# Programming Guide

★ Advanced Handheld CCD/Linear Image/Laser Scanner

# Revision History

Changes to the original manual are listed below:

| Version | Date | Description of Version |
|---|---|---|
| 1.0 | September 9, 2010 | Initial release |
| 1.1 | February 18, 2011 | Added Blink mode selections |
| 1.2 | April 30, 2013 | Corrected AIM mode |
| 1.3 | May. 21, 2013 | Corrected ASCII code in appendix |
| 1.4 | August 01, 2013 | Added Appendix 5 Header and Trailer |
| 1.5 | August 26, 2013 | Corrected Repeat mode descriptions |
| 1.6 | April 29, 2014 | Added Auto Detect Mode |
| 1.7 | August 22, 2014 | Added Multi-line modes |
| 1.8 | April 19, 2016 | Corrected Full ASCII ---SP barcode |
| 1.9 | October 15, 2018 | Wand settings note updated |

## Important Notice

No warranty of any kind is made in regard to this material, including, but not limited to, implied warranties of merchantability or fitness for any particular purpose. We are not liable for any errors contained herein nor for incidental or consequential damages in connection with furnishing, performance or use of this material. We shall be under no liability in respect of any defect arising from fair wear and tear, willful damage, negligence, abnormal working conditions, failure to follow the instructions and warnings, or misuse or alteration or repair of the products without written approval. No part of this document may be reproduced, transmitted, stored in a retrieval system, transcribed, or translated into any human or computer or other language in any form or by any means electronic, mechanical, magnetic, optical, chemical, biological, manual or otherwise, except for brief passages which may be quoted for purposes of scholastic or literary review, without express written consent and authorization. We reserve the right to make changes in product design without reservation and without notification. The material in this guide is for information only and is subject to change without notice. All trademarks mentioned herein, registered or otherwise, are the properties of their various, ill, assorted owners.

## General Handling Precautions

Do not dispose of the scanner in fire.
Do not put the scanner directly in the sun or by any heat source.
Do not use or store the scanner in a very humid place.
Do not drop the scanner or allow it to collide violently with other objects.
Do not take the scanner apart without authorization.

## Printing Guidance

This programming guide is in A5 size. Please double check your printer setting before printing it out.
When barcodes are to be printed out for programming, the use of a high-resolution laser printer is strongly suggested for the best scan result.

## Laser Safety

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions in this manual, it may cause interference to radio communications. The equipment has been tested and found to comply with the limits for a Class A computing device pursuant to EN55022 and 47 CFR, Part 2 and Part 15 of FCC Rules. These specifications are designed to provide reasonable protection against interference when operated in a commercial environment.

**Radiant Energy**: The laser scanner uses one low-power visible laser diodes operating at 650nm in an opto-mechanical scanner resulting in less than 3.9µW radiated power as observed through a 7mm aperture and averaged over 10 seconds.
Do not attempt to remove the protective housing of the scanner, as unscanned laser light with a peak output up to 0.8mW would be accessible inside.

**Laser Light Viewing**: The scan window is the only aperture through which laser light may be observed from this product. A failure of the scanner motor, while the laser diode continues to emit a laser beam, may cause emission levels to exceed those for safe operation. The scanner has safeguards to prevent this occurrence. If, however, a stationary laser beam is emitted, the failing scanner should be disconnected from its power source immediately.

**Adjustments**: Do not attempt any adjustments or alteration of this product. Do not remove the protective housing of the scanner. There are no user-serviceable parts inside.

**Optical**: The use of optical instruments with this product will increase the eye hazard. Optical instruments include binoculars, magnifying glasses, and microscopes but do not include normal eye glasses worn by the user.

**CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**

## For CE-Countries

This scanner is in conformity with CE standards. Please note that an approved, CE-marked power supply unit should be used in order to maintain CE conformance.

# Table of Contents

# About This Guide

This programming guide applies to various handheld scanners, including

* Advanced Handheld Contact CCD Scanner,

* Advanced Middle-Range Handheld CCD Scanner,

* Advanced Handheld Laser Scanner, and

* Advanced Handheld High-Speed Laser Scanner

Some settings are not available for certain models. If you are not sure about the model of your scanner at hand, refer to the device label or contact your distributor.

This document is in A5 size. Please check your printing setting before printing it out. When barcodes are to be printed out for programming, the use of a high-resolution laser printer is strongly suggested for the best scan result.

The settings herein shall be updated periodically without prior notice. For the latest version, please contact your distributor.

# Introduction to Scanner Configuration

Scanning a series of programming barcode labels can configure the series scanners. This allows decoding options and interface protocols to be tailored to a specific application. The configuration is stored in non-volatile memory and will not be lost by removing power from the scanner.

The scanner must be properly powered before programming. For RS-232C type scanners, an external power adapter must be used to supply DC power to the scanner. If a keyboard emulation type scanner is used with an IBM PC/XT/ AT, PS/2 or any fully compatible computers, power will be drawn from the keyboard port. No external power adapter is required. If keyboard emulation type scanner is used with any other non IBM PC compatible computers, an external power adapter may be needed.

During the programming mode, the laser scanner will acknowledge a good and valid reading with a short beep. It will give long beeps or remain silent for either an invalid or bad reading.

Programmable options are divided into four groups. The first group includes the options that show the general behavior of the laser scanner. The second group governs the operation of different interfaces, RS-232 serial ports, keyboard, and USB. The third group sets the decoding parameters for each barcode symbology. The last group is about more advanced data formatting.

# Default Parameters

This table gives the default settings of all the programmable parameters. The default settings would be restored whenever the laser scanner reads the "Reset" programming label in programming mode. If you wish to change any setting, scan the appropriate barcodes below.

## Scanner Operation

| Parameter | Default |
|---|---|
| Same code delay | 500msec |
| Beeping frequency | Medium |
| Beeping duration | 50msec |
| LED/Beep before data transmission | On |
| Scan mode | Trigger mode |
| Stand mode (only available for specific models) | Enable |
| Header and trailer | None |
| Inter message delay | 0msec |
| Inter character delay | 0msec |

## Interface Communication

| Parameter | Default |
|---|---|
| **RS-232 Interface** | |
| Baud rate | 9600 |
| Parity | none |
| Data Bits | 8 |
| Stop Bit | 1 |
| RTS/CTS | off |
| Terminator | <CR><LF> |
| **Keyboard Wedge Interface** | |
| Terminal Type | PC/AT |
| Keyboard | US keyboard |
| Terminator | Enter |
| **USB Interface** | |
| Terminator type | Enter |
| Code mode | Scan code |
| Keyboard | US keyboard |
| **Wand Emulation** | |
| Wand emulation speed | Normal |
| Data output | Black=high |

# Symbologies

| Parameter | Default |
|---|---|
| **Decoder Selection** | |
| EAN/UPC | Enable |
| Code 39 | Enable |
| Code 32 | Disable |
| Codabar | Enable |
| ITF 2 of 5 | Enable |
| MSI | Disable |
| Chinese Post Code | Disable |
| Code 93 | Enable |
| Code 128 | Enable |
| EAN-128 | Disable |
| Telepen | Disable |
| Code 11 | Disable |
| Standard 2 of 5 | Disable |
| Industrial 2 of 5 | Disable |
| Matrix 2 of 5 | Disable |
| GS1 DataBar | Disable |
| PDF417 | Disable |
| **Code Identifiers** | |
| Identifier code as factory standard | Disable |
| Identifier code as AIM standard | Disable |
| Code 39 identifier code | M |
| ITF 2 of 5 identifier code | I |
| Chinese post code identifier code | H |
| UPC-A identifier code | A |
| UPC-E identifier code | E |
| EAN-13 identifier code | F |
| EAN-8 identifier code | FF |
| Codabar identifier code | N |
| Code 128 identifier code | K |
| Code 93 identifier code | L |
| MSI identifier code | P |
| Code 11 identifier code | O |
| Standard 2 of 5 identifier code | S |
| Industrial 2 of 5 identifier code | D |
| Matrix 2 of 5 identifier code | G |
| GS1 DataBar identifier code | RS |
| GS1 DataBar Limited identifier code | RL |

| | | |
|---|---|---|
| GS1 DataBar Expanded identifier code | | RX |
| PDF417 identifier code | | X |
| **Barcode Length** | | |
| Codabar<br>Code 11<br>Standard 2 of 5<br>Industrial 2 of 5<br>Matrix 2 of 5 | maximum | 32 |
| | minimum | 6 |
| Code 39<br>Code 93<br>Code 128 | maximum | 62 |
| | minimum | 3 |
| Chinese Post Code | maximum | 16 |
| | minimum | 10 |
| MSI<br>ITF 2 of 5 | maximum | 32 |
| | minimum | 4 |
| GS1 DataBar<br>GS1 DataBar Limited | maximum | 14 |
| | minimum | 14 |
| GS1 DataBar Expanded | maximum | 48 |
| | minimum | 6 |

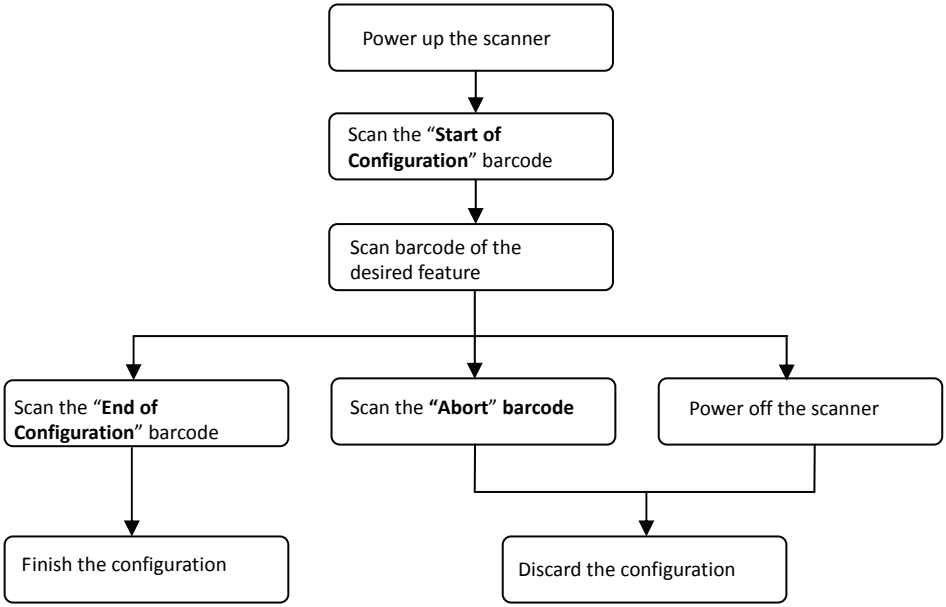
# Data Formating

| Code | Message Format |
|---|---|
| EAN-13 | D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 |
| EAN-8 | D1 D2 D3 D4 D5 D6 D7 D8 |
| UPC-A | D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 |
| UPC-E | D1 D2 D3 D4 D5 D6 D7 D8 |
| Code 128 | D1-Dx (default 3~62) |
| EAN-128 | C1 D1-Dx (default 3~62) |
| Code 39 | D1-Dx (default 3~62) |
| Codabar | D1-Dx (default 6~32) |
| ITF 2 of 5 | D1-Dx (default 6~32) |
| Chinese Post Code | D1-Dx (default 8~32) |
| Code 93 | D1-Dx (default 3~32) |
| MSI | D1-Dx (default 6~32) |

# Programming Procedure

Below is the programming procedure by using barcodes in this guide.

1. Power up the scanner.
2. Scan the **Start of Configuration** barcode.
3. Scan the barcode for the desired feature. Multiple features can be enabled/disabled before scanning the **End of Configuration** barcode.
4. Scan the **End of Configuration** barcode and save the new configuration.
5. To give up a configuration change, power off the scanner before scanning the **End of Configuration** barcode or scan the **Abort** barcode.
6. For some parameter setting, such as barcode length and identifier code, it is required to scan the **Set** barcode to save the configuration.




Default values are highlighted in gray background.

# Parameter Setting

Start Of Configuration

## Scanner Operation

1. System Function Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| -- | | Reset (return to factory default) |
| %/ | | Display firmware version |
| ++ | | Abort :exit programming mode with no update |
| KE94 | | Return to customer default |
| KE95 | | Save as customer default |

End Of Configuration

Start Of Configuration

2. Interface Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| KE97 | | Return to USB default |
| KE99 | | Return to RS-232 default |
| KE87 | | Enable USB virtual COM<br>**(Virtual COM driver required. For installation steps refer to Appendix 1.)** |
| KE01 | | Enable IBM PC/AT/PS/2 Keyboard emulation |
| KE05 | | Enable stand-alone keyboard<br>**(Required no keyboard or key simulator. Only available for special firmware version.)** |
| KE98 | | Enable wand emulation<br>**(Only available for special firmware and cable)** |
| KE77 | | Enable OPOS/JPOS<br>**(Available for USB interface only and requires driver. For RS-232 interface, the scanner needs reset and identifier code has to be enabled.)** |

End Of Configuration

Start Of Configuration

3. General Scan Mode Setting

**Handheld Operation**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| SM01 | | Trigger Mode<br>• The scanner becomes inactive as soon as the data is transmitted. It must be triggered to become active again. |
| SM02 | | Auto Scan Mode<br>• The scanner is still active after the data is transmitted but the successive transmission of the same barcode is not allowed when the trigger switch is pressed again. |
| SM04 | | Pulse Mode<br>• The scanner will light up and blink when press the scanner trigger switch once and the scanner will turn off after next pressing. The laser remains on for approximately 3 to 10 seconds after the pulse light is on. |
| SM05 | | Repeat Mode<br>• This mode is similar to Auto Scan Mode but with scanner switch functional when enabled.<br>**(Not available for Handheld High-Speed Laser Scanner.)** |
| SM06 | | Momentary mode<br>• The scanner will light up only when the trigger switch is pressed the scanner will turn off when the trigger switch is release.<br>**(Not available for Handheld High-Speed Laser Scanner.)** |

End Of Configuration

Start Of Configuration

4. Scan Mode Only Available for Handheld High-Speed Laser Scanner

**Handheld Operation**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| SM07 | | Auto Trigger Mode<br>• The scanner will automatically detect object and activate laser lighting. Barcode data is transmitted when the trigger is pressed. |
| SM08 | | Aim Mode<br>• When the trigger is pressed once, the scanner will light up, blink and decode automatically. But the data is transmitted only when the trigger is released. The scanner will turn off when the trigger is pressed again. |
| SM09 | | Momentary mode<br>• The scanner will light up only when the trigger switch is pressed the scanner will turn off when the trigger switch is release. |
| SM12 | | Auto Detect Mode<br>• The scanner automatically detects barcode and activates lighting and decoding. |

**Stand Operation**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| SM20 | | IR On (Auto scan on stand)<br>• The scanner automatically activates laser, scans and transmits data when detecting object. |
| SM21 | | IR Off (Scan by manual trigger) |

End Of Configuration

Start Of Configuration

5. Scan Mode Only Available for Handheld Omnidirectional Laser Scanner

**Stand Operation**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| SM24 | | Multi-line Trigger<br>• Presentation trigger out of stand. This mode combines Auto Scan mode and Trigger Mode. Trigger mode is enabled when the scanner is not on the stand. |
| SM25 | | Multi-line Free<br>• Presentation out of stand. This mode is similar to Auto Scan Mode with auto scan still active out of stand. |

End Of Configuration

Start Of Configuration

6. Operation Function Setting

**Good Read Beeper Tone Selection**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| GR02 | | Low beeper tone |
| GR01 | | Medium beeper tone |
| GR03 | | High beeper tone |
| GR05 | | Speaker disable |

**Beeper Sound Selection**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| GR13 | | Very short (5 msec) |
| GR12 | | Short (20 msec) |
| GR11 | | Medium (50 msec) |
| GR10 | | Long (100 msec) |
| GR14 | | Very Long (200 msec) |
| GR15 | | Ultra long (500 msec) |

End Of Configuration

Start Of Configuration

**Beeper Volume Selection**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| GR20 | | Loud |
| GR21 | | Medium |
| GR22 | | Slight |

**Beeper Timing Selection**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| LB00 | | LED/Beep after transmission<br>• Use this barcode to indicate a "good read" after a barcode has been successfully decoded. |
| LB01 | | LED/Beep before transmission<br>• Use this barcode to indicate a “good read" before successfully transmitting the barcode data to the host. |
| LB03 | | Power-on tone enable |
| LB04 | | Power-on tone disable |

End Of Configuration

Start Of Configuration

**Inter Message Delay**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| IM01 | | 0 ms |
| IM02 | | 100 ms |
| IM03 | | 500 ms |
| IM04 | | 1000 ms |

**Inter Character Delay**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| IC01 | | 0ms |
| IC00 | | 5ms |
| IC02 | | 10ms |
| IC03 | | 20ms |
| IC04 | | 50ms |
| IC05 | | 2ms |

End Of Configuration

Start Of Configuration

**Same Code Delay**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| SD01 | | Same code delay time 50msec |
| SD02 | | Same code delay time 100msec |
| SD03 | | Same code delay time 200msec |
| SD04 | | Same code delay time 300msec |
| SD05 | | Same code delay time 400msec |
| SD06 | | Same code delay time 500msec |
| SD07 | | Same code delay time 600msec |
| SD08 | | Same code delay time 700msec |
| SD09 | | Same code delay time 800msec |
| SD10 | | Same code delay time 900msec |
| SD11 | | Same code delay time 1000msec |
| SD12 | | Same code delay time Infinite |

End Of Configuration

Start Of Configuration

**Blink Mode Selection**

(Only available in Auto Scan mode; barcode value SM02)

| Barcode Value | Barcode Label | Description |
|---|---|---|
| LS00 |  | Blink mode off.<br>Module never enters blink mode |
| LS01 |  | Blink mode timer 5s |
| LS02 |  | Blink mode timer 10s |
| LS03 |  | Blink mode timer 15s |
| LS04 |  | Blink mode timer 20s |
| LS05 |  | Blink mode timer 30s |
| LS06 |  | Blink mode timer 60s |
| LS15 |  | Light beam blinks in blink mode |

***Blink mode**: After the scanner has been inactive for a period of time, the light beam would automatically start blinking. To stop the scanner from blinking, simply present an object close to the scanner window. The Blink mode is included to reduce power consumption and to extend scanner life. Scan barcodes to set the time for switching to blink mode when the scanner is idle.

End Of Configuration

Start Of Configuration

**Connection to an Omnidirectional Scanner**

Instead of connecting to a host, sometimes the handheld scanner is to be connected to the AUX port of an omnidirectional scanner and transmit data to the host system via this omnidirectional scanner. Such application is not uncommon in places like hypermarkets and home improvement shops where there are products too heavy or bulky to be put on the counter and need a handheld scanner to read their barcodes.

In most cases, the auxiliary input port's data transmission format would follow the main output format of the omnidirectional scanner, including barcode symbologies and related parameters. For example, if the handheld scanner can read Codabar while the omnidirectional scanner can not, the handheld scanner would decode a Codabar barcode without transmitting the data. To complete the data transmission process, you have to re-program the omnidirectional scanner and enable Codabar decoding capability.

The following barcode allows you to enable and disable the AUX port. For more application and connection instructions, refer to the manual of the omnidirectional scanner.

| Barcode Value | Barcode Label | Description |
|---|---|---|
| AUXS |  | Enable AUX function |

Not all firmware versions support the AUX function. Please contact your distributor if you have any questions.

End Of Configuration

Start Of Configuration

7. Operation Function Only Available for Handheld High-Speed Scanner

**Pulse Light Flash On/Off Timeout Duration**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| FT01 | | Fast |
| FT00 | | Medium |
| FT02 | | Slow |

**Blue LED**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| LE00 | | When scanner on stand, blue LED remains off when decoding |
| LE01 | | When scanner on stand, blue LED lights on when decoding |
| LE04 | | When handheld, blue LED remains off when decoding |
| LE05 | | When handheld, blue LED lights on when decoding |

End Of Configuration

Start Of Configuration

# Interface Configuration

1. RS-232C Interface Setting

**Baud Rate**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| BR09 | | 115200 |
| BR08 | | 57600 |
| BR00 | | 38400 |
| BR01 | | 19200 |
| BR02 | | 9600 |
| BR03 | | 4800 |
| BR04 | | 2400 |
| BR05 | | 1200 |

End Of Configuration

Start Of Configuration

**Parity Bit**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| PB01 | | Even parity |
| PB02 | | Odd parity |
| PB03 | | Mark parity |
| PB04 | | Space parity |
| PB05 | | None parity |

**Stop Bit**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| SB01 | | 1 stop bit |
| SB02 | | 2 stop bit |

**Data Bit**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| DB07 | | 7 data bit |
| DB08 | | 8 data bit |

End Of Configuration

Start Of Configuration

**Handshaking Protocol**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| HP01 | | None handshaking |
| HP02 | | ACK/NAK |
| HP03 | | Xon/Xoff |
| HP04 | | RTS/CTS |
| LB07 | | Enable BEEPER ON<BEL> CHARACTER |
| LB08 | | Ignore BEEP ON <BEL> CHARACTER |
| LB09 | | Disable ACK/NAK timeout beeper |
| LB10 | | Enable ACK/NAK timeout beeper (three beeps) **(Only available for Handheld High-Speed Laser Scanner)** |
| RT01 | | ACK/NAK response time 300ms |
| RT03 | | ACK/NAK response time 500ms |
| RT05 | | ACK/NAK response time 1 sec |
| RT02 | | ACK/NAK response time 2 sec |
| RT04 | | ACK/NAK response time 3 sec |
| RT06 | | ACK/NAK response time 5 sec |
| RT07 | | ACK/NAK response time infinity |

End Of Configuration

Start Of Configuration

**Message Terminator**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| DT11 | | RS-232 message terminator—none |
| DT12 | | RS-232 message terminator—CR/LF |
| DT13 | | RS-232 message terminator—CR |
| DT14 | | RS-232 message terminator—LF |
| DT15 | | RS-232 message terminator—H-tab |
| DT16 | | RS-232 message terminator—STX/ETX |
| DT17 | | RS-232 message terminator—EOT |

End Of Configuration

Start Of Configuration

2. Keyboard Wedge and USB Interface Setting

**Language Support**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| KL00 | | International Keyboard mode (ALT mode) |
| KL01 | | Keyboard language support—USA |
| KL02 | | Keyboard language support—UK |
| KL03 | | Keyboard language support—German |
| KL04 | | Keyboard language support—French |
| KL05 | | Keyboard language support—Spanish |
| KL06 | | Keyboard language support—Italian |
| KL07 | | Keyboard language support—Swiss |
| KL08 | | Keyboard language support—Swedish |
| KL09 | | Keyboard language support—Belgian |
| KL10 | | Keyboard language support—Portuguese |
| KL11 | | Keyboard language support—Turkish |
| KL15 | | Keyboard language support—Japanese |

End Of Configuration

Start Of Configuration

**Keyboard Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| CP00 | | Capital lock on |
| CP01 | | Capital lock off |
| CP05 | | Function key emulation enable |
| CP06 | | Function key emulation disable |
| CP18 | | Send number as normal data |
| CP19 | | Send number as keypad data |
| CP20 | | Alphabet follow as keyboard |
| CP21 | | Alphabet always upper case |
| CP22 | | Alphabet always Lower case |

**Message Terminator**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| DT01 | | Keyboard terminator---none |
| DT02 | | Keyboard terminator---Enter |
| DT03 | | Keyboard terminator---H-TAB |

End Of Configuration

Start Of Configuration

3. Want Emulation Setting

Wand emulation requires special firmware and cable. If needed, please contact your distributor.

| Barcode Value | Barcode Label | Description |
|---|---|---|
| WD01 | | All barcode will be decoded and transmitted in that symbology |
| WD02 | | Enable Wand output data format as Code 39 |
| WO01 | | Wand emulation data output black = high<br>• Scan this barcode to set quiet zones and spaces low and bars =high. |
| WO02 | | Wand emulation data output black=low<br>• Scan this barcode to set quiet zones and spaces high and bars=low |
| WO03 | | Idle = high<br>• Idle state refers to the TTL logic level of the Wand Emulation signal when not in use |
| WO04 | | Idle = low<br>• Idle state refers to the TTL logic level of the Wand Emulation signal when not in use |
| WS01 | | Wand emulation speed---Low<br>• This option allows the transmission of wand emulation at 1ms narrow element width |
| WS02 | | Wand emulation speed---medium<br>• This option allows the transmission of wand emulation at 600us narrow element width |

End Of Configuration

Start Of Configuration

**Wand Emulation Speed**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| WS03 | | Wand emulation speed---normal |
| WS04 | | Wand emulation speed---high<br>• This option allows the transmission of wand emulation at 300us narrow element width |
| WS05 | | Wand emulation speed---higher<br>• This option allows the transmission of wand emulation at 100 us narrow element width |
| WS00 | | Wand emulation narrow/wide ratio 1:2 |
| WS08 | | Wand emulation narrow/wide ratio 1:3 |

End Of Configuration

Start Of Configuration

# The Symbologies

1. Codabar **Parameter Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC02 | | Codabar enable |
| RD02 | | Codabar disable |
| CB05 | | Codabar start/stop character transmission—none |
| CB06 | | Codabar start/stop character transmission—A,B,C,D |
| CB07 | | Codabar start/stop character transmission—DC1~DC4 |
| CB08 | | Codabar start/stop character transmission—a/t,b/n,c/*,d/e |
| CB09 | | Codabar maximum length setting |
| CB10 | | Codabar minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| CB11 | | Codabar concatenation disable |
| CB12 | | Codabar concatenation enable |

End Of Configuration

Start Of Configuration

| Barcode Value | Barcode Label | Description |
|---|---|---|
| CB13 |  | No check character |
| CB14 |  | Validate modulo 16,but don't transmit |
| CB15 |  | Validate modulo 16 and transmit |
| DC50 |  | Codabar data redundant check=off |
| DC51 |  | Codabar data redundant check=1 |
| DC52 |  | Codabar data redundant check=2 |
| DC53 |  | Codabar data redundant check=3 |

End Of Configuration

Start Of Configuration

2. **Code 39 Parameter Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC01 |  | Code 39 enable |
| RD01 |  | Code 39 disable |
| RC13 |  | Code 32 enable |
| RD13 |  | Code 32 disable |
| DC00 |  | Code 39 data redundant check=off |
| DC01 |  | Code 39 data redundant check=1 |
| DC02 |  | Code 39 data redundant check=2 |
| DC03 |  | Code 39 data redundant check=3 |
| 3901 |  | Standard code 39 |
| 3902 |  | Full ASCII code 39 |
| 3903 |  | Code 39 start/stop character transmission |
| 3904 |  | Code 39 start/stop character without transmission |

End Of Configuration

Start Of Configuration

| Barcode Value | Barcode Label | Description |
|---|---|---|
| 3905 |  | Code 39 check digit calculate and transmit |
| 3906 |  | Code 39 check digit calculate but without transmit |
| 3907 |  | No check character |
| 3908 |  | Code 39 maximum length setting |
| 3909 |  | Code 39 minimum length setting |
| SET |  | Confirm to save this setting (required for reading full ASCII table and length setting) |
| 3910 |  | Code 39 concatenation enable |
| 3911 |  | Code 39 concatenation disable |
| 3912 |  | Code 32 (Italian pharmacy) transmit “A” character |
| 3913 |  | Code 32 (Italian pharmacy) without transmit ”A” character |

End Of Configuration

Start Of Configuration

3. **Code 93 Parameter Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC08 | | Code 93 enable |
| RD08 | | Code 93 disable |
| DC30 | | Code 93 data redundant check=off |
| DC31 | | Code 93 data redundant check=1 |
| DC32 | | Code 93 data redundant check=2 |
| DC33 | | Code 93 data redundant check=3 |
| 9301 | | Code 93 maximum length setting |
| 9302 | | Code 93 minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| 9303 | | Code 93 check digit calculate but without transmit |
| 9304 | | Code 93 check digit not calculate and without transmit |
| 9305 | | Code 93 check digit calculate and transmit |

End Of Configuration

Start Of Configuration

4. Code 128 Parameter Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC06 | | Code 128 enable |
| RD06 | | Code 128 disable |
| RC10 | | EAN-128 enable |
| RD10 | | EAN-128 disable |
| DC40 | | Code 128 data redundant check=off |
| DC41 | | Code 128 data redundant check=1 |
| DC42 | | Code 128 data redundant check=2 |
| DC43 | | Code 128 data redundant check=3 |
| 1801 | | Code128 FNC2 concatenation enable |
| 1802 | | Code128 FNC2 concatenation disable |
| 1803 | | No check character |
| 1804 | | Calculate but not transmitted |
| 1805 | | Calculate and transmit |
| 1806 | | Code 128 maximum length setting |
| 1807 | | Code 128 minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |

End Of Configuration

Start Of Configuration

5. Chinese Post Code Parameter Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC05 | | Chinese post code enable |
| RD05 | | Chinese post code disable |
| DC60 | | Chinese post code data redundant check=off |
| DC61 | | Chinese post code data redundant check=1 |
| DC62 | | Chinese post code data redundant check=2 |
| DC63 | | Chinese post code data redundant check=3 |
| SZ01 | | Chinese post code maximum length setting |
| SZ02 | | Chinese post code minimum length setting |

| | | |
|---|---|---|
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |

End Of Configuration

Start Of Configuration

6. MSI/Plessy Parameter Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC14 | | MSI enable |
| RD14 | | MSI disable |
| DC70 | | MSI data redundant check= off |
| DC71 | | MSI data redundant check=1 |
| DC72 | | MSI data redundant check=2 |
| DC73 | | MSI data redundant check=3 |
| MS01 | | MSI/Plessy maximum length setting |
| MS02 | | MSI/Plessy minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| MS03 | | MSI/Plessy double check digit calculate but not transmit |
| MS04 | | MSI/Plessy double check digit without calculate and transmit |
| MS05 | | MSI/Plessy double check digit calculate but only first digit transmit |
| MS06 | | MSI/Plessy double check digit calculate and both transmit |
| MS07 | | MSI/Plessy single check digit calculate but without transmit |
| MS08 | | MSI/Plessy single check digit calculate and transmit |

End Of Configuration

Start Of Configuration

7. Code 11 Interface Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC07 | | Code 11 enable |
| RD07 | | Code 11 disable |
| 1101 | | Code 11 maximum length setting |
| 1102 | | Code 11 minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| 1103 | | Code 11 one check digit verification |
| 1104 | | Code 11 two check digit verification |
| 1105 | | Two Check for Code 11 check digit if code length is longer than 10 characters |
| 1106 | | Disable verification |
| 1107 | | Code 11 check digit transmitted |
| 1108 | | Code 11 check digit not transmitted |

End Of Configuration

Start Of Configuration

8. **ITF 2 of 5 Parameter Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC04 | | ITF 2 of 5 enable |
| RD04 | | ITF 2 of 5 disable |
| RC09 | | IATA code enable |
| RD09 | | IATA disable |
| DC80 | | ITF 25 data redundant check=off |
| DC81 | | ITF25 data redundant check=1 |
| DC82 | | ITF25 data redundant check=2 |
| DC83 | | ITF25 data redundant check=3 |
| IT03 | | ITF 2 of 5 no check character |
| IT04 | | ITF 2 of 5 check digit calculate and transmit |
| IT05 | | ITF 2 of 5 check digit calculate but without transmit |

End Of Configuration

Start Of Configuration

| Barcode Value | Barcode Label | Description |
|---|---|---|
| IT01 | | ITF 2 of 5 code maximum length setting |
| IT02 | | ITF 2 of 5 code minimum length setting |
| IT06 | | ITF 2 of 5 one fixed length setting |
| IT07 | | ITF 2 of 5 two fixed length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| IT08 | | ITF 2 of 5 length variable<br>**(Only available for Handheld High-Speed Laser Scanner)** |

End Of Configuration

Start Of Configuration

9. Standard 2 of 5 Parameter Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC22 | | Standard 2 of 5 code enable |
| RD22 | | Standard 2 of 5 code disable |
| D051 | | Standard 2 of 5 code maximum length setting |
| D052 | | Standard 2 of 5 code minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| D053 | | Standard 2 of 5 code no check character |
| D054 | | Standard 2 of 5 code check digit calculate and transmit |
| D055 | | Standard 2 of 5 code check digit calculate but without transmit |

End Of Configuration

Start Of Configuration

10. Industrial 2 of 5 Parameter Setting

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC21 | | Industrial 2 of 5 code enable |
| RD21 | | Industrial 2 of 5 code disable |
| D251 | | Industrial 2 of 5 code maximum length setting |
| D252 | | Industrial 2 of 5 code minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| D253 | | Industrial 2 of 5 code no check character |
| D254 | | Industrial 2 of 5 code check digit calculate and transmit |
| D255 | | Industrial 2 of 5 code check digit calculate but without transmission |

End Of Configuration

Start Of Configuration

11. **UPC/EAN/JAN Parameter Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC11 | | EAN convert to ISSN/ISBN enable |
| RD11 | | EAN convert to ISSN/ISBN disable |
| RC03 | | UPC/EAN/JAN enable |
| RD03 | | UPC/EAN/JAN disable |
| UE01 | | UPC/EAN/JAN all enable |
| UE02 | | EAN-8 or EAN-13 enable |
| UE03 | | UPC-A and EAN-13 enable |
| UE04 | | UPC-A and UPC-E enable |
| UE05 | | UPC-A enable |
| UE06 | | UPC-E enable |
| UE07 | | EAN-13 enable |
| UE08 | | EAN-8 enable |
| UE09 | | UPC/EAN Addendum disable |

End Of Configuration

Start Of Configuration

| Barcode Value | Barcode Label | Description |
|---|---|---|
| UE10 |  | Add on 5 only |
| UE11 |  | Add on 2 only |
| UE12 |  | Add on 2 or 5 |
| UE13 |  | Force UPC-E to UPC-A format enable |
| UE14 |  | Force UPC-E to UPC-A format disable |
| UE15 |  | Force UPC-A to EAN-13 format enable |
| UE16 |  | Force UPC-A to EAN-13 format disable |
| UE44 |  | Force EAN-8 to EAN-13 format enable |
| UE45 |  | Force EAN-8 to EAN-13 format disable |
| UE17 |  | Transmit UPC-A check digit enable |
| UE18 |  | Transmit UPC-A check digit disable |
| UE19 |  | Transmit UPC-E leading character enable |
| UE20 |  | Transmit UPC-E leading character disable |
| UE21 |  | Transmit UPC-E check digit enable |
| UE22 |  | Transmit UPC-E check digit disable |

End Of Configuration

Start Of Configuration

| Barcode Value | Barcode Label | Description |
|---|---|---|
| UE23 |  | Transmit EAN-8 check digit enable |
| UE24 |  | Transmit EAN-8 check digit disable |
| UE25 |  | Transmit EAN-13 check digit enable |
| UE26 |  | Transmit EAN-13 check digit disable |
| UE27 |  | Transmit UPC-A leading character enable |
| UE28 |  | Transmit UPC-A leading character disable |
| UE30 |  | Add-on format with separator |
| UE31 |  | Add-on format without separator |
| UE60 |  | EAN-13 country code first “0” can transmitted |
| UE61 |  | EAN-13 country code first:”0” can’t transmitted |
| UE66 |  | EAN-13 with first 0 ID code same as “UPC-A” |
| UE67 |  | EAN-13 with first 0 ID code same as “EAN-13” |
| DC10 |  | UPC-A data redundant check=off |
| DC11 |  | UPC-A data redundant check=1 |

End Of Configuration

Start Of Configuration

| Barcode Value | Barcode Label | Description |
|---|---|---|
| DC12 |  | UPC-A data redundant check=2 |
| DC13 |  | UPC-A data redundant check=3 |
| DC14 |  | UPC-E data redundant check=off |
| DC15 |  | UPC-E data redundant check=1 |
| DC16 |  | UPC-E data redundant check=2 |
| DC17 |  | UPC-E data redundant check=3 |
| DC20 |  | EAN-13 data redundant check=off |
| DC21 |  | EAN-13 data redundant check=1 |
| DC22 |  | EAN-13 data redundant check=2 |
| DC23 |  | EAN-13 data redundant check=3 |
| DC24 |  | EAN-8 data redundant check=off |
| DC25 |  | EAN-8 data redundant check=1 |
| DC26 |  | EAN-8 data redundant check=2 |
| DC27 |  | EAN-8 data redundant check=3 |
| UE32 |  | EAN/UPC +add-on (none mandatory) |
| UE33 |  | EAN/UPC +add-on (mandatory) |

End Of Configuration

Start Of Configuration

| | | |
|---|---|---|
| UE35 |  | EAN/UPC +add-on mandatory for 978/977 bookland **(Supplement requirement, not sent for other)** |
| UE38 |  | EAN/UPC +addon mandatory for 978/977 bookland **(Supplement requirement, optionally for other)** |
| UE42 |  | EAN/UPC +addon mandatory for 491 Japanese bookland **(Supplement requirement, not sent for other)** |
| UE43 |  | EAN/UPC +addon mandatory 491 Japanese bookland **(Supplement requirement, optionally for other)** |

**Settings Only Available for Handheld High-Speed Laser Scanner**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| UE34 |  | EAN/UPC +addon mandatory for 378/379 French **(Supplement requirement, not sent for other)** |
| UE37 |  | EAN/UPC +addon mandatory for 378/379 French **(Supplement requirement, optionally for other)** |
| UE36 |  | EAN/UPC +addon mandatory for 434/439 German **(Supplement requirement, not sent for other)** |
| UE39 |  | EAN/UPC +addon mandatory for 434/439 German **(Supplement requirement, optionally for other)** |
| UE40 |  | EAN/UPC +addon mandatory for 419/414 Euro amounts **(Supplement requirement, not sent for other)** |
| UE41 |  | EAN/UPC +addon mandatory for 414/419 Euro **(Supplement requirement, optionally for other)** |
| UE46 |  | EAN/UPC +addon mandatory for 414/419/378/379/978/977/434/439/529/ Euro **(Supplement requirement, optionally for other)** |
| UE47 |  | EAN/UPC +addon mandatory for 414/419/378/379/978/977/434/439/529/ Euro **(Supplement requirement, not sent for other)** |

End Of Configuration

Start Of Configuration

12. **Telepen Parameter Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC25 | | Telepen enable |
| RD25 | | Telepen disable |
| TE03 | | Telepen numeric mode enable |
| TE04 | | AIM Telepen enable |

End Of Configuration

Start Of Configuration

13. **Matrix 2 of 5 Parameter Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC12 | | Matrix 2 of 5 enable |
| RD12 | | Matrix 2 of 5 disable |
| D151 | | Matrix 2 of 5 maximum length setting |
| D152 | | Matrix 2 of 5 minimum length setting |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |
| D153 | | Matrix 2 of 5 no check character |
| D154 | | Matrix 2 of 5 check digit calculate and transmit |
| D155 | | Matrix 2 of 5 check digit calculate but without transmission |

End Of Configuration

Start Of Configuration

14. **GS1 DataBar Parameter Setting**

There are 7 kinds of barcodes in the GS1 DataBar family and they are categorized into three groups. Barcode types in the same group use the same barcodes for setting.

| Group | Representative | Contents |
|---|---|---|
| Group 1 | GS1 DataBar Omnidirectional<br>**(Formally RSS-14)** | GS1 DataBar Omnidirectional<br>GS1 DataBar Truncated<br>GS1 DataBar Stacked<br>GS1 DataBar Stacked Omnidirectional |
| Group 2 | GS1 DataBar Limited<br>**(Formally RSS Limited)** | GS1 DataBar Limited |
| Group 3 | GS1 DataBar Expanded<br>**(Formally RSS Expanded)** | GS1 DataBar Expanded<br>GS1 DataBar Expanded Stacked |

**GS1 DataBar Omnidirectional (Formally RSS-14)**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC15 | | GS1 DataBar Omnidirectional enable |
| RD15 | | GS1 DataBar Omnidirectional disable |
| SS00 | | Transmit GS1 DataBar Omnidirectional check digit |
| SS01 | | Do not transmit GS1 DataBar Omnidirectional check digit |
| SS02 | | Transmit GS1 DataBar Omnidirectional application ID (01) |
| SS03 | | Do not transmit GS1 DataBar Omnidirectional application ID (01) |
| SS05 | | GS1 DataBar Omnidirectional /EAN-128 emulation enable |
| SS04 | | GS1 DataBar Omnidirectional /EAN-128 emulation disable |

End Of Configuration

Start Of Configuration

**GS1 DataBar Limited (Formally RSS Limited)**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC16 | | GS1 DataBar Limited enable |
| RD16 | | GS1 DataBar Limited disable |
| SS10 | | Transmit GS1 DataBar Limited check digit |
| SS11 | | Don’t transmit GS1 DataBar Limited check digit |
| SS12 | | Transmit GS1 DataBar limited application ID (01) |
| SS13 | | Do not transmit GS1 DataBar limited application ID |

End Of Configuration

Start Of Configuration

**GS1 DataBar Expanded (Formally RSS Expanded)**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC17 | | GS1 DataBar Expanded enable |
| RD17 | | GS1 DataBar Expanded disable |
| SS07 | | GS1 DataBar Expanded/EAN-128 emulation enable |
| SS06 | | GS1 DataBar Expanded/EAN-128 emulation disable |
| SS08 | | GS1 DataBar Expanded check digital enable |
| SS09 | | GS1 DataBar Expanded check digital disable |
| SS16 | | Transmit GS1 DataBar Expanded application ID (01) |
| SS17 | | Do not transmit GS1 DataBar Expanded application ID |

End Of Configuration

Start Of Configuration

15. **PDF417 Parameter Setting**

(Only available for Handheld High-Speed Laser Scanner)

| Barcode Value | Barcode Label | Description |
|---|---|---|
| RC31 |  | PDF 417 enable |
| RD31 |  | PDF 417 disable |

End Of Configuration

Start Of Configuration

# Data Editing

1. **Identifier Code**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| IS00 | | Disable identifier code |
| IS01 | | Enable identifier code table as factory standard |
| IS03 | | Enable identifier code table as AIM standard. |
| CI01 | | Code 39 identifier code setting |
| CI02 | | ITF 2 of 5 identifier code setting |
| CI03 | | Chinese Post Code identifier code setting |
| CI04 | | UPC-E identifier code setting |
| CI05 | | UPC-A identifier code setting |
| CI06 | | EAN-13 identifier code setting |
| CI07 | | EAN-8 identifier code setting |

| | | |
|---|---|---|
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |

End Of Configuration

Start Of Configuration

| Barcode Value | Barcode Label | Description |
|---|---|---|
| CI08 | | Codabar identifier code setting |
| CI09 | | Code 128 identifier code setting |
| CI10 | | Code 93 identifier code setting |
| CI11 | | MSI identifier code setting |
| CI12 | | GS1 DataBar Omnidirectional identifier code setting |
| CI13 | | GS1 DataBar Limited identifier code setting |
| CI14 | | GS1 DataBar expanded identifier code setting |
| CI15 | | Industrial 2 of 5 identifier code setting |
| CI16 | | Code 11 Identifier code setting |
| CI17 | | Standard 2 of 5 identifier code setting |
| CI18 | | Matrix 2 of 5 identifier code setting |

| | | |
|---|---|---|
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |

End Of Configuration

Start Of Configuration

2. **Header and Trailer**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| CP11 | | Add code length as header enable (2 digits) |
| CP12 | | Add code length as header disable (2 digits) |
| HT01 | | Header (Preamble) |
| HT02 | | Trailer (Postamble) |
| HT03 | | Truncate header character |
| HT04 | | Truncate trailer character |
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |

**Note:** "SET" must be used to save any Full ASCII settings. When a function key is being programmed, "(CP05) Function key emulation enable" must also be scanned for the setting to function properly.
Please see Appendix 5: Header And Trailer for more details.

End Of Configuration

Start Of Configuration

3. **Multi-Barcode Editing**

Refer to Appendix 3 for detail setup steps.

**Function Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| MC00 | | Start to edit multi-barcode |
| MC01 | | Multi-barcode enable |
| MC02 | | Multi-barcode disable |
| MC03 | | Apply output sequence<br>• In this mode, the scanner would retain the barcode data until it reads all the conditioned barcodes and transmit the data all together. It the scanner reads a barcode not compliant with programmed format, it would consider it a normal barcode and transmit this data. |
| MC04 | | Enforce output sequence<br>• In this mode, every barcode must follow the programmed format; otherwise no data would be transmitted. |
| MC05 | | Enable terminator |
| MC06 | | Disable terminator |

| | | |
|---|---|---|
| SET | | Confirm to save this setting (required for reading full ASCII table and length setting) |

End Of Configuration

Start Of Configuration

**Barcode Type Setting**

| Barcode Value | Barcode Label | Description |
|---|---|---|
| $Q | | Code39 |
| $A | | Codabar |
| $B | | ITF2 of 5 |
| $C | | Code128 |
| $F | | Code 93 |
| $G | | MSI |
| $E | | Chinese Post Code |
| 4 | | EAN-8 |
| D | | EAN-13 |
| /D | | UPC-A |
| $T | | UPC-E |
| $U | | GS1 DataBar Standard |
| $V | | GS1 DataBar Expanded |
| $W | | GS1 DataBar Limited |

End Of Configuration

# Appendix 1: USB Virtual COM Driver Installation

Contact your distributor to get the driver and follow the steps below to enable USB virtual COM port.

1. Connect the handheld scanner and the host (e.g. a PC) with a USB interface cable.

2. Enable USB virtual COM port with programming barcodes on page 8.

3. After the programming, the host would request driver installation. Browse your files to locate the driver and start installation.

4. The USB virtual COM port is ready for use after driver installation.

# Appendix 2: Barcode Length Setting

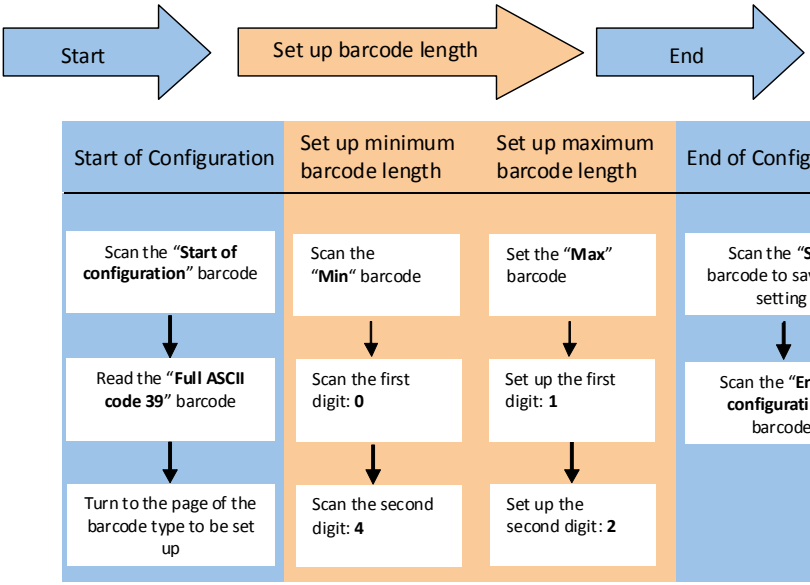
Introduction

The length of a barcode is the number of characters it contains, including check digits. As listed in the Default Parameters section, each barcode type has different default length. You may change the setting by the following procedure.

To set up barcode length, the paramours to be determined are barcode type and the desired barcode length. Barcode length is consisted of 2 digits. For numbers smaller than 10, you need to add a "0" in the front.

Example

If the barcode length is 4 to 12 digits, the steps would be as below:




Use the ASCII table (Appendix 4) to set up barcode length. Be sure to enable the full ASCII code 39 option before you start and read the "Set" label to set your choice into memory.

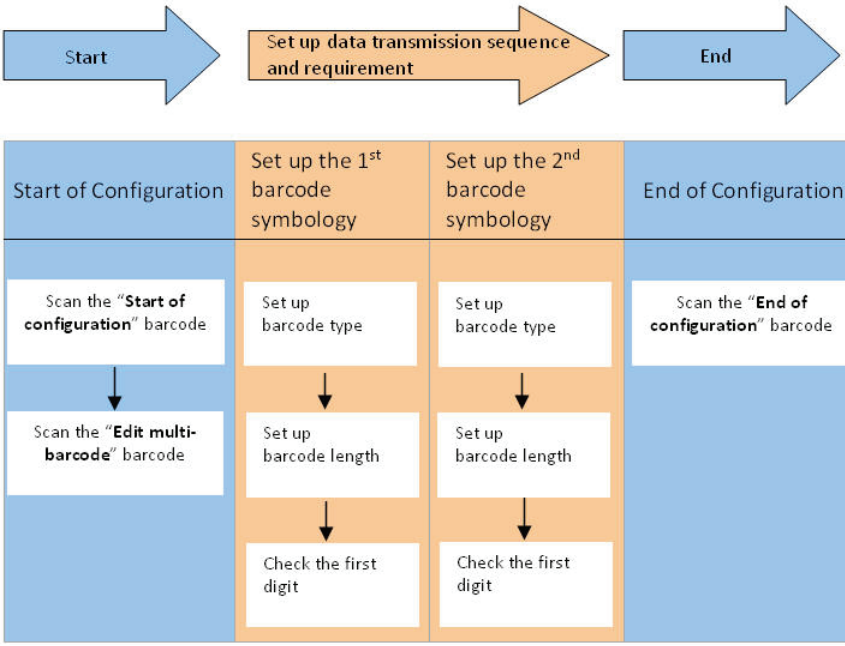
# Appendix 3: Multi-Barcode Editor

Introduction

The multi-barcode editor function allows users to set up the sequence of barcode data transmission. After the configuration, the scanner would transmit data in the pre-programmed sequence even if the user doesn't scan barcodes in the correct order. Users can set up the sequence of up to 5 pieces of barcode data.

The three parameters to be programmed are: barcode type, barcode length and check digit.

Set up as "0" if the barcode length is not required; set up as "NUL" is there is no need to check the first digit of the barcode value.




Use the ASCII table (Appendix 4) to set up barcode length and first digit checkup. Be sure to enable the full ASCII code 39 option before you start and read the "Set" label to set your choice into memory.

Example

If the barcode data transmission sequence and requirements are as below:

| The 1st barcode symbology | | The 2nd barcode symbology | |
|---|---|---|---|
| Barcode type | Code 128 | Barcode type | Code 39 |
| Barcode length | 9 | Barcode length | 12 |
| First digit | A | First digit | No check on the first digit is required |

Start Of Configuration

# Appendix 4: Full ASCII Code 39 Table

| Code 39 | ASCII | Hexa-code | Code 39 | ASCII | Hexa-code |
|---|---|---|---|---|---|
|  | Full ASCII ---NUL | 00 |  | Full ASCII ---SI<br>Function key-----“Shift” | 0F |
|  | Full ASCII ---SOH<br>Function key-----“Ins” | 01 |  | Full ASCII ---DLE<br>Function key-----“5(num)” | 10 |
|  | Full ASCII ---STX<br>Function key-----“Del” | 02 |  | Full ASCII ---DC1<br>Function key-----“F1” | 11 |
|  | Full ASCII ---ETX<br>Function key-----“Home” | 03 |  | Full ASCII ---DC2<br>Function key-----“F2” | 12 |
|  | Full ASCII ---EOT<br>Function key-----“End” | 04 |  | Full ASCII ---DC3<br>Function key-----“F3” | 13 |
|  | Full ASCII ---ENQ<br>Function key-----“Up arrow” | 05 |  | Full ASCII ---DC4<br>Function key-----“F4” | 14 |
|  | Full ASCII ---ACK<br>Function key-----“Down arrow” | 06 |  | Full ASCII ---NAK<br>Function key-----“F5” | 15 |
|  | Full ASCII ---BEL<br>Function key-----“Left arrow” | 07 |  | Full ASCII ---SYN<br>Function key-----“F6” | 16 |
|  | Full ASCII ---BS<br>Function key-----“Backspace” | 08 |  | Full ASCII ---ETB<br>Function key-----“F7” | 17 |
|  | Full ASCII ---HT<br>Function key-----“TAB” | 09 |  | Full ASCII ---CAN<br>Function key-----“F8” | 18 |
|  | Full ASCII ---LF<br>Function key-----“Enter (alpha numeric” | 0A |  | Full ASCII ---EN<br>Function key-----“F9” | 19 |
|  | Full ASCII ---VT<br>Function key-----“right arrow” | 0B |  | Full ASCII ---SUB<br>Function key-----“F10” | 1A |
|  | Full ASCII ---FF<br>Function key-----“PgUp” | 0C |  | Full ASCII ---ESC<br>Function key-----“F11” | 1B |
|  | Full ASCII ---CR<br>Function key-----<br>“Enetr(num.)” | 0D |  | Full ASCII ---FS<br>Function key-----“F12” | 1C |
|  | Full ASCII ---SO<br>Function key-----“PgDn” | 0E |  | Full ASCII ---GS<br>Function key-----“ESC” | 1D |

End Of Configuration

Start Of Configuration

## Full ASCII Code 39 Table

| Code 39 | ASCII | Hexa-code | Code 39 | ASCII | Hexa-code |
|---|---|---|---|---|---|
| | Full ASCII ---RS<br>Function key-----"CTL(L)" | 1E | | Full ASCII ---- | 2D |
| | Full ASCII ---US<br>Function key-----"ALT(L)" | 1F | | Full ASCII ---. | 2E |
| | Full ASCII ---SP | 20 | | Full ASCII ---/ | 2F |
| | Full ASCII ---! | 21 | | Full ASCII ---0 | 30 |
| | Full ASCII ---" | 22 | | Full ASCII ---1 | 31 |
| | Full ASCII ---# | 23 | | Full ASCII ---2 | 32 |
| | Full ASCII ---$ | 24 | | Full ASCII ---3 | 33 |
| | Full ASCII ---% | 25 | | Full ASCII ---4 | 34 |
| | Full ASCII ---& | 26 | | Full ASCII ---5 | 35 |
| | Full ASCII ---' | 27 | | Full ASCII ---6 | 36 |
| | Full ASCII --- ( | 28 | | Full ASCII ---7 | 37 |
| | Full ASCII ---) | 29 | | Full ASCII ---8 | 38 |
| | Full ASCII ---* | 2A | | Full ASCII ---9 | 39 |
| | Full ASCII ---+ | 2B | | Full ASCII ---: | 3A |
| | Full ASCII ---, | 2C | | Full ASCII ---; | 3B |

End Of Configuration

Start Of Configuration

## Full ASCII Code 39 Table

| Code 39 | ASCII | Hexa-code | Code 39 | ASCII | Hexa-code |
|---|---|---|---|---|---|
| | Full ASCII ---< | 3C | | Full ASCII ---K | 4B |
| | Full ASCII ---= | 3D | | Full ASCII ---L | 4C |
| | Full ASCII ---> | 3E | | Full ASCII ---M | 4D |
| | Full ASCII ---? | 3F | | Full ASCII ---N | 4E |
| | Full ASCII ---@ | 40 | | Full ASCII ---O | 4F |
| | Full ASCII ---A | 41 | | Full ASCII ---P | 50 |
| | Full ASCII ---B | 42 | | Full ASCII ---Q | 51 |
| | Full ASCII ---C | 43 | | Full ASCII ---R | 52 |
| | Full ASCII ---D | 44 | | Full ASCII ---S | 53 |
| | Full ASCII ---E | 45 | | Full ASCII ---T | 54 |
| | Full ASCII ---F | 46 | | Full ASCII ---U | 55 |
| | Full ASCII ---G | 47 | | Full ASCII ---V | 56 |
| | Full ASCII ---H | 48 | | Full ASCII ---W | 57 |
| | Full ASCII ---I | 49 | | Full ASCII ---X | 58 |
| | Full ASCII ---J | 4A | | Full ASCII ---Y | 59 |

End Of Configuration

Start Of Configuration

## Full ASCII Code 39 Table

| Code 39 | ASCII | Hexa-code | Code 39 | ASCII | Hexa-code |
|---|---|---|---|---|---|
| | Full ASCII ---Z | 5A | | Full ASCII ---i | 69 |
| | Full ASCII ---[ | 5B | | Full ASCII ---j | 6A |
| | Full ASCII ---\ | 5C | | Full ASCII ---k | 6B |
| | Full ASCII ---] | 5D | | Full ASCII ---l | 6C |
| | Full ASCII ---^ | 5E | | Full ASCII ---m | 6D |
| | Full ASCII ---_ | 5F | | Full ASCII ---n | 6E |
| | Full ASCII ---` | 60 | | Full ASCII ---o | 6F |
| | Full ASCII ---a | 61 | | Full ASCII ---p | 70 |
| | Full ASCII ---b | 62 | | Full ASCII ---q | 71 |
| | Full ASCII ---c | 63 | | Full ASCII ---r | 72 |
| | Full ASCII ---d | 64 | | Full ASCII ---s | 73 |
| | Full ASCII ---e | 65 | | Full ASCII ---t | 74 |
| | Full ASCII ---f | 66 | | Full ASCII ---u | 75 |
| | Full ASCII ---g | 67 | | Full ASCII ---v | 76 |
| | Full ASCII ---h | 68 | | Full ASCII ---w | 77 |

End Of Configuration

Start Of Configuration

## Full ASCII Code 39 Table

| Code 39 | ASCII | Hexa-code |
|---|---|---|
| | Full ASCII ---x | 78 |
| | Full ASCII ---y | 79 |
| | Full ASCII ---z | 7A |
| | Full ASCII ---{ | 7B |
| | Full ASCII ---\| | 7C |
| | Full ASCII ---} | 7D |
| | Full ASCII ---~ | 7E |
| | Full ASCII ---DEL | 7F |

End Of Configuration

# Appendix 5: Header And Trailer

Introduction

The Header and Trailer section allows you to append a header and/or a trailer to every message transmitted via the serial ports, USB or the keyboard port. There is no restriction in selecting header or trailer characters as far as the sum of the lengths of header and trailer is not greater than 10 digits.

1. Scan ”Start of Configuration”.
2. Select either header or trailer you are going to program by scanning the corresponding label.
3. Scan the character(s) you want from the ASCII table to set as header or trailer. (Be sure to enable full ASCII code 39 option before you start)
4. Read “Set, Confirm to save this setting (required for reading full ASCII table and length setting)” to confirm your choice into memory.
5. Scan “(CP05) Function key emulation enable” if a function key is being programmed.
6. Scan ”End of Configuration”.

Example

If you need to set 'TAB' and '@' as prefix, please follow the steps below.

1. Scan “Start of Configuration”.
2. Scan “(HT01) Header (Preamble)”.
3. Scan “Full ASCII ---HT Function key-----TAB”.
4. Scan “Full ASCII ---@”.
5. Scan “Set, Confirm to save this setting (required for reading full ASCII table and length setting)” to save this setting.
6. Scan “(CP05) Function key emulation enable”.
7. Scan “End of Configuration”.