  %1511D00% * |
| Multiple-scan setting | | | Single-scan setting |
| Option barcode | Option | Alpha. entry | |
|  %1511M% | Enable | 01 |  %1511D01% |
| Code 32 Prefix "A" transmission  %1512M% | Disable | 00* |  %1512D00% * |
| | Enable | 01 |  %1512D01% |
| Trioptic Code 39 read  %1513M% | Disable | 00* |  %1513D00% * |
| | Enable | 01 |  %1513D01% |

| | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|----------------------------------------------------------------------------------------------------|
| Trioptic Code 39 Start/End transmission  %1514M% | Disable | 00* |  %1514D00% * |
| | Enable | 01 |  %1514D01% |


%END%

3-17 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 [3-16 Code 39](#).

Code ID setting: Refer to [Code ID setting](#) of [3-11 UPC-A](#).

Insertion group selection: Refer to [insertion group selection](#) of [3-11 UPC-A](#).

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1601M% | Disable | 00 |  %1601D00% |
| | Enable | 01* |  %1601D01% * |
| Check digit verification  %1602M% | Disable | 00* |  %1602D00% * |
| | USS | 01 |  %1602D01% |
| | OPCC | 02 |  %1602D02% |
| Check digit transmission  %1603M% | Disable | 00* |  %1603D00% * |
| | Enable | 01 |  %1603D01% |
| Max. code length  %1604M% | 00-99 | 00-99 | |
| | | 99* |  %1604D99% * |
| Min. code length  %1605M% | 00-99 | 00-99 | |
| | | 06* |  %1605D06% * |
| Code ID setting  %1606M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | < >* |  %1606H49% * |
| Insert group selection  %1607M% | 00-44 | 00-44 | |
| | | 00* |  %1607D00% * |
|  %END% | | | |

3-18 Industrial 2 of 5 (Discrete 2 of 5)

Read:

Format

Data digits (variable) Max./Min.

code length: Refer to Max./Min. code length of [3-16 Code 39](#).

Code ID setting: Refer to [Code ID setting of 3-11 UPC-A](#).

Insertion group selection: Refer to [insertion group selection of 3-11 UPC-A](#).

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1701M% | Disable | 00* |  %1701D00% * |
| | Enable | 01 |  %1701D01% |
| Max. code length  %1702M% | 00-99 | 00-99 | |
| | | 99* |  %1702D99% * |
| Min. code length  %1703M% | 00-99 | 00-99 | |
| | | 04* |  %1703D04% * |
| Code ID setting  %1704M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <H>* |  %1704H48% * |
| Insert group selection  %1705M% | 00-44 | 00-44 | |
| | | 00* |  %1705D00% * |
|  %END% | | | |

3-19 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: Max./Min. code length of 3 Refer to -16 Code 39.

Code ID setting: Refer to A.

Insertion group selection: Code ID setting of 3-11 UPC of 3-11 UPC-A.

| | |
|----------|---------------------------|
| Refer to | Insertion group selection |
|----------|---------------------------|

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1801M% | Disable | 00 |  %1801D00% |
| | Enable | 01* |  %1801D01% * |
| Check digit verification  %1802M% | Disable | 00* |  %1802D00% * |
| | Enable | 01 |  %1802D01% |
| Check digit transmission  %1803M% | Disable | 00* |  %1803D00% * |
| | Enable | 01 |  %1803D01% |
| Max. code length  %1804M% | 00-99 | 00-99 | |
| | | 99* |  %1804D99% * |
| Min. code length  %1805M% | 00-99 | 00-99 | |
| | | 06* |  %1805D06% * |
| Code ID setting  %1806M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <X>* |  %1806H58% * |
| Insert group selection  %1807M% | 00-44 | 00-44 | |
| | | 00* |  %1807D00% * |



%END%

3-20 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: Max./Min. code length of 3 Refer to -16 Code 39.

Code ID setting: Refer to A.

Code ID setting of 3-11 UPC

Insertion group selection: of 3-11 UPC-A.

Start/End type: Codabar Refer to Insertion group selection 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 3-16 Code 39.

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

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %1901M% | Disable | 00 |  %1901D00% |
| | Enable | 01* |  %1901D01% * |
| Check digit verification  %1902M% | Disable | 00* |  %1902D00% * |
| | Enable | 01 |  %1902D01% |
| Check digit transmission  %1903M% | Disable | 00* |  %1903D00% * |
| | Enable | 01 |  %1903D01% |
| Max. code length  %1904M% | 00-99 | 00-99 | |
| | | 99* |  %1904D99% * |
| Min. code length  %1905M% | 00-99 | 00-99 | |
| | | 04* |  %1905D04% * |
| Code ID setting  | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |

| | | | |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-------------------------------------------------------------------------------------------------------------|
| %1906M% | | <N>* |  %1906H4E% * |
| Multiple-scan setting | | | Single-scan setting |
| Option barcode | Option | Alpha. entry | |
| Insert group selection  %1907M% | 00-44 | 00-44 | |
| | | 00* |  %1907D00% * |
| Start/End type  %1908M% | ABCD/ABCD | 00* |  %1908D00% * |
| | abcd/abcd | 01 |  %1908D01% |
| | ABCD/TN*E | 02 |  %1908D02% |
| | abcd/tn*e | 03 |  %1908D03% |
| Start/End transmission  %1909M% | Disable | 00* |  %1909D00% * |
| | Enable | 01 |  %1909D01% |
| Start/End character equality  %1910M% | Disable | 00* |  %1910D00% * |
| | Enable | 01 |  %1910D01% |
|  %END% | | | |

3-21 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: Max./Min. code length of 3 Refer to -16 Code 39.

Code ID setting: Refer to Code ID setting of 3-11 UPC-A.

Insertion group selection: Code ID setting of 3-11 UPC of 3-11 UPC-A.

Truncate leading zeros: Refer to Insertion group selection The leading "0" digits of Code 128 barcode characters can be truncated when the feature is enabled.

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2001M% | Disable | 00 |  %2001D00% |
| | Enable | 01* |  %2001D01% * |
| Check digit verification  %2002M% | Disable | 00 |  %2002D00% |
| | Enable | 01* |  %2002D01% * |
| Check digit transmission  %2003M% | Disable | 00* |  %2003D00% * |
| | Reserved | 01 |  %2003D01% |
| Max. code length  %2004M% | 00-99 | 00-99 | |
| | | 99* |  %2004D99% * |
| Min. code length  %2005M% | 00-99 | 00-99 | |
| | | 01* |  %2005D01% * |
| Code ID setting  %2006M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <K>* |  %2006H4B% * |
| Insert group selection  %2007M% | 00-44 | 00-44 | |
| | | 00* |  %2007D00% * |
| Truncate leading zeros  %2008M% | Disable | 00* |  %2008D00% * |
| | All leading "0"s | 01 |  %2008D01% |
| | Only the first "0" | 02 |  %2008D02% |
|  %END% | | | |

3-22 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 [3-16 Code 39](#).

Code ID setting: Refer to [Code ID setting](#) of [3-11 UPC-A](#).

Insertion group selection: Refer to [Insertion group selection](#) of [3-11 UPC-A](#).

Truncate leading zeros: Refer to [Truncate leading zeros](#) of [3-23 Code 128](#).

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2501M% | Disable | 00 |  %2501D00% |
| | Enable | 01* |  %2501D01% * |
| Check digit verification  %2502M% | Disable | 00 |  %2502D00% |
| | Enable | 01* |  %2502D01% * |
| Check digit transmission  %2503M% | Disable | 00* |  %2503D00% * |
| | Reserved | 01 |  %2503D01% |
| Max. code length  %2504M% | 00-99 | 00-99 | |
| | | 99* |  %2504D99% * |
| Min. code length  %2505M% | 00-99 | 00-99 | |
| | | 01* |  %2505D01% * |
| Code ID setting  %2506M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <K>* |  %2506H4B% * |
| Insert group selection  %2507M% | 00-44 | 00-44 | |
| | | 00* |  %2507D00% * |
| Truncate leading zeros  %2508M% | Disable | 00* |  %2508D00% * |
| | All leading "0"s | 01 |  %2508D01% |
| | Only the first "0" | 02 |  %2508D02% |
|  %END% | | | |

3-23 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: Max./Min. code length of 3 Refer to -16 Code 39.

Code ID setting: Refer to Code ID setting of 3-11 UPC-A.

Insertion group selection: Refer to Insertion group selection of 3-11 UPC-A.

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %3301M% | Disable | 00 |  %3301D00% |
| | Enable | 01* |  %3301D01% * |
| Check digit verification  %3302M% | Disable | 00 |  %3302D00% |
| | Enable | 01* |  %3302D01% * |
| Check digit transmission  %3303M% | Disable | 00* |  %3303D00% * |
| | Reserved | 01 |  %3303D01% |
| Max. code length  %3304M% | 00-99 | 00-99 | |
| | | 99* |  %3304D99% * |
| Min. code length  %3305M% | 00-99 | 00-99 | |
| | | 01* |  %3305D01% * |
| Code ID setting  %3306M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <K>* |  %3306H4B% * |
| Insert group selection  %3307M% | 00-44 | 00-44 | |
| | | 00* |  %3307D00% * |



3-24 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: Max./Min. code length of 3 Refer to -16 Code 39.

Code ID setting: Refer to Code ID setting of 3-11 UPC-A.

Insertion group selection: Refer to Insertion group selection of 3-11 UPC-A.

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2101M% | Disable | 00 |  %2101D00% |
| | Enable | 01* |  %2101D01% * |
| Check digit verification  %2102M% | Disable | 00 |  %2102D00% |
| | Enable | 01* |  %2102D01% * |
| Check digit transmission  %2103M% | Disable | 00* |  %2103D00% * |
| | Enable | 01 |  %2103D01% |
| Max. code length  %2104M% | 00-99 | 00-99 | |
| | | 99* |  %2104D99% * |
| Min. code length  %2105M% | 00-99 | 00-99 | |
| | | 01* |  %2105D01% * |
| Code ID setting  %2106M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <L>* |  %2106H4C% * |
| Insert group selection  %2107M% | 00-44 | 00-44 | |
| | | 00* |  %2107D00% * |



%END%

3-25 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:

| |
|-----------------------|
| Max./Min. code length |
|-----------------------|

 of 3 Refer to [-16 Code 39](#).

Code ID setting: Refer to

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

 of [3-11 UPC](#).

Insertion group selection:

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

 of [3-11 UPC-A](#).

Refer to

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

| Multiple-scan setting | | | Single-scan setting |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2201M% | Disable | 00* |  %2201D00% * |
| | Enable | 01 |  %2201D01% |
| Check digit verification  %2202M% | Disable | 00 |  %2202D00% |
| | One digit | 01* |  %2202D01% * |
| | Reserved | 02 |  %2202D02% |
| | Reserved | 03 |  %2202D03% |
| Check digit transmission  %2203M% | Disable | 00* |  %2203D00% * |
| | Enable | 01 |  %2203D01% |
| Max. code length  %2204M% | 00-99 | 00-99 | |
| | | 99* |  %2204D99% * |
| Min. code length  %2205M% | 00-99 | 00-99 | |
| | | 04* |  %2205D04% * |
| Code ID setting  %2206M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <V>* |  %2206H56% * |
| Insert group selection  %2207M% | 00-44 | 00-44 | |
| | | 00* |  %2207D00% * |
|  %END% | | | |

3-26 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. Mod 10, Mod 10/10 and Mod 10/11. 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:

| |
|-----------------------|
| Max./Min. code length |
|-----------------------|

 of 3 Refer to [-16 Code 39](#).

Code ID setting: Refer to

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

 of [3-11 UPC](#).

Insertion group selection:

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

 of [3-11 UPC-A](#).

Refer to

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

| Multiple-scan setting | | | Single-scan setting |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2301M% | Disable | 00* |  %2301D00% * |
| | Enable | 01 |  %2301D01% |
| Check digit verification  %2302M% | Disable | 00* |  %2302D00% * |
| | 1 digit (Mod 10) | 01 |  %2302D01% |
| | 2 digit (Mod 10/10) | 02 |  %2302D02% |
| | 2 digit (Mod 10/11) | 03 |  %2302D03% |
| Check digit transmission  %2303M% | Disable | 00* |  %2303D00% * |
| | Enable | 01 |  %2303D01% |
| Max. code length  %2304M% | 00-99 | 00-99 | |
| | | 99* |  %2304D99% * |
| Min. code length  %2305M% | 00-99 | 00-99 | |
| | | 04* |  %2305D04% * |
| Code ID setting  %2306M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <O>* |  %2306H4F% * |
| Insert group selection  %2307M% | 00-44 | 00-44 | |
| | | 00* |  %2307D00% * |
|  %END% | | | |

3-27 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: Max./Min. code length of 3 Refer to -16 Code 39.

Code ID setting: Refer to Code ID setting of 3-11 UPC-A.

Insertion group selection: Refer to Insertion group selection of 3-11 UPC-A.

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2401M% | Disable | 00* |  %2401D00% * |
| | Enable | 01 |  %2401D01% |
| Check digit verification  %2402M% | Disable | 00 |  %2402D00% |
| | Enable | 01* |  %2402D01% * |
| Check digit transmission  %2403M% | Disable | 00* |  %2403D00% * |
| | Enable | 01 |  %2403D01% |
| Max. code length  %2404M% | 00-99 | 00-99 | |
| | | 99* |  %2404D99% * |
| Min. code length  %2405M% | 00-99 | 00-99 | |
| | | 01* |  %2405D01% * |
| Code ID setting  %2406M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <U>* |  %2406H55% * |
| Insert group selection  %2407M% | 00-44 | 00-44 | |
| | | 00* |  %2407D00% * |



3-28 China Post

Read:

Format

11 Data digits

Max. /Min. code length: Refer to **3-16 Code 39**. The code length of China Post is 11.

Max./Min. code length of

Code ID setting: Refer to

Code ID setting of **3-11 UPC-A**.

Insertion group selection: of **3-11 UPC-A**.

Refer to Insertion group selection

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2601M% | Disable | 00 |  %2601D00% |
| | Enable | 01* |  %2601D01% * |
| Max. code length  %2604M% | 00-99 | 00-99 | |
| | | 11* |  %2604D11% * |
| Min. code length  %2605M% | 00-99 | 00-99 | |
| | | 11* |  %2605D11% * |
| Code ID setting  %2606M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <T>* |  %2606H54% * |
| Insert group selection  %2607M% | 00-44 | 00-44 | |
| | | 00* |  %2607D00% * |
|  %END% | | | |

3-29 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



Code ID setting: Refer to Code ID setting of [3-11 UPC-A](#). [3-11 UPC-A](#)

Insertion group selection: Insertion group selection of

UCC/EAN 128- Refer to Code ID transmission of [3-41 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.

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2701M% | Disable | 00 |  %2701D00% |
| | Enable | 01* |  %2701D01% * |
| Code ID setting  %2702M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <R>* |  %2702H52% * |
| Insert group selection  %2703M% | 00-44 | 00-44 | |
| | | 00* |  %2703D00% * |
| Conversion  %2704M% | None | 00* |  %2704D00% * |
| | UCC/EAN 128 | 01 |  %2704D01% |
| | UPC-A or EAN-13 | 02 |  %2704D02% |



3-30 GS1 DataBar Limited

Read:

Format

16 Data digits

Code ID setting: Refer to Code ID setting of [3-11 UPC-A](#).

Insertion group selection: Refer to Insertion group selection of [3-11 UPC-A](#).

Conversion: Refer to Conversion of [3-29 GS1 DataBar \(GS1 DataBar Truncated\)](#).

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2801M% | Disable | 00 |  %2801D00% |
| | Enable | 01* |  %2801D01% * |
| Code ID setting  %2802M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <R>* |  %2802H52% * |
| Insert group selection  %2803M% | 00-44 | 00-44 | |
| | | 00* |  %2803D00% * |
| Conversion  %2804M% | None | 00* |  %2804D00% * |
| | UCC/EAN 128 | 01 |  %2804D01% |
| | UPC-A or EAN-13 | 02 |  %2804D02% |
|  %END% | | | |

3-31 GS1 DataBar Expanded

Read:

Format

Data characters (variable)

Code ID setting: Refer to

Code ID setting of 3-11 UPC-A.

Insertion group selection:

11 UPC-A.

Conversion:

Refer to Insertion group selection of 3-

UCC/EAN 128- Refer to Code ID transmission of 3-41 String transmission,]Cm will be identified as AIM ID.

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %2901M% | Disable | 00 |  %2901D00% |
| | Enable | 01* |  %2901D01% * |
| Max. code length  %2902M% | 00-99 | 00-99 | |
| | | 99* |  %2902D99% * |
| Min. code length  %2903M% | 00-99 | 00-99 | |
| | | 01* |  %2903D01% * |
| Code ID setting  %2904M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <R>* |  %2904H52% * |
| Insert group selection  %2905M% | 00-44 | 00-44 | |
| | | 00* |  %2905D00% * |
| Conversion  %2906M% | None | 00* |  %2906D00% * |
| | UCC/EAN 128 | 01 |  %2906D01% |
|  %END% | | | |

3-32 PDF417

Read:

Format

Data characters
(variable)

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-------------------------------------------------------------------------------------------------------|
| Option bar code | Option | Alpha. entry | |
| Read  %3001M% | Disable | 00 |  %3001D00% |
| | Enable | 01* |  %3001D01% * |
| Maximum code word length  %3005M% | 0001-9999 | 0001-9999 | |
| | | 9999* |  %3005D9999% * |
| Minimum code word length  %3006M% | 0001-9999 | 0001-9999 | |
| | | 0001* |  %3006D0001% * |
|  %END% | | | |

3-33 MicroPDF417 Code

Read:

Format

Data characters
(variable)

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|-----------|--------------|------------------------------------------------------------------------------------------------------|
| Option bar code | Option | Alpha. entry | |
| Read  %3101M% | Disable | 00* |  %3101D00% * |
| | Enable | 01 |  %3101D01% |
| Maximum code word length  %3105M% | 0001-9999 | 0001-9999 | |
| | | 9999* |  %3105D9999% * |
| Minimum code word length  %3106M% | 0001-9999 | 0001-9999 | |
| | | 0001* |  %3106D0001% * |
|  %END% | | | |

3-34 QR Code

Read:

Format

Data characters
(variable)

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|-----------|--------------|--------------------------------------------------------------------------------------------------------|
| Option bar code | Option | Alpha. entry | |
| Read  %4001M% | Disable | 00 |  %4001D00% |
| | Enable | 01* |  %4001D01% * |
| Maximum code word length  %4004M% | 0001-9999 | 0001-9999 | |
| | | 9999* |  %4004D9999% * |
| Minimum code word length  %4005M% | 0001-9999 | 0001-9999 | |
| | | 0001* |  %4005D0001% * |
|  %END% | | | |

3-35 MicroQR Code

Note: The support for this feature is available with customized firmware version.

Read:

Format

Data digits (variable)

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|-----------|--------------|--------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %4501M% | Disable | 00* |  %4501D00% * |
| | Enable | 01 |  %4501D01% |
| Maximum code word length  %4503M% | 0001-9999 | 0001-9999 | |
| | | 9999* |  %4503D9999% * |
| Minimum code word length  %4504M% | 0001-9999 | 0001-9999 | |
| | | 0001* |  %4504D0001% * |
|  %END% | | | |

3-36 Data Matrix

Read:

Format

Code ID setting: Refer to

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|--------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %4101M% | Disable | 00 |  %4101D00% |
| | Enable | 01* |  %4101D01% * |
| Code ID setting  %4102M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <d>* |  %4102H64% * |
| Maximum code word length  %4103M% | 0001-9999 | 0001-9999 | |
| | | 9999* |  %4103D9999% * |
| Minimum code word length  %4104M% | 0001-9999 | 0001-9999 | |
| | | 0001* |  %4104D0001% * |
| Minimum code word length  %4104M% | | | 0001-9999 |
| | | | 0001* * |

3-41 Aztec Code

Read:

Format

Data characters (variable)

| Multiple-scan setting | | | Single-scan setting |
|---------------------------------------------------------------------------------------------------------------------------|-----------|--------------|--------------------------------------------------------------------------------------------------------|
| Option bar code | Option | Alpha. entry | |
| Read  %4301M% | Disable | 00* |  %4301D00% * |
| | Enable | 01 |  %4301D01% |
| Maximum code word length  %4303M% | 0001-9999 | 0001-9999 |  %4303D9999% * |
| | | 9999* | |
| Minimum code word length  %4304M% | 0001-9999 | 0001-9999 |  %4304D0001% * |
| | | 0001* | |
|  %END% | | | |

3-37 Han Xin Code

Read:

Format

Code ID setting: Refer to |

| Multiple-scan setting | | | Single-scan setting |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|--------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %4201M% | Disable | 00* |  %4201D00% * |
| | Enable | 01 |  %4201D01% |
| Code ID setting  %4202M% | 00-FF ₁₆ (ASCII) | 00-FF ₁₆ | |
| | | <h>* |  %4202H68% * |
| Maximum code word length  %4203M% | 0001-9999 | 0001-9999 | |
| | | 9999* |  %4203D9999% * |
| Minimum code word length  %4204M% | 0001-9999 | 0001-9999 | |
| | | 0001* |  %4204D0001% * |
|  %END% | | | |

3-38 MaxiCode

Read:

Format

Data digits (variable)

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Read  %4401M% | Disable | 00* |  %4401D00% * |
| | Enable | 01 |  %4401D01% |
| Maximum code word length  %4402M% | 0001-9999 | 0001-9999 | |
| | | 9999* |  %4402D9999% * |
| Minimum code word length  %4403M% | 0001-9999 | 0001-9999 | |
| | | 0001* |  %4403D0001% * |
|  %END% | | | |

3-39 G1-G6 & C1-C3 & 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/Preamble/Postamble string setting:

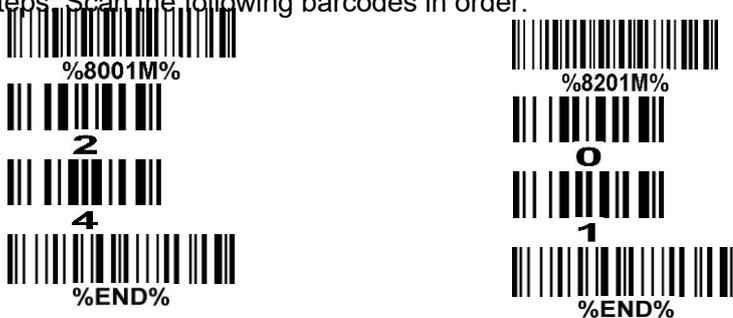
They are appended to the data automatically when a barcode is decoded.

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

Steps:

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

Scanning steps: Scan the following barcodes in order.



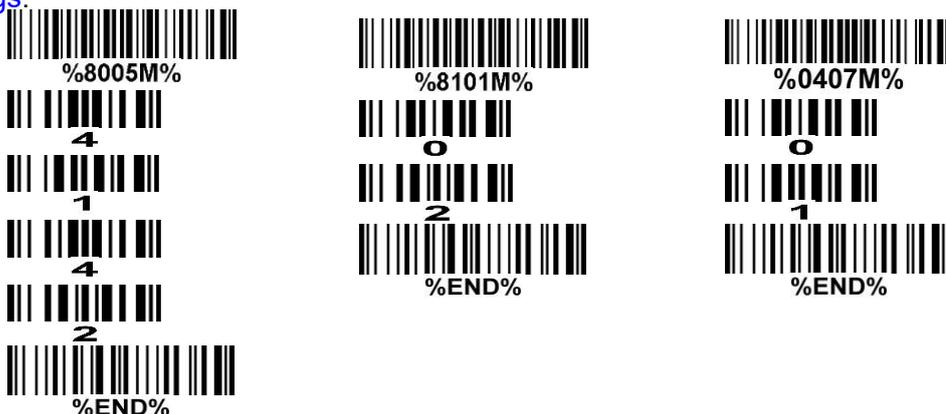
Insert G1/G2/G3/G4 string setting: The scanner offers 4 positions and 4 character strings to insert among the symbol.

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 the option barcode of Insert G1 string setting.
- 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 last page.
- 4) Scan END barcode.
- 5) Refer to [3-40 G1-G4 string position & Code ID position](#). 6) Refer to [3-7 Scan mode & 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.



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".

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 can be applied simultaneously.

Example: Replace all the "A" character in a data string with "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.



%8014M%



4



1



4



2



%END%

Testing barcode:



123A5A

Multiple characters C3 replacement: By setting, a number of defined characters in the data string can be replaced by other defined characters. The maximum number of characters to replace is 11.

Example: Replace all the “A” character in a data string with “B” character; replace “C” with “D”; replace “E” with “F”.

| | |
|--------------------|-------------------------|
| Original code data | “1 2 3 A 4 C 5 6 E 7 8” |
| Output code data | “1 2 3 B 4 D 5 6 F 7 8” |

Steps: scan the following barcodes in order. The ASCII value for “A” is 41, for “B” is 42, for “C” is 43, for “D” is “44”, for “E” is 45, and for “F” is 46.



%8016M%



4



1



4



2



4



3



4



4



4



5



4



6



%END%

Testing barcode:



123A4C56E78

| Multiple-scan setting | | | Single-scan setting |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. Entry | |
| Prefix string setting  %8001M% | 0-22 characters | 00-FF ₁₆ |  %8001H00% * |
| | None | 00* | |
| Suffix string setting  %8002M% | 0-22 characters | 00-FF ₁₆ | |
| | <ENTER> | 0D0A* | |
| Preamble string setting  %8003M% | 0-22 characters | 00-FF ₁₆ |  %8003H00% * |
| | None | 00* | |
| Postamble string setting  %8004M% | 0-22 characters | 00-FF ₁₆ |  %8004H00% * |
| | None | 00* | |
| Insert G1 string setting  %8005M% | 0-22 characters | 00-FF ₁₆ |  %8005H00% * |
| | None | 00* | |
| Insert G2 string setting  %8006M% | 0-22 characters | 00-FF ₁₆ |  %8006H00% * |
| | None | 00* | |
| Insert G3 string setting  %8007M% | 0-22 characters | 00-FF ₁₆ |  %8007H00% * |
| | None | 00* | |
| Insert G4 string setting  %8008M% | 0-22 characters | 00-FF ₁₆ |  %8008H00% * |
| | None | 00* | |
| FN1 substitution string setting  %8009M% | 0-4 characters | 00-FF ₁₆ |  %8009H20% * |
| | <SP> | 20* | |

| | | | |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|------------------------------------------------------------------------------------------------------|
| Truncate leading G5 string setting  %8010M% | A un-defined character | 00 |  %8010H00% |
| | 1-22 defined characters | 01-7F ₁₆ | |
| | <0> | 30* |  %8010H30% * |
| Multiple-scan setting | | | Single-scan setting |
| Option barcode | Option | Alpha. Entry | |
| Repeat of a G5 character setting  %8011M% | Once | 01* |  %8011H01% * |
| | Defined times | 01-22 | |
| | Un-defined times (All) | FF |  %8011HFF% |
| Truncate ending G6 string setting  %8012M% | A un-defined character | 00 |  %8012H00% |
| | 1-22 defined characters | 01-7F ₁₆ | |
| | <0> | 30* |  %8012H30% * |
| Repeat of a G6 character setting  %8013M% | Once | 01* |  %8013H01% * |
| | Defined times | 01-22 | |
| | Un-defined times (All) | FF |  %8013HFF% |
| Single character C1 replacement  %8014M% | <0000> | 0000* | |
| | | 0000-FFFF ₁₆ | |
| Single character C2 replacement  %8015M% | <0000> | 0000* | |
| | | 0000-FFFF ₁₆ | |
| Multiple characters C3 replacement  %8016M% | - | 0000* | |
| | | - | |



3-40 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.

| Multiple-scan setting | | | Single-scan setting |
|-----------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Insert G1 string position  %8101M% | 00-99 | 00-99 |  %8101D00% * |
| | | 00* | |
| Insert G2 string position  %8102M% | 00-99 | 00-99 |  %8102D00% * |
| | | 00* | |
| Insert G3 string position  %8103M% | 00-99 | 00-99 |  %8103D00% * |
| | | 00* | |
| Insert G4 string position  %8104M% | 00-99 | 00-99 |  %8104D00% * |
| | | 00* | |
| Code ID position  %8105M% | Before code data | 00* |  %8105D00% * |
| | | After code data | |
|  %END% | | | |

3-41 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 [1-2 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.

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 USB and RS-232 interface. The replacement string of FN1 can be chosen by user (see [3-39 G1-G6 & C1-C3 & 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.

| Multiple-scan setting | | | Single-scan setting |
|--------------------------------------------------------------------------------------------------------------------------|---------|--------------|------------------------------------------------------------------------------------------------------|
| Option barcode | Option | Alpha. entry | |
| Prefix transmission  %8201M% | Disable | 00* |  %8201D00% * |
| | Enable | 01 |  %8201D01% |
| Suffix transmission  %8202M% | Disable | 00 |  %8202D00% |
| | Enable | 01* |  %8202D01% * |
| Code name transmission  %8203M% | Disable | 00* |  %8203D00% * |
| | Enable | 01 |  %8203D01% |
| Preamble transmission  %8204M% | Disable | 00* |  %8204D00% * |
| | Enable | 01 |  %8204D01% |
| Postamble transmission  %8205M% | Disable | 00* |  %8205D00% * |
| | Enable | 01 |  %8205D01% |

| | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|------------------------------------------------------------------------------------------------------|
| Code ID transmission  %8206M% | Disable | 00* |  %8206D00% * |
| | Proprietary ID | 01 |  %8206D01% |
| | AIM ID | 02 |  %8206D02% |
| Code length transmission  %8207M% | Disable | 00* |  %8207D00% * |
| | Enable | 01 |  %8207D01% |
| Case conversion  %8208M% | Disable | 00* |  %8208D00% * |
| | Upper (data only) | 01 |  %8208D01% |
| | Lower (data only) | 02 |  %8208D02% |
| | Upper (whole string) | 03 |  %8208D03% |
| | Lower (whole string) | 04 |  %8208D04% |
| | Disable | 00* |  %8209D00% * |
| Multiple-scan setting | | | Single-scan setting |
| Option barcode | Option | Alpha. entry | |
| FN1 substitution transmission  %8209M% | USB | 01 |  %8209D01% |
| | RS-232 | 02 |  %8209D02% |
| | USB/RS-232 | 03 |  %8209D03% |
| All-non-printable-character string transmission with string setting  %8210M% | Disable | 00* |  %8210D00% * |
| | Enable | 01 |  %8210D01% |
| Transmit the first N data characters only  %8211M% | All | 99* |  %8211D99% * |
| | 01-99 | | |
| Transmit the last N data characters only  %8212M% | All | 99* |  %8212D99% * |
| | 01-99 | | |



%END%

4 Maintenance

Cleaning the scan 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.

5 Barcode representing non-printable character

Notes to make the following barcode:

1. According to different barcode printing software, the method of printing following barcode is different.
2. 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 "{DC1}" as data.



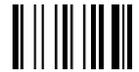
Up ↑



Down ↓



Left ←



Right →



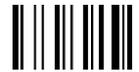
Page Up



Page Down



Backspace



Tab



Home



End



Enter



Insert



Delete



F1



F2



F3



F4



F5



F6



F7



F8



F9



F10



Esc



F11



F12

6 ASCII Table

| H L | | for keyboard wedge | | for RS-232 | |
|--------|--|--------------------|-------|------------|-----|
| | | 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".

7 Test barcode

UPC-A



UPC-E



UPC-E1

(Default setting: Disable)



EAN-13



ISBN/ISSN



EAN-8



Code 39



Interleaved 2 of 5



Industrial 2 of 5

(Default setting: Disable)



Matrix 2 of 5



Codabar



Code 128



UCC/EAN 128



ISBT 128



=1234 56789

Code 93



01AZ+/*az89

Code 11

(Default setting: Disable)



123456789-0

MSI/Plessey

(Default setting: Disable)



0123456789

UK/Plessey

(Default setting: Disable)



01ABEF89

China Post



01234567890

GS1 DataBar (GS1 DataBar Truncated)



(01) 12345678901231

GS1 DataBar Limited



(01) 1 2345678 90126 2

GS1 DataBar Expanded



Ab_09+yZ

PDF417



12=890ab-+%xyz

QR code



1234567890ABCD-+)&*%^@#\$\$!XYZ

Data Matrix



123890abc-+=&*%^!mdo

Aztec Code

(Default setting: Disable)



12345678901234567890

Han Xin Code

(Default setting: Disable)



1234567890Hanxin

Micro QR Code

(Default setting: Disable)



0123456789MicroQR

CodaBlock F Code

(Default setting: Disable)



0123456789

8 Return default parameters & list firmware version



%%%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.

9 Configuration alphanumeric entry barcode



0



2



4



6



1



%END%



5



7



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

