530-2D-USB 2D Scanner

High Speed Imaging USB Bar Code Scanner

Worth Data®
USB 2D Bar Code
Scanner - Scan 1D &
2D Matrix Bar codes

WORTH
data

www.worthdata.com

Owner's Manual

Warning: This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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⚠**WARNING**: This product can expose you to chemicals including lead, phthalate or bisphenol A which are known to the state of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Contents

Introduction

Worth Data's 530-2D-USB is a versatile bar code reader that can attach to any PC, Mac or Linux USB port as a HID USB Keyboard. The USB keyboard interface provides bar code input data to any host computer program exactly as if the data had been typed at the keyboard, including function and control key support. 530-2D reader features include:

• Bar codes
The 530-2D automatically reads and discriminates between Code 39, Full ASCII Code 39, Interleaved 2 of 5, Industrial 2 of 5, Matrix 2 of 5, Codabar, Code 128, EAN-13, EAN-8, UPC (with or without supplements), GS1 DataBar, POSTNET, Intelligent Mail Bar Code, IATA, PDF417, Micro PDF417, Maxi Code, QR Code, Micro QR, Aztec Code, Data Matrix, and several more 1D and 2D bar code symbologies.

• PC Attachment
The 530-2D provides an easy-to-use USB keyboard interface for the PC or Mac. Scanned data is displayed on the PC as keyboard data - transparent to the host application. No additional software is required for operation or configuration.

• Configuration is easy
The 530-2D reader is easily configured for your system by scanning a bar coded Setup Menu. In most cases, the 530-2D will do what you need without any changes to its configuration.

Installation

Components of 530-2D Reader

In the event the shipping box shows damage on arrival, please note the damage on the carrier's receipt log. Open the box and inspect the contents for damage. If there is visible damage, or if the unit fails to work, contact us with the details of the trouble; we will be happy to send you a replacement.

The contents of your 530-2D reader shipment should include the following:

1. A 530-2D-USB bar code scanning gun with C45 USB cable attached.
2. A scanner holder.
3. A Quick Start Guide
4. A Utilities CD-ROM with Manuals PDF Format.

USB Interface (PC and Mac)

The 530-2D reader is attached directly to the USB port of the computer running Windows®, macOS, Mac OS X, or Linux. The Windows, Macintosh®, or Linux operating system provides the software driver required to access the USB port. Data coming from the scanner through the USB port appears as keyboard data in your application. No power supply is required for the USB interface.

Simply plug the USB cable into any available USB port on your PC, or powered HUB, and the 530-2D should power-up and be ready to use in a few seconds. It is not recommended to use non-powered hubs due to the high power requirements of the 530-2D.

Configuration

Configuration of the 530-2D Reader

The 530-2D is configured using the setup bar codes below. Most commands are of the single entry type and only require a single command to enable or disable a feature or function. It may be necessary to enable parameter scanning if parameter scanning has been disabled. Parameter scanning is enabled by default. Parameter scanning can also be locked with a security code if desired. These options will be covered in the User Preferences chapter.

When scanning setup bar codes (or just about any bar code for that matter) follow these tips for best results:

1) Since the 530-2D functions like a camera, holding the scanner steady will improve scanning results.
2) When more than one bar code is in the visible area of the scanner it is a good idea to cover the "unwanted" bar codes to prevent them from being read by accident.
3) If you scan a setup code by accident and the scanner is not working properly but you're not sure what you changed, it's best to scan the "Reset All Settings to Default" bar code and start over.
4) You will find that most bar codes read better when the scanner is angled slightly so that the light reflected from the bar code does not "blind" the scanner. It's just like if you were to try to take a flash picture of a piece of paper, when you do it straight on the flash bounces back and you get a lot of glare but if you do it at a slight angle you get a nice picture.
5) Reading of high-resolution bar codes may require you to move the scanner closer to the bar code to get a good read. The optimum reading distance is 7" from the front of the gun to the bar code.
6) When reading poor quality bar codes, it is a good idea to put tighter limits on what the bar code reader will allow to prevent errors in reading.
7) The 530-2D is an "Omnidirectional" bar code reader so bar codes can be read with any orientation or rotation relative to the reader.
8) There is a special aiming assist dot in the beam as shown below to help you target the correct barcode.

Setup Codes

Set to Factory Default:

To set the scanner to factory defaults, scan the code below. Factory defaults are indicated by an asterisk (*) throughout the manual.

Set USB HID-Keyboard I/F and Reset All Settings to Default

Warning: These setup codes in this manual are for the 530-2D-USB only. Do not use these codes to try to change the setup on the 510-2D, 520-2D-USB, 520-RF scanners or on for the 2D integrated 7000 Terminals or 5000 TriCoders.

Enable/Disable Parameter Scanning:

Parameter scanning (the scanning of setup bar codes) can be enabled or disabled by scanning one of the codes below:

*Enable Parameter Bar Code Scanning

Disable Parameter Bar Code Scanning

Lock/Unlock Parameter Scanning:

This feature locks parameter settings with a 4-digit code to prevent changing parameter values by scanning parameter bar codes. This provides an added level of security not offered by **Disable Parameter Scanning** above. After scanning **Lock** below, the only parameter bar code that is accepted is **Unlock** with the correct 4-digit code.

To lock parameter scanning:
1. Scan the **Lock** bar code below.
2. Scan 4 bar codes from *Appendix A - Numeric Bar Codes* that represent the desired code. Enter leading zeros for numbers below 1000. For example, to program a code of 29 scan **0, 0, 2, 9**. A "lock" beep will sound (2 long high pitch beeps) followed by the parameter entry beep.

Lock

To unlock parameter scanning:
1. Scan the **Unlock** bar code below.
2. Scan 4 bar codes from *Appendix A - Numeric Bar Codes* that represent the correct code. An "unlock" beep will sound (2 long low beeps) followed by the parameter entry beep.

Unlock

Beeper and LED Settings:

Decode Beep

The good decode beep can be enabled/disabled using these parameter bar codes.
Note: parameter scanning beeps and error beeps cannot be disabled.

*Enable Beep After Good Decode

Disable Beep After Good Decode

Beep Tone

The good decode beep tone can be set using these parameter bar codes.

Low Tone

*Medium Tone

High Tone

Beep Tone Duration

The good decode beep duration can be set using these parameter bar codes.

Short Duration

*Medium Duration
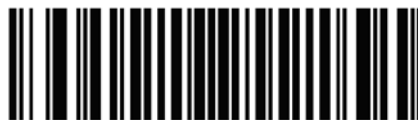
Long Duration

Power Up Beeps

The power up beeps can be enabled/disabled using these parameter bar codes.

*Do Not Suppress Power Up Beeps

Suppress Power Up Beeps

Good Read Decode LED

The good decode LED can be enabled/disabled using these parameter bar codes.

*Enable LED on Good Decode

Disable LED on Good Decode

Illumination Good Read LED

The illumination LED can be used to indicate a good decode (direct decode indicator) using these parameter bar codes. Note: if you release the trigger too quickly you may not see all of the blinks since the scanner will enter sleep mode once the trigger is released.

*Disable Direct Decode Indicator

1 Blink

2 Blinks

Trigger and Scan Mode Settings:

Scan one of the following parameter bar codes to select a trigger mode for the gun.

- **Standard** – A trigger press activates the gun and starts a decode process. Decode processing continues until the bar code decodes, the trigger is released or the decode process times out.
- **Presentation (Blink)** – The scanner will activate decode processing when it detects a bar code in its field of view. After a period of non-use the illumination will turn off until the scanner senses motion.
- **Auto Aim** – The scanner projects an aiming pattern when it senses motion. A trigger press activates decode processing. After 2 seconds of inactivity the aiming pattern turns off.
- **Auto Aim with Illumination** – The scanner turns on the aiming pattern and illumination LEDs when it senses motion. A trigger press activates decode processing. After 2 seconds of inactivity the aiming pattern and illumination LEDs turn off.

*Standard (Level)

Presentation (Blink)

Auto Aim

Auto Aim with Illumination

Picklist Mode

Picklist Mode can be enabled/disabled using these parameter bar codes. Picklist Mode allows the scanning of bar codes that are close together. Only the bar code with the aiming dot on it will be decoded. You cannot disable the aiming dot when Picklist Mode is enabled. When Picklist Mode is enabled decode performance may be reduced and it may be more difficult to scan longer bar codes. It is recommended to only enable Picklist Mode if needed.

Enable Picklist Mode Always

*Disable Picklist Mode Always

Continuous Read Mode

Continuous Read Mode can be enabled/disabled using these parameter bar codes. Continuous Read Mode decodes all bar codes in the field of view when the trigger is pressed. Continuous Read Mode works well with Picklist Mode above. Continuous Read Mode by itself can cause accidental decodes if more than one bar code is in view.

Enable Continuous Bar Code Read

*Disable Continuous Bar Code Read

Unique Bar Code Reporting

Unique Bar Code Reporting can be enabled/disabled using these parameter bar codes. This option only works when Continuous Bar Code Read is enabled above. Unique Bar Code Reporting forces the scanner to output only unique bar codes when the trigger is pressed.

Enable Unique Bar Code Reporting

*Disable Unique Bar Code Reporting

Decode Timeout

Timeout Between Decodes, Same Symbol can be set using this parameter bar code. Use this setting along with Presentation Mode or Continuous Bar Code Read to prevent the scanner from continuously decoding the same symbol when it is left in the scanner's field of view. The decoded bar code must be out of the scanner's field of view for this amount of time before it can be decoded again. The value is programmable in 0.1 second increments with a range of 0.0 seconds to 9.9 seconds. The default value is 0.6 seconds. To set the timeout between decodes for the same symbol, first read the bar code below then scan 2 digits from *Appendix A – Numeric Bar Codes* that correspond to the desired interval.

Timeout Between Decodes, Same Symbol

Timeout Between Decodes, Different Symbol can be set using this parameter bar code. Use this setting along with Presentation Mode or Continuous Bar Code Read to set the delay between reading different bar codes. The value is programmable in 0.1 second increments with a range of 0.1 to 9.9 seconds. The default value is 0.1 seconds. To set the timeout between decodes for the same symbol, first read the bar code below then scan 2 digits from *Appendix A – Numeric Bar Codes* that correspond to the desired interval. Note: the timeout must be less than the Decode Session Timeout.

Timeout Between Decodes, Different Symbols

Decode Session Timeout can be set using this parameter bar code. This parameter sets the maximum time that the scanner will attempt to decode a bar code. The value is programmable in 0.1 second increments with a range of 0.5 to 9.9 seconds. The default value is 9.9 seconds. To set the decode timeout, first read the bar code below then scan 2 digits from *Appendix A – Numeric Bar Codes* that correspond to the desired timeout.

Decode Session Timeout

Mobile Phone/Display Mode

Mobile Phone/Display Mode can be enabled/disabled using these parameter bar codes. This mode improves scanning performance on mobile phone and other displays.

*Disable Mobile Phone/Display Mode

Enable Mobile Phone/Display Mode

Low Light Assist

Low Light Assist Detection can be adjusted using these parameter bar codes. The illumination and aiming pattern can be disabled or dimmed for use in dim or dark environments.

- **No Low Light Scene Detection** – The scanner attempts to detect motion as best it can with the aim pattern and illumination turned off when the scanner is idle.
- **Aiming Pattern Low Light Assist Scene Detection** – Illumination is off, but the aiming pattern is on when the engine is idle to assist with detection.
- **Dim Illumination Low Light Assist Scene Detection** – The aiming pattern is off, but illumination is on at a dim level to assist with detection.

*No Low Light Assist Scene Detection

Aiming Pattern Low Light Assist Scene Detection

Dim Illumination Low Light Assist Scene Detection

Prefix & Suffix Parameters:

The Prefix and Suffix parameters are used to add a prefix and/or suffix to the data output by the scanner.

Terminator Character – Common Suffix

The most common suffix, or Terminator Character, is the **Enter Key** (carriage return/line feed). Scan this bar code to set the Terminator Character suffix to Enter Key (enabled by default):

Add Enter Key (Carriage Return/Line Feed)

Another popular suffix is the **Tab Key**. Scan this bar code to set the Terminator Character suffix to a **Tab Key**:

Tab Key

To clear the suffix and transmit all **Data As-Is** without any Terminator Characters or suffix characters, scan this bar code:

Data As Is

Code ID Character

A common prefix is the **Code ID Character** this can be enabled/disabled using the bar codes below. The code ID character is output in addition to any prefix that is already set. The code ID is inserted between the prefix (if set) and the bar code data. A table of code ID characters can be found in *Appendix D*.

Symbol Code ID Character

AIM Code ID Character

*None

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Prefix & Suffix

Prefix & Suffix values can be set using the bar codes below. You can append a prefix and/or one or two suffixes to scan data output. The Enter Key terminator option above does not count as one of the two suffixes. If Enter Key is enabled above it will be appended after any suffix character(s).

To set a value for a prefix or suffix, scan one of the following bar codes, and then scan four bar codes from *Appendix A - Numeric Bar Codes* that correspond to the desired value. See *Appendix C - Character Sets* for the 4 digit codes.

To correct an error or change a selection, scan the **Data Format Cancel** bar code.

Scan Prefix

Scan Suffix 1

Scan Suffix 2

Data Format Cancel

Prefix & Suffix Transmission Format

The **Scan Data Transmission Format** can be set using the bar codes below. One of the options must be selected to enable a prefix or suffix entered above. The default is transmit data as is without prefix or suffix.

*Data As Is

<DATA> <SUFFIX 1>

<DATA> <SUFFIX 2>

<DATA> <SUFFIX 1> <SUFFIX 2>

<PREFIX> <DATA >

<PREFIX> <DATA> <SUFFIX 1>

<PREFIX> <DATA> <SUFFIX 2>

<PREFIX> <DATA> <SUFFIX 1> <SUFFIX 2>

USB Interface Settings:

USB Keystroke Delay

Scan one of the following bar codes to add a delay between keystroke data output by the scanner. Slower host computers may require a delay.

*No Delay

Medium Delay (20 msec)

Long Delay (40 msec)

Caps Lock Override

USB Caps Lock Override – Enable **Override Caps Lock Key** to preserve the case of the data regardless of the state of the Caps Lock key.

Override Caps Lock Key
(Enable)

*Do Not Override Caps Lock Key
(Disable)

Bar Codes with Unknown Characters

Unknown characters are characters the host does not recognize.

Scan **Send Barcodes with Unknown Characters** to send all barcode data except for unknown characters. No error beeps are given when scanning a barcode with unknown characters.

Scan **Do Not Send Barcodes with Unknown Characters** to send all barcode characters up to the unknown character. The scanner will give an error beep.

*Send Barcodes with Unknown Characters

Do Not Send Barcodes with Unknown Characters

Keypad Emulation

Scan **Enable Keypad Emulation** to send all characters as ASCII key sequences from the numeric keypad.

For example, scanning "A" would transmit "ALT down" 0 6 5 "ALT up".

Enable Keypad Emulation

*Disable Keypad Emulation

Quick Keypad Emulation – Scan **Quick Keypad Emulation** for a quicker method of emulation where ASCII key sequences are only sent for ASCII characters not found on the keyboard.

Enable Quick Keypad Emulation

*Disable Quick Keypad Emulation

Convert Case

Scan one of the following barcodes to convert all data output to the selected case (Applies to ASCII characters only).

*No Case Conversion

Convert All to Upper Case

Convert All to Lower Case

Bar Code Setup:

Enable/Disable All Code Types

Scan **Enable All Code Types** to enable all symbologies. This is useful if you only need to disable a few code types.

Scan **Disable All Code Types** to disable all symbologies (except setup codes). This is useful if you only need to enable a few code types.

Disable All Code Types

Enable All Code Types

1D Bar Code Setup Options

UPC/EAN/JAN Code Options:

UPC-A Enable/Disable

*Enable UPC-A

Disable UPC-A

UPC-E Enable/Disable

*Enable UPC-E

Disable UPC-E

UPC-E1 Enable/Disable

Enable UPC-E1

*Disable UPC-E1

EAN-8/JAN-8 Enable/Disable

*Enable EAN-8/JAN-8

Disable EAN-8/JAN-8

EAN-13/JAN-13 Enable/Disable

*Enable EAN-13/JAN-13

Disable EAN-13/JAN-13

Bookland EAN Enable/Disable

‖‖‖ barcode ‖‖‖
Enable Bookland EAN

‖‖‖ barcode ‖‖‖
*Disable Bookland EAN

Note: If you enable **Bookland EAN**, select a **Bookland ISBN Format**. Also set **Decode UPC/EAN/JAN Supplements** to either **Decode UPC/EAN/JAN with Supplements Only**, **Autodiscriminate UPC/EAN/JAN with Supplements,** or   **Enable 978/979 Supplemental Mode**.

Bookland ISBN Format

- **Bookland ISBN-10** – The scanner reports Bookland data starting with 978 in traditional 10-digit format with the special Bookland check digit for backward compatibility. Data starting with 979 is not considered Bookland in this mode.
- **Bookland ISBN-13** – The scanner reports Bookland data (starting with either 978 or 979) as EAN-13 in 13-digit format to meet the 2007 ISBN-13 protocol.

‖‖‖ barcode ‖‖‖
*Bookland ISBN-10

‖‖‖ barcode ‖‖‖
Bookland ISBN-13

Note: For Bookland to function properly, first enable **Bookland EAN** and then set **Decode UPC/EAN/JAN Supplements** on the next page.

ISSN EAN Enable/Disable

‖‖‖ barcode ‖‖‖
Enable ISSN EAN

‖‖‖ barcode ‖‖‖
*Disable ISSN EAN

UPC/EAN JAN Supplements Decode Options

Supplements are bar codes appended according to specific format conventions (such as UPC A+2, UPC E+2, EAN 13+2). The following options are available:

- **Decode UPC/EAN/JAN with Supplements Only** – The scanner only decodes UPC/EAN/JAN bar codes with supplemental characters and ignores bar codes without supplemental bar codes.
- **Ignore UPC/EAN/JAN Supplementals** – When presented with a UPC/EAN/JAN bar code with a supplement, the scanner decodes the UPC/EAN/JAN and ignores the supplement.
- **Autodiscriminate UPC/EAN/JAN with Supplementals** – The scanner decodes UPC/EAN/JAN bar codes immediately. If the bar code does not have a supplement, the scanner must decode the bar code the number of times set by **UPC/EAN/JAN Supplemental Redundancy** before transmitting its data to confirm that there is no supplemental.

Select one of the following **Supplemental Mode** options to immediately transmit EAN-13 bar codes starting with that prefix that have supplemental characters. If the bar code does not have a supplemental, the scanner must decode the bar code the number of times set by **UPC/EAN/JAN Supplemental Redundancy** before transmitting the data to confirm that there is no supplemental. The scanner transmits UPC/EAN/JAN bar codes that do not have that prefix immediately.

- **Enable 378/379 Supplemental Mode**
- **Enable 978/979 Supplemental Mode**
  Note: If you select **978/979 Supplemental Mode** and are scanning Bookland EAN bar codes, see the Bookland EAN section above and select a format using **Bookland ISBN Format.**

- **Enable 977 Supplemental Mode**
- **Enable 414/419/434/439 Supplemental Mode**
- **Enable 491 Supplemental Mode**
- **Enable Smart Supplemental Mode** – This applies to EAN-13 bar codes starting with any prefix listed previously.
- **Supplemental User-Programmable Type-1** – This applies to EAN-13 bar codes starting with a 3-digit user defined prefix. Set this using **User-Programmable Supplements**.

- **Supplemental User-Programmable Type-1 and 2** – This applies to EAN-13 bar codes with either of two 3-digit user-defined prefixes. Set the prefixes using **User-Programmable Supplements**.

- **Smart Supplemental Plus User-Programmable 1** – This applies to EAN-13 bar codes starting with any prefix listed previously or the prefix set using **User-Programmable Supplements.**

- **Smart Supplemental Plus User-Programmable 1 and 2** – This applies to EAN-13 bar codes starting with any prefix listed previously or one of the two user-defined prefixes set using **User-Programmable Supplements**.

Note: To minimize the risk of invalid data transmission, select either to decode or ignore supplemental characters.

Decode UPC/EAN/JAN Supplements (continued):

Decode UPC/EAN/JAN With Supplementals Only

*Ignore UPC/EAN/JAN Supplementals

Autodiscriminate UPC/EAN/JAN with Supplementals

Enable 378/379 Supplemental Mode

Enable 978/979 Supplemental Mode

Enable 977 Supplemental Mode

Decode UPC/EAN/JAN Supplements (continued):

Enable 414/419/434/439 Supplemental Mode

Enable 491 Supplemental Mode

Enable Smart Supplemental Mode

Supplemental User-Programmable Type 1

Supplemental User-Programmable Type 1 and 2

Smart Supplemental Plus User-Programmable 1

Smart Supplemental Plus User-Programmable 1 and 2

User Programmable Supplementals:

If you selected a **Supplemental User-Programmable** option from **Decode UPC/EAN/JAN Supplementals** above, scan **User-Programmable Supplemental 1**, then scan 3 bar codes from *Appendix A - Numeric Bar Codes* to set the 3-digit prefix. To set a second 3-digit prefix, scan **User-Programmable Supplemental 2**, and then scan 3 bar codes from *Appendix A - Numeric Bar Codes*. The default is 000 (zeroes).

User-Programmable Supplemental 1

User-Programmable Supplemental 2

UPC/EAN/JAN Supplemental Redundancy:

If **Autodiscriminate UPC/EAN/JAN with Supplementals** is enabled, this option sets the number of times to decode a bar code without supplementals before transmission. The range is from 2-16. Five or above is recommended when decoding a mix of UPC/EAN/JAN bar codes with and without supplementals. The default is 10.

To set a redundancy value, scan the following bar code and then scan two bar codes from *Appendix A - Numeric Bar Codes*. Use a leading zero for single digit numbers.

To correct an error or change a selection scan **Cancel**.

UPC/EAN/JAN Supplemental Redundancy

Cancel

UPC/EAN/JAN Supplemental AIM ID Format:

If **Transmit Code ID Character** is set to **AIM Code ID Character**, scan one of the following bar codes to select an output format when reporting UPC/EAN/JAN bar codes with supplements:

- **Separate** – Transmit UPC/EAN/JAN with supplementals with separate AIM IDs but one transmission.
  For example:]E<0 or 4><data>]E<1 or 2>[supplemental data]

- **Combined** – Transmit UPC/EAN/JAN with supplementals with one AIM ID and one transmission.
  For example:]E3<data+supplemental data>

- **Separate Transmissions** – Transmit UPC/EAN/JAN with supplements with separate AIM IDs and separate transmissions.
  For example:]E<0 or 4><data>]E<1 or 2>[supplemental data]

Separate

*Combined

Separate Transmissions

Transmit UPC-A Check Digit:

The check digit is the last character of the bar code used to verify the integrity of the data. Scan one of the following bar codes to transmit the bar code data with or without the UPC-A check digit. The check digit is always verified to insure the integrity of the data.

*Transmit UPC-A Check Digit

Do Not Transmit UPC-A Check Digit

Transmit UPC-E Check Digit:

The check digit is the last character of the bar code used to verify the integrity of the data. Scan one of the following bar codes to transmit the bar code data with or without the UPC-E check digit. The check digit is always verified to insure the integrity of the data.

*Transmit UPC-E Check Digit

Do Not Transmit UPC-E Check Digit

Transmit UPC-E1 Check Digit:

The check digit is the last character of the bar code used to verify the integrity of the data. Scan one of the following bar codes to transmit the bar code data with or without the UPC-E1 check digit. The check digit is always verified to insure the integrity of the data.

*Transmit UPC-E1 Check Digit

Do Not Transmit UPC-E1 Check Digit

UPC-A Preamble:

Preamble characters are part of the UPC symbol and include Country Code and System Character. Select the appropriate option for transmitting a UPC-A preamble to match the host system:

- Transmit System Character only
- Transmit System Character and Country Code ("0" for USA)
- Transmit no preamble

No Preamble (<DATA>)

*System Character
(<SYSTEM CHARACTER> <DATA>)

System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)

UPC-E Preamble:

Preamble characters are part of the UPC symbol and include Country Code and System Character. Select the appropriate option for transmitting a UPC-E preamble to match the host system:

- Transmit System Character only
- Transmit System Character and Country Code ("0" for USA)
- Transmit no preamble

*System Character
(<SYSTEM CHARACTER> <DATA>)

System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)
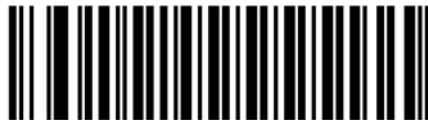
No Preamble (<DATA>)

UPC-E1 Preamble:

Preamble characters are part of the UPC symbol and include Country Code and System Character. Select the appropriate option for transmitting a UPC-E preamble to match the host system:

- Transmit System Character only
- Transmit System Character and Country Code ("0" for USA)
- Transmit no preamble

No Preamble (<DATA>)

*System Character
(<SYSTEM CHARACTER> <DATA>)

System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)

Convert UPC-E to UPC-A:

Enable this to convert UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (for example: Preamble and Check Digit).

Convert UPC-E to UPC-A (Enable)

*Do Not Convert UPC-E to UPC-A (Disable)

Convert UPC-E1 to UPC-A:

Scan **UPC-E1 to UPC-A (Enable)** to convert UPC-E1 decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (for example: Preamble and Check Digit).

Convert UPC-E1 to UPC-A (Enable)

*Do Not Convert UPC-E1 to UPC-A (Disable)

EAN/JAN Zero Extended:

Scan **Enable EAN/JAN Zero Extended** to add five leading zeros to decoded EAN-8 bar codes to make them compatible in length with EAN-13 bar codes.

Enable EAN/JAN Zero Extend

*Disable EAN/JAN Zero Extend

UCC Coupon Extended Code

Scan **Enable UCC Coupon Extended Code** to decode UPC-A bar codes starting with the digit "5", EAN-13 bar codes starting with the digits "99", and UPC-A/GS1-128 coupon codes. UPC-A, EAN-13, and GS1-128 must be enabled to use this feature.

Enable UCC Coupon Extended Code

*Disable UCC Coupon Extended Code

Coupon Report

Scan one of the following bar codes to select the type of coupon format to support.

- **Old Coupon Format** – Support UPC-A/GS1-128 and EAN-13/GS1-128
- **New Coupon Format** – An interim format to support UPC-A/GS1-DataBar and EAN-13/GS1 DataBar
- **Autodiscriminate Format** – Support both **Old Coupon Format** and **New Coupon Format**

Old Coupon Format

*New Coupon Format

Autodiscriminate Coupon Format

UPC Reduced Quiet Zone

Scan one of the following bar codes to enable/disable decoding UPC bar codes with reduced quiet zones (quiet zones are the margins on either side of the bar code).

Enable UPC Reduced Quiet Zone

*Disable UPC Reduced Quiet Zone

Code 128 Options:

Code 128 Enable/Disable

Scan one of the following bar codes to enable/disable **Code 128:**

*Enable Code 128

Disable Code 128

Set Length for Code 128:

The length of the code refers to the number of characters (the human readable characters), including check digit(s) the code contains. Set lengths for **Code 128** to any length, one or two fixed lengths, or lengths within a specific range. The default is **Any Length**.

Note: When setting lengths, enter a leading zero for single digit numbers.

- **One Discrete Length** – Decode only Code 128 bar codes containing the selected number of characters. Select the length using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only Code 128 bar codes with 14 characters, scan **Code 128 – One Discrete Length**, and then scan **1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Two Discrete Lengths** – Decode only Code 128 bar codes containing either of the two selected numbers of characters. Select the length using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only Code 128 bar codes with either 2 or 14 characters, scan **Code 128 – Two Discrete Lengths**, and then scan **0, 2, 1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Length Within Range** – Decode only Code 128 bar codes within a specific length range. Select the lengths using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only Code 128 bar codes containing between 4 and 12 characters, scan **Code 128 – Length Within Range** and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan the **Cancel** bar code.

Code 128 - One Discrete Length

Code 128 - Two Discrete Lengths

Set Length for Code 128 (continued):

‖|||‖|‖|‖|‖|‖|‖|‖|‖|‖|‖|‖|‖

Code 128 - Length Within Range

‖|||‖|‖|‖|‖|‖|‖|‖|‖|‖|‖|‖|‖

*Code 128 - Any Length

‖|||‖|‖|‖|‖

Cancel

GS1-128 Enable/Disable (formerly UCC/EAN-128):

Scan one of the following bar codes to enable/disable **GS1-128.**

‖|||‖|‖|‖|‖|‖|‖   ‖|||‖|‖|‖|‖|‖|‖

*Enable GS1-128   Disable GS1-128

ISBT 128 Enable/Disable:

ISBT 128 is a variant of Code 128 used in the blood bank industry. Scan one of the following bar codes to enable/disable **ISBT 128**.

‖|||‖|‖|‖|‖|‖|‖   ‖|||‖|‖|‖|‖|‖|‖

*Enable ISBT 128   Disable ISBT 128

ISBT Concatenation:

Select and option for concatenating pairs of ISBT code types:

- **Enable ISBT Concatenation** – There must be two ISBT codes in order for the scanner to decode and perform concatenation. This scanner does not decode single ISBT codes.
- **Disable ISBT Concatenation** – The scanner does not concatenate pairs of ISBT codes it encounters.
- **Autodiscriminate ISBT Concatenation** – The scanner decodes and concatenates pairs of ISBT codes immediately. If only a single ISBT bar code is present, the scanner must decode the bar code the number of times set by **ISBT Concatenation Redundancy** before transmitting its data to confirm that there is no additional ISBT code.

Enable ISBT Concatenation

*Disable ISBT Concatenation

Autodiscriminate ISBT Concatenation

ISBT Concatenation Redundancy:

If you set **ISBT Concatenation** to **Autodiscriminate**, use this parameter to set the number of times the scanner must decode an ISBT code before determining that there is no additional ISBT code.

Scan the following bar code, and then scan bar codes in *Appendix A – Numeric Bar Codes* to set a value between 2 and 20. Enter a leading zero for single digit numbers. To correct and error or change a selection, scan the **Cancel** bar code. The default is 10.

ISBT Concatenation Redundancy

Cancel

Code 128 <FNC4>:

This feature applies to Code 128 bar codes with an embedded <FNC4> character. Select **Ignore Code 128 <FNC4>** to strip the <FNC4> character from the decode data. The remaining characters are sent to the host unchanged. When disabled, the <FNC4> character is processed normally as per the Code 128 standard.

*Honor Code 128 <FNC4>

Ignore Code 128 <FNC4>

Code 128 Security Level:

Code 128 bar codes are vulnerable to misdecodes, especially when **Code 128 Lengths** is set to **Any Length**. The scanner offers four levels of decode security for Code 128 bar codes. There is an inverse relationship between security and scanner aggressiveness. Increasing the level of security can reduce the scanner aggressiveness, so select only the level of security needed.

- **Code 128 Security Level 0** – The scanner operates in its most aggressive state, while providing sufficient security in decoding most in-spec bar codes.
- **Code 128 Security Level 1** – This option eliminates most misdecodes while maintaining reasonable aggressiveness.
- **Code 128 Security Level 2** – This option applies greater bar code security requirements if **Code 128 Security Level 1** fails to eliminate misdecodes.
- **Code 128 Security Level 3** – If you tried **Code 128 Security Level 2** and misdecodes still occur, select this security level to apply the highest safety requirements.

Note: Selecting **Level 3** is an extreme measure against mis-decoding severely out-of-spec Code 128 bar codes, and significantly impairs the decoding ability of the scanner. If this level of security is required, try to improve the quality of the bar codes.

Code 128Security Level 0

*Code 128 Security Level 1

Code 128 Security Level 2

Code 128 Security Level 3

Code 128 Reduced Quiet Zone:

Scan one of the following bar codes to enable/disable decoding Code 128 bar codes with reduced quiet zones (the margins on either side of the bar code). If you select **Enable**, also select a **1D Quiet Zone Level**.

Enable Code 128 Reduced Quiet Zone

*Disable Code 128 Reduced Quiet Zone

Code 39 Options:

Code 39 Enable/Disable:

Scan one of the following bar codes to enable/disable **Code 39:**

*Enable Code 39

Disable Code 39

Trioptic Code 39 Enable/Disable:

Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. Trioptic Code 39 bar codes always contain 6 characters. Scan one of the following bar codes to enable/disable **Trioptic Code 39**.

Enable Trioptic Code 39

*Disable Trioptic Code 39

Note: You cannot enable **Trioptic Code 39** and **Full ASCII Code 39** at the same time.

Set Lengths for Code 39:

The length of a code refers to the number of human readable characters, including check digit(s), the code contains. Set lengths for Code 39 to any length, one or two fixed lengths, or lengths within a specific range. If Code 39 Full ASCII is enabled, **Length Within Range** or **Any Length** are the preferred options. The default is **Length Within Range** set to 2 to 55 characters.

Note: When setting lengths, enter a leading zero for single digit numbers.

Scan one of the following bar codes to select a length option:

- **One Discrete Length** – Decode only Code 39 bar codes containing the selected length of characters. Select the length using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only Code 39 bar codes with 14 characters, scan **Code 39 – One Discrete Length** and then scan **1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Two Discrete Lengths** – Decode only Code 39 bar codes containing either of two lengths. Select the lengths using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only Code 39 bar codes with 2 or 14 characters, scan **Code 39 – Two Discrete Lengths** and then scan **0, 2, 1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Length Within Range** – Decode only Code 39 bar codes with a length within a set range. Select the lengths using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to

decode Code 39 bar codes containing between 4 and 12 characters, scan **Code 39 – Length Within Range** and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan the **Cancel** bar code.

- **Any Length** – Decode Code 39 bar codes containing any number of characters within the scanners capability.

Code 39 - One Discrete Length

Code 39 - Two Discrete Lengths

***Code 39 - Length Within Range (Default: 2 to 55)**

Code 39 - Any Length

Code 39 Check Digit Verification:

Scan **Enable Code 39 Check Digit** to check the integrity of all Code 39 bar codes to verify that the data complies with specified check digit algorithm. Only Code 39 bar codes which include a modulo 43 check digit are decoded. Enable this feature if the Code 39 bar codes contain a Modulo 43 check digit.

Enable Code 39 Check Digit

***Disable Code 39 Check Digit**

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Transmit Code 39 Check Digit:

Scan one of the following bar codes to enable/disable the transmission of the Code 39 data with or without the check digit.

Note: **Code 39 Check Digit Verification** must be enabled to use this option.

Transmit Code 39 Check Digit (Enable)

*Do Not Transmit Code 39 Check Digit (Disable)

Code 39 Full ASCII Conversion:

Code 39 Full ASCII is a variant of Code 39 which pairs characters to encode the full ASCII character set. Scan one of the following codes to enable/disable Code 39 Full ASCII.

Enable Code 39 Full ASCII
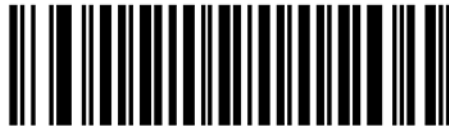
*Disable Code 39 Full ASCII

Note: You cannot enable **Trioptic Code 39** and **Full ASCII Code 39** at the same time.

Note: Code 39 Full ASCII to Full ASCII Correlation is host-dependent, and is therefore described in the ASCII character set table for the appropriate interface. See ***Appendix C – Character Sets***.

Code 39 Security Level:

The scanner offers four levels of decode security for Code 39 bar codes. There is an inverse relationship between security and scanner aggressiveness. Increasing the level of security can reduce scanning aggressiveness, so select only the level of security necessary.

- **Code 39 Security Level 0** – The scanner operates in its most aggressive state, while providing sufficient security in decoding most in-spec bar codes.
- **Code 39 Security Level 1** – This default setting eliminates most misdecodes.
- **Code 39 Security Level 2** – This option applies greater bar code security requirements if **Security Level 1** fails to eliminate misdecodes.
- **Code 39 Security Level 3** – If you tried **Security Level 2** and misdecodes still occur, select this security level to apply the highest safety requirements. Selecting this option is an extreme measure against mis-decoding severely out-of-spec bar codes, and significantly impairs the decoding ability of the scanner. If this level of security is required, try to improve the quality of the bar codes.

Code 39 Security Level 0

*Code 39 Security Level 1

Code 39 Security Level 2

Code 39 Security Level 3

Code 39 Reduced Quiet Zone:

Scan one of the following bar codes to enable/disable decoding Code 39 bar codes with reduced quiet zones (the margins on either side of the bar code). If you select **Enable**, select a *1D Quiet Zone Level* on page xxx.

Enable Code 39 Reduced Quiet Zone

*Disable Code 39 Reduced Quiet Zone

Code 93 Options:

Code 93 Enable/Disable:

Scan one of the following bar codes to enable/disable **Code 93**.

*Enable Code 93

Disable Code 93

Set Lengths for Code 93:

The length of a code refers to the number of human readable characters, including check digit(s), within the code. Set lengths for Code 93 to any length, one or two discrete lengths, or lengths within a specific range. The default is **Length Within Range: 4 to 55**. Scan one of the following bar codes to set a length option.

- **One Discrete Length** – Decode only Code 93 bar codes containing a selected length. Select the length using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only Code 93 bar codes with 14 characters, scan **Code 93 – One Discrete Length**, and then scan **1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Two Discrete Lengths** – Decode only Code 93 bar codes containing either of two lengths. Select lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only Code 39 bar codes containing either 2 or 14 characters, scan **Code 93 – Two Discrete Lengths**, then scan **0, 2, 1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Length Within Range** – Decode Code 93 bar codes with a specific length range. Select the lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode Code 93 bar codes containing between 4 and 12 characters, scan **Code 93 – Length Within Range**, and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan *Cancel*.
- **Any Length** – Decode Code 93 bar codes containing any number of characters within the scanners capability.

Code 93 - One Discrete Length

Code 93 - Two Discrete Lengths

*Code 93 - Length Within Range
(Default: 4 to 55)

Code 93 - Any Length

Code 11 Options:

Code 11 Enable/Disable

Scan one the following bar codes to enable/disable **Code 11**:

Enable Code 11

*Disable Code 11

Set Lengths for Code 11:

The length of a code refers to the number of human readable characters, including check digit(s), within the code. Set lengths for Code 11 to any length, one or two discrete lengths, or lengths within a specific range. The default is **Length Within Range: 4 to 55**. Scan one of the following bar codes to set a length option.

- **One Discrete Length** – Decode only Code 11 bar codes containing a selected length. Select the length using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only Code 93 bar codes with 14 characters, scan **Code 11 – One Discrete Length**, and then scan **1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Two Discrete Lengths** – Decode only Code 11 bar codes containing either of two lengths. Select lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only Code 39 bar codes containing either 2 or 14 characters, scan **Code 11 – Two Discrete Lengths**, then scan **0, 2, 1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Length Within Range** – Decode Code 11 bar codes with a specific length range. Select the lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode Code 11 bar codes containing between 4 and 12 characters, scan **Code 11 – Length Within Range**, and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan *Cancel*.
- **Any Length** – Decode Code 11 bar codes containing any number of characters within the scanners capability.

Code 11 - One Discrete Length

Code 11 - Two Discrete Lengths

*Code 11 - Length Within Range
(Default: 4 to 55)

Code 11 - Any Length

Code 11 Check Digit Verification:

This feature allows the scanner to check the integrity of all Code 11 bar codes to verify that the data complies with the specified check digit algorithm.

Scan one of the following bar codes to specify the number of check digits encoded in the Code 11 bar codes, or to disable this feature.

*Disable

One Check Digit

Two Check Digits

Transmit Code 11 Check Digits:

Scan one of the following bar codes to select whether or not to transmit the Code 11 check digit(s).

Transmit Code 11 Check Digit(s) (Enable)

*Do Not Transmit Code 11 Check Digit(s) (Disable)

Note: **Code 11 Check Digit Verification** must be enabled for this parameter to function.

Interleaved 2 of 5 (ITF) Options:

Interleaved 2 of 5 Enable/Disable

Scan one of the following bar codes to enable/disable Interleaved 2 of 5.

Enable Interleaved 2 of 5

*Disable Interleaved 2 of 5

Set Lengths for Interleaved 2 of 5:

The length of a code refers to the number of human readable characters, including check digit(s), within the code. Set lengths for I 2 of 5 to any length, one or two discrete lengths, or lengths within a specific range. The default is **One Discrete Length: 14**. Scan one of the following bar codes to set a length option.

- **One Discrete Length** – Decode only I 2 of 5 bar codes containing a selected length. Select the length using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only I 2 of 5 bar codes with 14 characters, scan **I 2 of 5 – One Discrete Length**, and then scan **1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Two Discrete Lengths** – Decode only I 2 of 5 bar codes containing either of two lengths. Select lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only I 2 of 5 bar codes containing either 2 or 14 characters, scan **I 2 of 5 – Two Discrete Lengths**, then scan **0, 2, 1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Length Within Range** – Decode I 2 of 5 bar codes with a specific length range. Select the lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode I 2 of 5 bar codes containing between 4 and 12 characters, scan **I 2 of 5 – Length Within Range**, and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan *Cancel*.
- **Any Length** – Decode I 2 of 5 bar codes containing any number of characters within the scanners capability.

Note: Due to the construction of the I 2 of 5 symbology, it is possible for a scan line covering only a portion of the code to transmit as a complete scan, yielding less data than is encoded into the bar code. To prevent this, select specific lengths (I 2 of 5 – One Discrete Length, Two Discrete Lengths) for I 2 of 5 applications, or increase the *I 2 of 5 Security Level*.

*I 2 of 5 - One Discrete Length
(Default: 14)

I 2 of 5 - Two Discrete Lengths

I 2 of 5 - Length Within Range

I 2 of 5 - Any Length

I 2 of 5 Check Digit Verification:

Scan one of the following bar codes to check the integrity of all I 2 of 5 bar codes to verify the data complies with either the specified Uniform Symbology Specification (USS), or the Optical Product Code Council (OPCC) check digit algorithm.

*Disable

USS Check Digit

OPCC Check Digit

Transmit I 2 of 5 Check Digit:

Scan one of the following bar codes to transmit I 2 of 5 data with or without the check digit.

Transmit I 2 of 5 Check Digit (Enable)

*Do Not Transmit I 2 of 5 Check Digit (Disable)

Convert I 2 of 5 to EAN-13:

Scan **Convert I 2 of 5 to EAN-13 (Enable)** to convert 14-character I 2 of 5 codes to EAN-13, and transmit to the host as EAN-13. To Accomplish this, the I 2 of 5 code must be enabled, and the code must have a leading zero and a valid EAN-13 check digit.

Convert I 2 of 5 to EAN-13 (Enable)

*Do Not Convert I 2 of 5 to EAN-13 (Disable)

I 2 of 5 Reduced Quiet Zone:

Scan one of the following bar codes to enable/disable decoding I 2 of 5 bar codes with reduced quiet zones (the margins on either side of the bar code). If you select **Enable**, select a *1D Quiet Zone Level* on page xxx.

Enable I 2 of 5 Reduced Quiet Zone

***Disable I 2 of 5 Reduced Quiet Zone**

I 2 of 5 Security Level:

Interleaved 2 of 5 bar codes are vulnerable to misdecodes, particularly when I 2 of 5 Lengths is set to **Any Length**. The scanner offers four levels of decode security for Interleaved 2 of 5 bar codes. There is an inverse relationship between security and engine aggressiveness. Increasing the level of security can reduce scanning aggressiveness, so select only the level of security necessary.

- **I 2 of 5 Security Level 0** – The scanner operates in its most aggressive state while providing sufficient security in decoding most in-spec bar codes.
- **I 2 of 5 Security Level 1** – A bar code must successfully read twice, and satisfy certain safety requirements before being decoded. This default setting eliminates most misdecodes.
- **I 2 of 5 Security Level 2** – This option applies greater bar code security requirements if **Security Level 1** fails to eliminate misdecodes.
- **I 2 of 5 Security Level 3** – If you selected **Security Level 2**, and misdecodes still occur, select this security level. This highest safety requirements are applied. A bar code must be successfully read three times before being decoded. Note: Selecting this option is an extreme measure against mis-decoding severely out-of-spec bar codes, and significantly impairs the decoding ability of the engine. If this level of security is required, try to improve the quality of the bar codes.

I 2 of 5 Security Level 0

***I 2 of 5 Security Level 1**

I 2 of 5 Security Level 2

I 2 of 5 Security Level 3

Discrete 2 of 5 (DTF) Options:

Discrete 2 of 5 Enable/Disable

Scan one of the following bar codes to enable/disable Discrete 2 of 5.

Enable Discrete 2 of 5

*Disable Discrete 2 of 5

Set lengths for Discrete 2 of 5:

The length of a code refers to the number of human readable characters, including check digit(s) the code contains. Set lengths for D 2 of 5 to any length, one or two discrete lengths, or lengths within a specific range. The default is **One Discrete Length: 12**.

Note: When setting lengths, enter a leading zero for single digit numbers.

Scan one of the following bar codes to select a length option:

- **One Discrete Length** – Decode only D 2 of 5 bar codes containing a selected length. Select the length using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only D2 of 5 bar codes with 14 characters, scan **D 2 of 5 – One Discrete Length**, and then scan **1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Two Discrete Lengths** – Decode only D 2 of 5 bar codes containing either of two lengths. Select lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only D 2 of 5 bar codes containing either 2 or 14 characters, scan **D 2 of 5 – Two Discrete Lengths**, and then scan **0, 2, 1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Length Within Range** – Decode D 2 of 5 bar codes with a specific length range. Select lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode D 2 of 5 bar codes containing between 4 and 12 characters, scan **D 2 of 5 – Length Within Range**, and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan *Cancel*.
- **Any Length** – Decode D 2 of 5 bar codes containing any number of characters within the engine's capability.

Note: Due to the construction of the D 2 of 5 symbology, it is possible for a scan line covering only a portion of the code to transmit as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (D 2 of 5 – One Discrete Length, Two Discrete Lengths) for D 2 of 5 applications.

*D 2 of 5 - One Discrete Length
(Default: 12)   `

D 2 of 5 - Two Discrete Lengths

Set lengths for Discrete 2 of 5 (continued):

|||| || ||||||| |||||| ||||| |||||

D 2 of 5 - Length Within Range

||| || |||| |||||| ||| |||| ||| ||

D 2 of 5 - Any Length

||| || ||| |||||||| ||||

Cancel

Codabar (NW – 7) Options:

Codabar Enable/Disable

Scan one of the following bar codes to enable/disable Codabar.

*Enable Codabar

Disable Codabar

Set Lengths for Codabar:

The length of a code refers to the number of human readable characters, including check digit(s), the code contains. Set lengths for Codabar to any length, one or two fixed lengths, or lengths within a specific range. The default is **Length Within Range** set to 5 to 55 characters.

Note: When setting lengths, enter a leading zero for single digit numbers.

Scan one of the following bar codes to select a length option:

- **One Discrete Length** – Decode only Codabar bar codes containing the selected length of characters. Select the length using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only Codabar bar codes with 14 characters, scan **Codabar – One Discrete Length** and then scan **1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Two Discrete Lengths** – Decode only Codabar bar codes containing either of two lengths. Select the lengths using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only Codabar bar codes with 2 or 14 characters, scan **Codabar – Two Discrete Lengths** and then scan **0, 2, 1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Length Within Range** – Decode only Codabar bar codes with a length within a set range. Select the lengths using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode Codabar bar codes containing between 4 and 12 characters, scan **Codabar – Length Within Range** and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Any Length** – Decode Codabar bar codes containing any number of characters within the scanners capability.

Codabar - One Discrete Length

Codabar - Two Discrete Lengths

*Codabar - Length Within Range
(Default: 5 to 55)

Codabar - Any Length

Cancel

CLSI Editing:

Scan **Enable CLSI Editing** to strip the start and stop characters and insert a space after the first, fifth, and tenth characters of a 14-character Codabar bar code if the host system requires this data format.

Note: Bar code length does not include start and stop characters.

Enable CLSI Editing

*Disable CLSI Editing

NOTIS Editing:

Scan **Enable NOTIS Editing** to strip the start and stop characters from a decoded Codabar bar code if the host system requires this data format.

Enable NOTIS Editing

*Disable NOTIS Editing

Codabar Upper or Lower Case Start/Stop Characters:

Scan one of the following bar codes to select whether to transmit upper case or lower case Codabar start/stop characters.

Lower Case

*Upper Case

MSI Options:

MSI Enable/Disable

Scan one of the following bar codes to enable/disable MSI.

Enable MSI

*****Disable MSI**

Set Lengths for MSI:

The length of a code refers to the number of human readable characters, including check digit(s), the code contains. Set lengths for MSI to any length, one or two fixed lengths, or lengths within a specific range. The default is **Length Within Range** set to 4 to 55 characters.

Note: When setting lengths, enter a leading zero for single digit numbers.

Scan one of the following bar codes to select a length option:

- **One Discrete Length** – Decode only MSI bar codes containing the selected length of characters. Select the length using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only MSI bar codes with 14 characters, scan **MSI – One Discrete Length** and then scan **1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Two Discrete Lengths** – Decode only MSI bar codes containing either of two lengths. Select the lengths using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode only MSI bar codes with 2 or 14 characters, scan **MSI – Two Discrete Lengths** and then scan **0, 2, 1, 4**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Length Within Range** – Decode only MSI bar codes with a length within a set range. Select the lengths using the bar codes in *Appendix A – Numeric Bar Codes*. For example, to decode MSI bar codes containing between 4 and 12 characters, scan **MSI – Length Within Range** and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan the **Cancel** bar code.
- **Any Length** – Decode MSI bar codes containing any number of characters within the scanners capability.

Note: Due to the construction of the MSI bar code, it is possible for a scan line covering only a portion of the code to transmit as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (**MSI – One Discrete Length, Two Discrete Lengths**) for MSI applications.

MSI - One Discrete Length

MSI - Two Discrete Lengths

*****MSI - Length Within Range**
(Default: 4 to 55)

MSI - Any Length

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MSI Check Digits:

With MSI bar codes, one check digit is mandatory and always verified by the scanner. The second check digit is optional. If the MSI codes include two check digits, scan the **Two MSI Check Digits** bar codes to enable verification of the second check digit.

See *MSI Check Digit Algorithm* to select second digit algorithms.

*One MSI Check Digit

Two MSI Check Digits

Transmit MSI Check Digit(s):

Scan one of the following bar codes to transmit MSI data with or without the check digit.

Transmit MSI Check Digit(s) (Enable)

*Do Not Transmit MSI Check Digit(s) (Disable)

MSI Check Digit Algorithm:

Two algorithms are available for verifying the second MSI check digit. Scan one of the following bar codes to select the algorithm used to encode the check digit.

MOD 11/MOD 10

*MOD 10/MOD 10

MSI Reduced Quiet Zone:

Scan one of the following bar codes to enable/disable decoding MSI bar codes with reduced quiet zones. If you select **Enable**, select a *1D Quiet Zone Level*.

*Disable MSI Reduced Quiet Zone

Enable MSI Reduced Quiet Zone

Matrix 2 of 5 Options:

Matrix 2 of 5 Enable/Disable

Scan one of the following bar codes to enable/disable Matrix 2 of 5.

Enable Matrix 2 of 5

*Disable Matrix 2 of 5

Set Lengths for Matrix 2 of 5:

The length of a code refers to the number of human readable characters, including check digit(s) the code contains. Set lengths for Matrix 2 of 5 to any length, one or two discrete lengths, or lengths within a specific range. The default is **One Discrete Length: 14**.

Note: When setting lengths, enter a leading zero for single digit numbers.

Scan one of the following bar codes to select a length option:

- **One Discrete Length** – Decode only Matrix 2 of 5 bar codes containing a selected length. Select the length using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only Matrix 2 of 5 bar codes with 14 characters, scan **Matrix 2 of 5 – One Discrete Length**, and then scan **1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Two Discrete Lengths** – Decode only Matrix 2 of 5 bar codes containing either of two lengths. Select lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode only Matrix 2 of 5 bar codes containing either 2 or 14 characters, scan **Matrix 2 of 5 – Two Discrete Lengths**, and then scan **0, 2, 1, 4**. To correct an error or change the selection, scan *Cancel*.
- **Length Within Range** – Decode Matrix 2 of 5 bar codes with a specific length range. Select lengths using the bar codes in *Appendix A - Numeric Bar Codes*. For example, to decode Matrix 2 of 5 bar codes containing between 4 and 12 characters, scan **Matrix 2 of 5 – Length Within Range**, and then scan **0, 4, 1, 2**. To correct an error or change the selection, scan *Cancel*.
- **Any Length** – Decode Matrix 2 of 5 bar codes containing any number of characters within the engine's capability.

*Matrix 2 of 5 - One Discrete Length
(Default: 14)

Matrix 2 of 5 - Two Discrete Lengths

Matrix 2 of 5 - Length Within Range

Matrix 2 of 5 - Any Length

Matrix 2 of 5 Check Digit:

The check digit is the last character of the bar code used to verify the integrity of the data. Scan one of the following bar codes to determine whether to include the Matrix 2 of 5 check digit with the bar code data.

Enable Matrix 2 of 5 Check Digit

*Disable Matrix 2 of 5 Check Digit

Transmit Matrix 2 of 5 Check Digit:

Scan one of the following bar codes to transmit Matrix 2 of 5 data with or without the check digit.

Transmit Matrix 2 of 5 Check Digit

*Do Not Transmit Matrix 2 of 5 Check Digit

Inverse 1D Options:

Normally bar codes are printed with black bars and white spaces with white margins. This setting will cause the decoder to see things differently. Scan one of the following bar codes to set the 1D inverse decoder setting:

- **Regular Only** – The scanner decodes regular 1D bar codes only.
- **Inverse Only** – The scanner decodes inverse 1D bar codes only.
- **Inverse Autodetect** – The scanner decodes both regular and inverse 1D bar codes.

Note: This parameter does not apply to GS1 DataBar code types. The Inverse 1D setting may impact Composite or Inverse Composite scanning. The *Composite Inverse*.

*Regular

Inverse Only

Inverse Autodetect

GS1 DataBar Options:

The variants of GS1 DataBar are DataBar-14, DataBar Expanded, and DataBar Limited. The limited and expanded versions have stacked variants. Scan the appropriate bar codes to enable or disable each variant of GS1 DataBar.

GS1 DataBar-14 Enable/Disable

*Enable GS1 DataBar-14

Disable GS1 DataBar-14

GS1 DataBar Limited Enable/Disable

*Enable GS1 DataBar Limited

Disable GS1 DataBar Limited

GS1 DataBar Expanded Enable/Disable

*Enable GS1 DataBar Expanded

Disable GS1 DataBar Expanded

Convert GS1 DataBar to UPC/EAN/JAN:

This parameter only applies to GS1 DataBar-14 and GS1 DataBar Limited bar codes not decoded as part of a Composite bar code. Scan **Enable Convert GS1 DataBar to UPC/EAN/JAN** to strip the leading '010' from DataBar-14 and DataBar Limited bar codes encoding a single zero as the first digit, and report the bar code as EAN-13.

For bar codes beginning with between two and five zeros, this strips the leading '0100' and reports the bar code as UPC-A. The *UPC-A Preamble* option that transmits the system character and country code applies to converted bar codes. Note that neither the system character not the check digit can be stripped.

Enable Convert GS1 DataBar to UPC/EAN/JAN

*Disable Convert GS1 DataBar to UPC/EAN/JAN

GS1 DataBar Security Level:

The scanner offers four levels of decode security for GS1 DataBar (GS1 DataBar-14, GS1 DataBar Limited, GS1 DataBar Expanded) bar codes.

- **Security Level 0** – The engine operates in its most aggressive state, while providing sufficient security decoding most in-spec bar codes.
- **Security Level 1** – This setting eliminates most misdecodes while maintaining reasonable aggressiveness.
- **Security Level 2** – Select this option with greater bar code security requirements if Security Level 1 fails to eliminate misdecodes.
- **Security Level 3** – If you selected Security Level 2 and misdecodes still occur, select this security level to apply the highest safety requirements.

GS1 DataBar Security Level 0

*GS1 DataBar Security Level 1

GS1 DataBar Security Level 2

GS1 DataBar Security Level 3

GS1 DataBar Limited Margin Check:

The scanner offers four levels of decode security for GS1 DataBar Limited bar codes. There is an inverse relationship between the level of margin check and scanner aggressiveness. Increasing the level of margin check can reduce scanning aggressiveness, so select only the level of margin check necessary.

- **Margin Check Level 1** – No clear margin required. This complies with the original GS1 standard, yet can result in erroneous decoding of a DataBar Limited bar code when scanning some UPC bar codes that start with digits 9 and 7.
- **Margin Check Level 2** – Automatic risk detection. This level of margin check can result in erroneous decoding of DataBar Limited bar codes when scanning some UPC symbols. If a misdecode is detected, the scanner operates in Level 3 or Level 1.
- **Margin Check Level 3** – Margin check level reflects the newly proposed GS1 standard that requires a five times trailing clear margin.
- **Margin Check Level 4** – Security level extends beyond the standard required by GS1. This level of margin check requires a five times leading and trailing clear margin.

GS1 DataBar Limited Margin Check (continued):

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

GS1 DataBar Limited Margin Check Level 1

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

GS1 DataBar Limited Margin Check Level 2

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

*GS1 DataBar Limited Margin Check Level 3

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

GS1 DataBar Limited Margin Check Level 4

GS1 DataBar Expanded Security Level:

The scanner offers four levels of decode security for GS1 DataBar Expanded bar codes.

- **Security Level 0** – The engine operates in its most aggressive state, while providing sufficient security decoding most in-spec bar codes.
- **Security Level 1** – This setting eliminates most misdecodes while maintaining reasonable aggressiveness.
- **Security Level 2** – Select this option with greater bar code security requirements if Security Level 1 fails to eliminate misdecodes.
- **Security Level 3** – If you selected Security Level 2 and misdecodes still occur, select this security level to apply the highest safety requirements.

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

GS1 DataBar Expanded Security Level 0

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

*GS1 DataBar Expanded Security Level 1

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

GS1 DataBar Expanded Security Level 2

‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ (barcode)

GS1 DataBar Expanded Security Level 3

Symbology-Specific Security Features:

Redundancy Level:

The scanner offers four levels of decode redundancy. Select higher redundancy levels for decreasing levels of bar code quality. As redundancy levels increase, the scanner's aggressiveness decreases.

Scan one of the following bar codes to select the redundancy level appropriate for the bar code quality:
- **Redundancy Level 1** – The scanner must read the following code types twice before decoding:
    - o   Codabar (8 characters or less)
    - o   MSI (4 characters or less)
    - o   D 2 of 5 (8 characters or less)
    - o   I 2 of 5 (8 characters or less)
- **Redundancy Level 2** – The scanner must read all code types twice before decoding.
- **Redundancy Level 3** – The scanner must read code types other than the following twice before decoding, the must read the following codes three times:
    - o   Codabar (8 characters or less)
    - o   MSI (4 characters or less)
    - o   D 2 of 5 (8 characters or less)
    - o   I 2 of 5 (8 characters or less)
- **Redundancy Level 4** – The scanner must read all code types three times before decoding.

*Redundancy Level 1
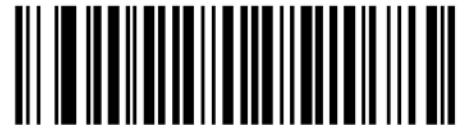
Redundancy Level 2

Redundancy Level 3

Redundancy Level 4

Security Level:

The scanner offers four levels of decode security for delta bar codes, which include the Code 128 family, UPC/EAN/JAN and Code 93. Select increasing levels of security for decreasing levels of bar code quality. There is an inverse relationship between security and scanner aggressiveness, so choose only the level of security necessary for the application.

- **Security Level 0** – The scanner operates in its most aggressive state, while providing sufficient security decoding most in-spec bar codes.
- **Security Level 1** – This default setting eliminates most misdecodes.
- **Security Level 2** – Select this option if Security Level 1 fails to eliminate misdecodes.
- **Security Level 3** – If you selected Security Level 2 and misdecodes still occur, select this security level. Note: Selecting this option is an extreme measure against mis-decoding severely out-of-spec bar codes, and significantly impairs the decoding ability of the engine. If this level of security is required, try to improve the quality of the bar codes.

Security Level 0

*Security Level 1

Security Level 2

Security Level 3

58

1D Quiet Zone Level:

This feature sets the level of aggressiveness when decoding bar codes with a reduced quiet zone (the margin on either side of a bar code), and applies to symbologies enabled by a **Reduced Quiet Zone** parameter. Because higher levels increase the decoding time and risk misdecodes, we strongly recommend enabling only the symbologies which require higher quiet zone levels, and leaving **Reduced Quiet Zone** disabled for all other symbologies. The options are:

- **1D Quiet Zone Level 0** – The scanner performs normally in terms of quiet zone.
- **1D Quiet Zone Level 1** – The scanner performs more aggressively in terms of quiet zone.
- **1D Quiet Zone Level 2** – The scanner only requires a quiet zone at the end of bar code for decoding.
- **1D Quiet Zone Level 3** – The scanner decodes anything in terms of quiet zone or end of bar code.

1D Quiet Zone Level 0

*1D Quiet Zone Level 1

1D Quiet Zone Level 2

1D Quiet Zone Level 3

Intercharacter Gap Size:

The Code 39 and Codabar symbologies have an Intercharacter gap that is typically quite small. Due to various bar code printing technologies, this gap can grow larger than the maximum size allowed, preventing the scanner from decoding the bar code. If this problem occurs, scan the **Large Intercharacter Gaps** parameter to tolerate these out-of-specification bar codes.

*Normal Intercharacter Gaps

Large Intercharacter Gaps

Composite Bar Code Options

Composite Enable/Disable:

Scan one of the following bar codes to enable/disable Composite bar codes of the type CC-C.

Enable CC-C

*Disable CC-C

Composite CC-A/B Enable/Disable:

Scan one of the following bar codes to enable/disable Composite bar codes of type CC-A/B.

Enable CC-A/B

*Disable CC-A/B

Composite TLC-39 Enable/Disable:

Scan one of the following bar codes to enable/disable Composite bar codes of type TLC-39.

Enable TLC39

*Disable TLC39

Composite Inverse:

Select and option to set Composite for either regular or inverse decode.

- **Regular Only** – The scanner decodes regular Composite bar codes only. Before selecting this, set *Inverse 1D* to **Regular Only** or **Inverse Autodetect.**
- **Inverse Only** – The scanner decodes inverse Composite bar codes only. This mode only supports Composite Inverse that includes DataBar combined with CCAB, and does not support other 1D/2D combinations. Before selecting this, first enable *Composite CC-A/B*, and set **Inverse Only** or **Inverse Autodetect**.

*Regular Only

Inverse Only

UPC Composite Mode:

Select an option for linking UPC bar codes with a 2D bar code during transmission as if they were one bar code.

- **UPC Never Linked** – Transmit UPC bar codes regardless of whether a 2D symbol is detected.
- **UPC Always Linked** – Transmit UPC bar codes and the 2D portion. If 2D is not present, do not transmit the bar code.
- **Autodiscriminate UPC Composites** – The scanner determines if there is a 2D portion, then transmits the UPC, as well as the 2D portion if present.
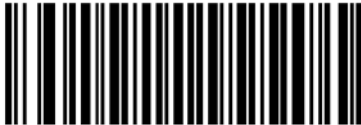
UPC Never Linked
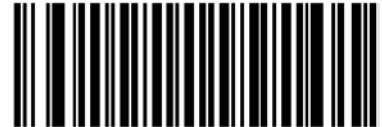
*UPC Always Linked

Autodiscriminate UPC Composites

Composite Beep Mode:

Scan one of the following bar codes to select the number of decode beeps that sound upon decoding a Composite bar code. Note: This option does not apply to the 2D Bluetooth Scanner. The 2D Bluetooth Scanner always single beeps.

Single Beep After Both are Decoded

*Beep as Each Code Type is Decoded

Double Beep After Both are Decoded

GS1-128 Emulation Mode for UCC/EAN Composite Codes:

Scan one of the following bar codes to enable/disable this mode.

Enable GS1-128 Emulation Mode for
UCC/EAN Composite Codes

*Disable GS1-128 Emulation Mode for
UCC/EAN Composite Codes

2D Symbologies

PDF417 Options

PDF417 Enable/Disable:

Scan one of the following bar codes to enable/disable PDF417.

*Enable PDF417

Disable PDF417

MicroPDF417 Enable/Disable:

Scan one of the following bar codes to enable/disable MicroPDF417.

Enable MicroPDF417

*Disable MicroPDF417

MicroPDF417 Code 128 Emulation:

Enable this parameter to transmit data from certain MicroPDF417 bar codes as Code 128. You must enable *AIM Code ID Character (1)* on page xxx for this parameter to work.

Enable **Code 128 Emulation** to transmit these MicroPDF417 bar codes with one of the following prefixes:

>]C1   if the first codeword is 903-905
>]C2   if the first codeword is 908 or 909
>]C0   if the first codework is 910 or 911

Disable **Code 128 Emulation** to transmit these MicroPDF417 bar codes with one of the following prefixes:

>]L3   if the first codeword is 903-905
>]L4   if the first codeword is 908 or 909
>]L5   if the first codeword is 910 or 911

Scan one of the following bar codes to enable/disable Code 128 Emulation.

Note: Linked MicroPDF417 codewords 906, 907, 912, 914 and 915 are not supported. Use GS1 Composites instead.

Enable Code 128 Emulation

*Disable Code 128 Emulation

Data Matrix Options:

Data Matrix Enable/Disable:

Scan one of the following bar codes to enable/disable Data Matrix.

*Enable Data Matrix

Disable Data Matrix

Data Matrix Inverse Options:

Scan one of the following bar codes to select the Data Matrix inverse decoder setting:

- **Regular Only** – The scanner decodes regular Data Matrix bar codes only.
- **Inverse Only** – The scanner decodes inverse Data Matrix bar codes only.
- **Inverse Autodetect** – The scanner decodes both regular and inverse Data Matrix bar codes.

Regular Only

Inverse Only

*Inverse Autodetect

Decode Data Matrix Mirror Images:

Scan one of the following bar codes to select an option for decoding mirror image Data Matrix bar codes:

- **Never** – Do not decode Data Matrix bar codes that are mirror images.
- **Always** – Decode only Data Matrix bar codes that are mirror images.
- **Auto** – Decode both mirrored and unmirrored Data Matrix bar codes.

Never

Always

*Auto

Maxicode Options:

Maxicode Enable/Disable:

Scan one of the following bar codes to enable/disable Maxicode.

Enable Maxicode

*Disable Maxicode

QR Code options:

QR Code Enable/Disable:

Scan one of the following bar codes to enable/disable QR Code.

Note: Enabling this also enables QR Inverse, QR Mirrored and Linked QR.

*Enable QR Code

Disable QR Code

MicroQR Options:

MicroQR Enable/Disable:

Scan one of the following bar codes to enable/disable MicroQR.

*Enable MicroQR

Disable MicroQR

Aztec Options:

Aztec Enable/Disable:

Scan one of the following bar codes to enable/disable Aztec.

*Enable Aztec

Disable Aztec

Note: Enabling this also enables Linked Aztec.

Aztec Inverse Enable/Disable:

Scan one of the following bar codes to select the Aztec Inverse setting:
- **Regular Only** – The scanner decodes regular Aztec bar codes only.
- **Inverse Only** – The scanner decodes inverse Aztec bar codes only.
- **Inverse Autodetect** – The scanner decodes both regular and inverse Aztec bar codes.

Regular Only

Inverse Only

*Inverse Autodetect

Postal Codes

US Postal Code Options:

US Postnet Enable/Disable:

Scan one of the following bar codes to enable/disable US Postnet.

Enable US Postnet

*Disable US Postnet

US Planet Enable/Disable:

Scan one of the following bar codes to enable/disable US Planet.

Enable US Planet

*Disable US Planet

Transmit US Postal Check Digit:

Scan one of the following bar codes to select whether to transmit US Postal data, which includes both US Postnet and US Planet, with or without the check digit.

*Transmit US Postal Check Digit

Do Not Transmit US Postal Check Digit

USPS 4CB/One Code/Intelligent Mail:

Scan one of the following bar codes to enable/disable USPS 4CB/One Code/Intelligent Mail.

Enable USPS 4CB/One Code/Intelligent Mail

*Disable USPS 4CB/One Code/Intelligent Mail

UK Postal Code Options:

UK Postal Enable/Disable:

Scan one of the following bar codes to enable/disable UK Postal.

Enable UK Postal

*Disable UK Postal

Transmit UK Postal Check Digit:

Scan one of the following bar codes to select whether to transmit UK Postal data with or without the check digit.

*Transmit UK Postal Check Digit

Do Not Transmit UK Postal Check Digit

Japan Postal Code Options:

Japan Postal Enable/Disable:

Scan one of the following bar codes to enable/disable Japan Postal.

Enable Japan Postal

*Disable Japan Postal

Netherlands KIX Code Options:

Netherlands KIX Code Enable/Disable:

Scan one of the following bar codes to enable/disable Netherlands KIX Code.

Enable Netherlands KIX Code

*Disable Netherlands KIX Code

Australia Post Code Options:

Australia Post Enable/Disable:

Scan one of the following bar codes to enable/disable Australia Post.

Enable Australia Post

*Disable Australia Post

Australia Post Format:

Scan one of the following bar codes to select a format for Australia Post:

- **Autodiscriminate** (or Smart mode) – Decode the Customer Information Field using the N and C Encoding Tables. Note: This option increases the risk of misdecodes because the encoded data format does not specify the Encoding Table used for encoding.
- **Raw Format** – Output raw bar patterns as a series of numbers 0 through 3.
- **Alphanumeric Encoding** – Decode the Customer Information Field using the C Encoding Table.
- **Numeric Encoding** – Decode the Customer Information Field using the N Encoding Table.

For more information on Australia Post Encoding Tables, refer to the *Australia Post Customer Barcoding Technical Specifications* available at http://www.auspost.com.au.

*Autodiscriminate

Raw Format

Alphanumeric Encoding

Numeric Encoding

Resolving USB Installation Issues in Windows

The USB HID (Human Interface Device) keyboard driver is standard with Windows®. Most recent versions of Windows include necessary files in the installed Windows system folders so driver installation is easy if not automatic. It is possible for the user to cancel the HID driver installation before it is completed and this results in a problem. Restarting Windows does NOT initiate a re-installation; the user must go into the device management utility in Windows. Location and operation of the device management utility is different depending on the version of Windows:

Windows 10:
1. Click the Windows **Start Menu**
2. Select **Settings** ⚙
3. At the *Windows Settings* Type: **Device Manager** into the "Find a setting" Box
4. Select **Device Manager** under the Search Box
5. Double Click on **Human Interface Devices**
6. Locate the USB Human Interface Device with a **!** in the icon.
7. Click on **Update Driver**
8. Follow instructions.

If Windows 10 fails to find the driver on the computer's hard disk, you may have to insert and point to the original Windows 10 CD-ROM or DVD to complete the installation. However, the HID Keyboard driver is a standard component of the Windows Operating System so you should just be able to select "Use Best Available Driver" and it will install the correct driver by default.

Also make sure you have rights to add new hardware to your computer - many Windows 10 installations problems can be solved by logging in as the **Administrator** of the computer which allows the user to add new Hardware. In the Windows 10 *Control Panel* you may need to change the User Account Settings using the **User Account** icon in the Control Panel.

Windows 8, 8.1:
1. Navigate to the Desktop Portion of Windows 8 (Click on the **Windows Key** or the **Desktop Tile**)
2. Open the **Charms Bar** by moving your Mouse to the Right Corner of the Screen
3. Click **Settings** ⚙
4. Click **Control Panel** - or Type Device Manager in the Search Box
5. Select **Hardware** tab.
6. Select **Device Manager** - If you do not see Device Manager click the "View by:" drop down and select "Small icons"
7. Double Click on **Human Interface Devices**
8. Locate the USB Human Interface Device with a **!** in the icon.
9. Click on **Update Driver**
10. Follow instructions.

If Windows 8 fails to find the driver on the computer's hard disk, you may have to insert and point to the original Windows 8, CD-ROM or DVD to complete the installation. The HID Keyboard driver is a standard component of the Windows Operating System so you should just be able to select "Use Best Available Driver" and it will install the correct driver by default.

Also make sure you have rights to add new hardware to your computer - many Windows 8 installations problems can be solved by logging in as the **Administrator** of the computer with Hardware Installation Rights. In order to install new hardware in Windows 8 you may need to turn off the **UAC**

(User Account Control). **UAC** is turned off using the **User Account** icon. UAC is turned on using the **Security Center** icon.

Windows 7 & Vista:
1. Go to the **Start menu.**
2. Select **Control Panel**.
3. Switch to **Classic View** if you are in **Category View**
4. Select **System**.
5. Select **Hardware** tab.
6. Select **Device Manager**
7. Double Click on **Human Interface Devices**
8. Locate the USB Human Interface Device with a **!** in the icon.
9. Click on **Update Driver**
10. Follow instructions.

If Windows 7 or Vista fails to find the driver on the computer's hard disk, you may have to insert and point to the original Windows 7 or Vista CD-ROM to complete the installation. Also make sure you have rights to add new hardware to your computer - many Windows 7 or Vista installations problems can be solved by logging in as the **Administrator** of the computer. In order to install new hardware in Windows 7 or Vista you may need to turn off the **UAC** (User Account Control). **UAC** is turned off using the **User Account** icon. UAC is turned on using the **Security Center** icon.

Resolving USB Installation Issues in macOS

macOS USB Installation Issues

The Worth Data USB Laser Scanners use the generic USB HID class (Human Interface Device) keyboard driver that is standard with Mac OS 9.0, Mac OS X, and macOS. All of these versions of the Macintosh operating system already include necessary files in the Mac System folders, so driver installation is easy if not automatic, and no downloads are required. Because our scanners mimic keyboard input, your Mac may display a Keyboard Setup Assistant when plugging the scanner in for the first time. If you do see a dialog like this appear, there is no configuration needed for the scanner, and no need to hit any keys on the keyboard. Simply close the Assistant window, and start scanning!
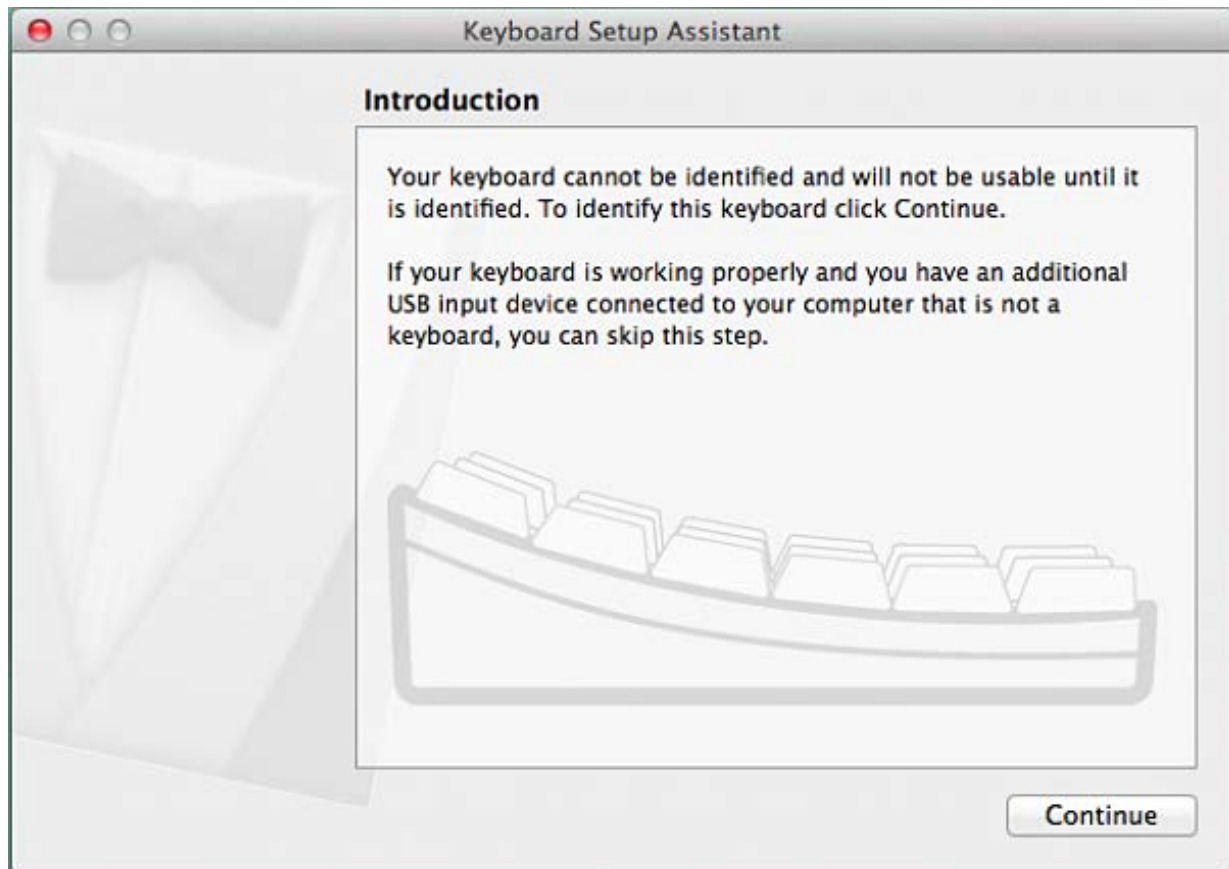
Appendix A: Numeric Bar Codes

For parameters requiring specific numeric values, scan the numbered bar code(s) below. To correct an error or change a selection, scan the **Cancel** bar code.

0

1

2

3

4

5

6

7

8

9

Cancel

Appendix B: Alphanumeric Bar Codes

Space

#

$

%

*

+

-

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/

!

"

&

'

Alphanumeric Bar Codes Continued:

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(

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)

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75

<u>Alphanumeric Bar Codes Continued:</u>

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`

Note: Do not confuse the following bar codes with the **numeric bar codes** above.

‖|‖|‖‖|‖‖|‖

0

‖|‖|‖‖|‖‖|‖

1

‖|‖|‖‖|‖‖|‖

2

‖|‖|‖‖|‖‖|‖

3

‖|‖|‖‖|‖‖|‖

4

‖|‖|‖‖|‖‖|‖

5

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6

‖|‖|‖‖|‖‖|‖

7

‖|‖|‖‖|‖‖|‖

8

‖|‖|‖‖|‖‖|‖

9

Alphanumeric Bar Codes Continued:

||||| ||| || |||
End of Message

||||| ||| || |||
Cancel

||||| ||| || |||
A

||||| ||| || |||
B

||||| ||| || |||
C

||||| ||| || |||
D

||||| ||| || |||
E

||||| ||| || |||
F

||||| ||| || |||
G

||||| ||| || |||
H

||||| ||| || |||
I

||||| ||| || |||
J

||||| ||| || |||
K

Alphanumeric Bar Codes Continued:

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Alphanumeric Bar Codes Continued:

z

a

b

c

d

e

f

g

h

i

j

k

l

m

Alphanumeric Bar Codes Continued:

n

o

p

q

r

s

t

u

v

w

x

y

z

Alphanumeric Bar Codes Continued:

{

|

}

~

Appendix C: Character Sets

Note: Code 39 Full ASCII interprets the bar code special character ($ + % /) preceeding a Code 39 character and assigns as ASCII character value to the pair. For example, if you enable Code 39 Full ASCII and scan +**B**, the scanner will transmit **b**, **%J** as **?**, and **%V** as **@**. Scanning **ABC%I** outputs the keystroke equivalent of **ABC>**.

ASCII Value (Prefix/Suffix Value)	Full ASCII Code 39 Encode Character	Keystroke
1000	%U	CTRL 2
1001	$A	CTRL A
1002	$B	CTRL B
1003	$C	CTRL C
1004	$D	CTRL D
1005	$E	CTRL E
1006	$F	CTRL F
1007	$G	CTRL G
1008	$H	CTRL H/**BACKSPACE**
1009	$I	CTRL I/**HORIZ TAB**
1010	$J	CTRL J
1011	$K	CTRL K
1012	$L	CTRL L
1013	$M	CTRL M/**ENTER**
1014	$N	CTRL N
1015	$O	CTRL O
1016	$P	CTRL P
1017	$Q	CTRL Q
1018	$R	CTRL R
1019	$S	CTRL S
1020	$T	CTRL T
1021	$U	CTRL U
1022	$V	CTRL V
1023	$W	CTRL W
1024	$X	CTRL X
1025	$Y	CTRL Y
1026	$Z	CTRL Z
1027	%A	CTRL [
1028	%B	CTRL \
1029	%C	CTRL]
1030	%D	CTRL 6
1031	%E	CTRL -
1032	SPACE	SPACE
1033	/A	!
1034	/B	"
1035	/C	#
1036	/D	$
1037	/E	%
1038	/F	&
1039	/G	'
1040	/H	(

ASCII Character Set Continued:

ASCII Value (Prefix/Suffix Value)	Full ASCII Code 39 Encode Character	Keystroke
1041	/I	)
1042	/J	*
1043	/K	+
1044	/L	,
1045	-	-
1046	.	.
1047	/o	/
1048	0	0
1049	1	1
1050	2	2
1051	3	3
1052	4	4
1053	5	5
1054	6	6
1055	7	7
1056	8	8
1057	9	9
1058	/Z	:
1059	%F	;
1060	%G	<
1061	%H	=
1062	%I	>
1063	%J	?
1064	%V	@
1065	A	A
1066	B	B
1067	C	C
1068	D	D
1069	E	E
1070	F	F
1071	G	G
1072	H	H
1073	I	I
1074	J	J
1075	K	K
1076	L	L
1077	M	M
1078	N	N
1079	O	O
1080	P	P
1081	Q	Q
1082	R	R
1083	S	S
1084	T	T
1085	U	U
1086	V	V

ASCII Character Set Continued:

ASCII Value (Prefix/Suffix Value)	Full ASCII Code 39 Encode Character	Keystroke
1087	W	W
1088	X	X
1089	Y	Y
1090	Z	Z
1091	%K	[
1092	%L	\
1093	%M	]
1094	%N	^
1095	%O	_
1096	%W	'
1097	+A	a
1098	+B	b
1099	+C	c
1100	+D	d
1101	+E	e
1102	+F	f
1103	+G	g
1104	+H	h
1105	+I	i
1106	+J	j
1107	+K	k
1108	+L	l
1109	+M	m
1110	+N	n
1111	+O	o
1112	+P	p
1113	+Q	q
1114	+R	r
1115	+S	s
1116	+T	t
1117	+U	u
1118	+V	v
1119	+W	w
1120	+X	x
1121	+Y	y
1122	+Z	z
1123	%P	{
1124	%Q	|
1125	%R	}
1126	%S	~

ALT Key Character Set:

ALT Keys	Keystroke
2045	ALT -
2050	ALT 2
2054	ALT 6
2064	ALT @
2065	ALT A
2066	ALT B
2067	ALT C
2068	ALT D
2069	ALT E
2070	ALT F
2071	ALT G
2072	ALT H
2073	ALT I
2074	ALT J
2075	ALT K
2076	ALT L
2077	ALT M
2078	ALT N
2079	ALT O
2080	ALT P
2081	ALT Q
2082	ALT R
2083	ALT S
2084	ALT T
2085	ALT U
2086	ALT V
2087	ALT W
2088	ALT X
2089	ALT Y
2090	ALT Z
2091	ALT [
2092	ALT \
2093	ALT]

F Key Character Set:

F Keys	Keystroke
5001	F1
5002	F2
5003	F3
5004	F4
5005	F5
5006	F6
5007	F7
5008	F8
5009	F9
5010	F10
5011	F11
5012	F12
5013	F13
5014	F14
5015	F15
5016	F16
5017	F17
5018	F18
5019	F19
5020	F20
5021	F21
5022	F22
5023	F23
5024	F24

Numeric Key Character Set:

Numeric Keypad	Keystroke
6042	*
6043	+
6044	Undefined
6045	-
6046	.
6047	/
6048	0
6049	1
6050	2
6051	3
6052	4
6053	5
6054	6
6055	7
6056	8
6057	9
6058	Enter
6059	Num Lock

Extended Key Character Set:

Extended Keypad	Keystroke
7001	Break
7002	Delete
7003	Page Up
7004	End
7005	Page Down
7006	Pause
7007	Scroll Lock
7008	Backspace
7009	Tab
7010	Print Screen
7011	Insert
7012	Home
7013	Enter
7014	Escape
7015	Up Arrow
7016	Down Arrow
7017	Left Arrow
7018	Right Arrow

Appendix D: Code Identifiers

Symbol Code Identifiers

Code Character	Code Type
A	UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13
B	Code 39, Code 32
C	Codabar
D	Code 128, ISBT 128, ISBT 128 Concatenated
E	Code 93
F	Interleaved 2 of 5
G	Discrete 2 of 5 or Discrete 2 of 5 IATA
H	Code 11
J	MSI
K	GS1-128
L	Bookland EAN
M	Trioptic Code 39
N	Coupon Code
R	GS1 DataBar Family
S	Matrix 2 of 5
T	UCC Composite, TLC 39
U	Chinese 2 of 5
V	Korean 2 of 5
X	ISSN EAN, PDF417 Macro PDF417, Micro PDF417
z	Aztec, Aztec Rune
P00	Data Matrix
P01	QR Code, MicroQR
P02	Maxicode
P03	US Postnet
P04	US Planet
P05	Japan Postal
P06	UK Postal
P08	Netherlands KIX Code
P09	Australia Post
P0A	USPS 4CB/One Code/Intelligent Mail
P0B	UPU FICS Postal
P0H	Han Xin

AIM Code Identifiers

Each AIM Code identifier contains the three-character string **]cm** where:

] = Flag Character (ASCII 93)
c = Code Character (see table below)
m = Modifier Character (see table below)

Code Character	Code Type
A	Code 39, Code 39 Full ASCII, Code 32
C	Code 128, ISBT 128, ISBT 128 Concatenated GS1-128, Coupon (Code 128 portion)
d	Data Matrix
E	UPC/EAN, Coupon (UPC portion)
e	GS1 DataBar Family
F	Codabar
G	Code 93
H	Code 11
h	Han Xin
I	Interleaved 2 of 5
L	PDF417, Macro PDF417, Micro PDF417
L2	TLC 39
M	MSI
Q	QR Code, MicroQR
S	Discrete 2 of 5, IATA 2 of 5
U	Maxicode
z	Aztec, Aztec Rune
X	Bookland EAN, ISSN EAN, Trioptic Code 39 Chinese 2 of 5, Matrix 2 of 5, Korean 3 of 5 US Postnet, US Planet, UK Postal, Japan Postal Australia Post, Netherlands KIX Code USPS 4CB/One Code/Intelligent Mail UPU FICS Postal

AIM Modifier Characters:

The modifier character is the sum of the applicable **option values** (see table below):

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Reader has checked one check character.
	3	Reader has checked and stripped check character.
	4	Reader has performed Full ASCII character conversion.
	5	Reader has performed Full ASCII character conversion and checked one check character.
	7	Reader has performed Full ASCII character conversion and checked and stripped check character.
	Example: A Full ASCII bar code with check character W, **A+I+MI+DW**, is transmitted as **]A7**AIMID where 7 = (3+4).	
Trioptic Code 39	0	No option specified at this time. Always transmit 0.
	Example: A Trioptic bar code 412356 is transmitted as **]X0**412356	
Code 128	0	Standard data packet, no Function code 1 in first symbol position.
	1	Function code 1 in first symbol character position.
	2	Function code 1 in second symbol character position.
	Example: A Code (EAN) 128 bar code with Function 1 character FNC1 in the first position, AMIID is transmitted as **]C1**AIMID	
I 2 of 5	0	No check digit processing.
	1	Reader has validated check digit.
	3	Reader has validated and stripped check digit.
	Example: An I 2 of 5 bar code without check digit, 4123, is transmitted as **]I0**4123	
Codabar	0	No check digit processing.
	1	Reader has checked check digit.
	3	Reader has stripped check digit before transmission.
	Example: A Codabar bar code without check digit, 4123, is transmitted as **]F0**4123	
Code 93	0	No options specified at this time. Always transmit 0.
	Example: A Code 93 bar code 012345678905 is transmitted as **]G0**012345678905	
MSI	0	Check digits are sent.
	1	No check digit is sent.
	Example: An MSI bar code 4123, with a single check digit checked, is transmitted as **]M1**4123	
D 2 of 5	0	No options specified at this time. Always transmit 0.
	Example: A D 2 of 5 bar code 4123, is transmitted as **]S0**4123	

Code Type	Option Value	Option
UPC/EAN	0	Standard data packet in full EAN format, for example, 13 digits for UPC-A, UPC-E and EAN-13 (not including supplemental data)
	1	Two digit supplemental data only.
	2	Five digit supplemental data only.
	3	Combined data packet comprising 13 digits from EAN-13, UPC-A or UPC-E symbol and 2 or 5 digits from supplemental symbol.
	4	EAN-8 data packet.
		Example: A UPC-A bar code 012345678905 is transmitted as]E00012345678905
Bookland EAN	0	No options specified at this time. Always transmit 0.
		Example: A Bookland EAN bar code 123456789X is transmitted as]X0123456789X
ISSN EAN	0	No options specified at this time. Always transmit 0.
		Example: An ISSN EAN bar code 123456789X is transmitted as]X0123456789X
Code 11	0	Single check digit.
	1	Two check digits.
	3	Check characters validated but not transmitted.
GS1 DataBar Family		No option specified at this time. Always transmit 0. GS1 DataBar-14 and GS1 DataBar Limited transmit with an Application Identifier "01". Note: In GS1-128 emulation mode, GS1 DataBar is transmitted using Code 128 rules (for example:]C1).
		Example: A GS1 DataBar-14 bar code 0110012345678902 is transmitted as]e00110012345678902
EAN.UCC Composites: GS1 DataBar GS1-128 2D portion of UPC composite		Native mode transmission. Note: UPC portion of composite is transmitted using UPC rules.
	0	Standard data packet.
	1	Data packet containing the data following an encoded symbol separator character.
	2	Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol.
	3	Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol.
		GS1-128 emulation Note: UPC portion of composite is transmitted using UPC rules.
	1	Data packet is a GS1-128 symbol (for example: data is preceded with]JC1).

Code Type	Option Value	Option
PDF417 Micro PDF417	0	Reader set to conform to protocol defined in 1994 PDF417 symbology specifications. Note: When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92dec has been doubled in transmission.
	1	Reader set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92dec are doubled.
	2	Reader set for Basic Channel operation (no escape character transmission protocol). Data characters 92dec are not doubled. Note: When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted.
	3	The bar code contains a GS1-128 symbol, and the first codeword is 903-907, 912, 914 or 915.
	4	The bar code contains a GS1-128 symbol, and the first codeword is in the range 908-909.
	5	The bar code contains a GS1-128 symbol, and the first codeword is in the range 910-911.
		Example: A PDF417 bar code ABCD, with no transmission protocol enabled, is transmitted as **]L2**ABCD.
Data Matrix	0	ECC 000-140, not supported.
	1	ECC 200.
	2	ECC 200, FNC1 in first or fifth position.
	3	ECC 200, FNC1 in second or sixth position.
	4	ECC 200, ECI protocol implemented.
	5	ECC 200, FNC1 in first or fifth position, ECI protocol implemented.
	6	ECC 200, FNC1 in second or sixth position, ECI protocol implemented.
Maxicode	0	Symbol in Mode 4 or 5.
	1	Symbol in Mode 2 or 3.
	2	Symbol in Mode 4 or 5, ECI protocol implemented.
	3	Symbol in mode 2 or 3, ECI protocol implemented in secondary message.
QR Code	0	Model 1 symbol.
	1	Model 2/MicroQR symbol, ECI protocol not implemented.
	2	Model 2 symbol, ECI protocol implemented.
	3	Model 2 symbol, ECI protocol not implemented, FNC1 implied in first position.
	4	Model 2 symbol, ECI protocol implemented, FNC1 implied in first position.
	5	Model 2 symbol, ECI protocol not implemented, FNC1 implied in second position.
	6	Model 2 symbol, ECI protocol implemented, FNC1 implied in second position.

AIM Modifier Characters Continued:

Code Type	Option Value	Option
Aztec	0	Aztec symbol.
	C	Aztec Rune symbol.
Han Xin	0	Generic data, no special features are set. The transmitted data does not follow the AIM ECI protocol.
	1	ECI protocol enabled. At least one ECI mode encoded. Transmitted data must follow the AIM ECI protocol.