

# **Ring Imager / Ring Scanner**

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## **Bar Code Programming Guide**

For:

HX2 with Windows® CE 5 Operating System

HX3 with Windows® CE 5 Operating System

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# Chapter 1 - Introduction

Bar code laser scanners and laser imagers are used to read and then decode the data in bar codes.

Bar code readers have many forms – some are enclosed in a hand held device, others are connected to a hand held device by a cable, some are connected to the hand held device wirelessly and a few bar code readers are enclosed in a ring device that is worn on the finger and cabled to a body-worn device.

Configuration bar codes in this guide are designed for a specific type of bar code decoder engine. Determining the type of bar code decoder engine for your Ring Decoder is an important requirement before using it to scan a configuration bar code. If you are unsure, contact your System Administrator for assistance.

An asterisk (\*) next to an option indicates the default setting.

## Ring Scanners and Ring Imagers

Ring Scanners and Ring Imagers are bar code readers that can be worn on either hand. They may be tethered to:

- the Bluetooth® module,
- the HX2 mobile device, or
- the HX3 voice mobile device.

The ring scanner is secured to a finger. The Bluetooth module can be worn on the back of the hand or the wrist. The Bluetooth Module, HX2 and HX3 use only one ring scanner or ring imager at a time.

The HX2 and HX3 are usually worn on the arm or at the waist. The HX2 and HX3 will beep twice when a configuration bar code is successfully scanned.

The Bluetooth Ring Scanner module is compatible with any Honeywell mobile device that has a Microsoft® Windows® CE 5 or later operating system and Bluetooth client capability.

## Integrated Scanners and Integrated Imagers

Integrated scanners and integrated imagers are built-in to the mobile device and are usually located at the top of the device. The scan engine cannot be accessed by the end-user.

Devices with an integrated bar code reader can also:

- scan bar codes using a tethered bar code reader (connected to a cradle or a port on the mobile device).
- pair with and scan bar codes using the wireless Bluetooth Ring Scanner.

## Tethered and Wireless Scanners

Tethered scanners (tethered to a serial port on the device or device's cradle) are configured by scanning the engine-specific bar codes in the scanner manufacturer's programming guide. The manufacturer's guides are usually shipped with the bar code reader.

Wireless Bluetooth scanners are configured by scanning the engine-specific bar codes in the Bluetooth scanner manufacturer's programming guide. The manufacturer's guides are usually shipped with the wireless Bluetooth bar code reader.

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## Cautions and Warnings

It is good practice to avoid looking into the beam emitted by any scan beam aperture.

Do not connect the beam aperture to any other device, for example, a beam magnifier.

Class 2 laser scanners use a low power, visible light diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a Class 2 laser is not known to be harmful.

## Bar Code Readers

Your mobile device may be equipped with any of the following bar code readers :

- Ring Imager, 4400
- Ring Scanner, 955

Programming bar codes for the bar code readers listed above are included in this guide.

The Ring Decoder can also use the following bar code readers:

- Tethered hand-held scanners are tethered to a serial port on the Ring Decoder and are configured by scanning the engine-specific bar codes in the scanner manufacturer's programming guide. The manufacturer's guides are usually shipped with the bar code reader.
- Wireless hand-held Bluetooth scanners are configured by scanning the engine-specific bar codes in the scanner manufacturer's programming guide. The manufacturer's guides are usually shipped with the bar code reader.
- The body worn Bluetooth Ring Scanner module may be using a 4400 Ring Imager or a 955 Ring Scanner. The module and rings are configured by scanning the bar codes in the *Bluetooth Ring Scanner Programming Guide*.

If your Ring Decoder is using a bar code reader that is not included in this guide, please contact [Technical Assistance](#) for the desired bar code reader availability or upgrade.

## Return to Factory Default Settings

Important: After scanning the engine-specific bar code to return the scanner/imager to factory default settings, the next step is to open the bar code wedge control panel on the mobile device collecting the scanned data. Click the OK button to close the control panel. This action will synchronize all bar code reader formats for your device.

---

## How To Scan a Bar Code

*Note: The function to use an imager like a camera (or for OCR decoding) is not supported. Using a Continuous Scan option, if available, to scan programming bar codes is not supported.*

The linear bar codes in this guide were created using Code 128 symbology. Your Ring Decoder has been set up by Honeywell to automatically read / decode Code 128 bar codes.

Using the bar codes contained in this guide, you can change bar code reader system parameters or reset all parameters to their factory default values.

All bar code reader parameters are programmed into and stored by the bar code reader engine.

*Note: If this guide is not in print form, locate the page in this electronic guide that contains the bar code you wish to use. Print the page on white paper using a 600dpi laser printer (or equivalent).*

*Note: Print the page containing the Reset and Cancel bar codes as well as the page containing the A – F and 0 – 9 number bar codes.*

Select the parameter you want to scan. If this guide is in print form, lay it flat on a table or propped up at an angle.

## Scan a Linear Bar Code



Holding the beam aperture approximately 3 – 12 inches away from the bar code, aim the scan aperture toward the selected bar code. Refer to the bar code reader engine type in *Decode Zones* later in this guide for recommended decode ranges.

Press the Scan button. Align the scan beam so that the bar code is centered within the beam. The beam must cross the entire bar code. Move the bar code reader towards or away from the bar code so that the bar code takes up approximately two-thirds the width of the beam.

Refer to the recommended *decode zones* for the installed bar code reader engine if you are having difficulty with this process.

*Note: Do not position the scan aperture exactly perpendicular to the bar code being read. In this position, light can bounce back into the scan aperture, and possibly prevent a successful decode.*

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## Scan a 2D Bar Code



To scan a bar code with the imager, point the beam aperture at a bar code and press the Scan button. You will see a bracketed cross-hair strike the bar code.

Holding the beam aperture approximately 3 – 12 inches away from the bar code, aim the imager aperture toward the selected bar code. Press the Scan button and you will see a bracketed cross-hair strike the bar code.

Align the brackets so that the center (or one of the four corners of the bar code's center box) of the bar code is covered by the cross-hair. Refer to bar code decoder engine *Decode Zones* later in this guide for recommended scan ranges for your device.

## Good Read / Bad Read Indicators

The scan On indicator illuminates (usually red) when the beam is on. Following a bar code scan and “good read” the indicator usually turns green and the mobile device beeps, indicating a successful scan. The mobile device may also play a WAV file while decoding or the mobile device may vibrate.

The laser beam and scan On indicator automatically turn off after a successful or unsuccessful read and the bar code reader is ready to scan again.

*Note: Whether there are beeps in conjunction with scan and decode functions is dependent on the application currently running in the mobile device. Beeps are emitted by the mobile device, not a tethered ring bar code reader.*

*Note: Decrease decode time by disabling unused bar code types. The scan engine can store several different bar code symbologies at the same time. This means the system is able to scan a Code 39 bar code, then an Interleaved 2 of 5 bar code, then a different bar code without requiring a parameter reset.*

Reboot the mobile device to synchronize the new bar code reader engine parameters with the mobile device's bar code wedge settings.



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## Factors That May Impact Decode Performance

Successful decode range of a bar code decoder is dependent upon many outside influences including size of the bar code, quality of the bar code printing, material the bar code is printed on, condition of the scan aperture lens (scratches) and angle of the beam aperture relative to the bar code label. Any of these factors may result in having to re-scan the label from a different distance or angle.

### ***Bar Code Quality***

Check the bar code for marks or physical damage e.g., ripped label, missing section, correct size for the bar code reader being used, etc.

In general, the bigger the bar code the further the distance from which it can be read. If the bar code is smaller than the specified size for the bar code reader being used, the distance, in almost all cases, will shrink.

Large bar codes can be read at the maximum distance. Hold the bar code reader closer to small bar codes (or with bars that are very close together).

*Note: Do not position the bar code reader exactly perpendicular to the bar code being scanned. In this position, light can bounce back into the scan aperture, and possibly prevent a successful decode.*

### ***Bar Code Source***

Using a graphics program to clip/copy a bar code from an online file (e.g., Adobe, Word) will copy the bar code at your monitor's dot per inch setting, a level too low for successful bar code decoding.

Copy a Bar Code – Use your browser's right-click menu to download an individual bar code using the Save Picture As option. Save the picture to a location on your computer's hard drive. The individual bar code can be added, as a file, to any delivery vehicle e.g., email, Word document.

### ***Bar Code Symbology***

Bar codes such as UPC codes and Code 128 are more complex than Code 39 and Interleaved 2 of 5. When attempting to get the maximum read distance possible, particularly with reflective labels, use Code 39. The use of Code 128 or other more complex symbologies will almost always result in a reduction in maximum read distance. Honeywell will not support bar code reader maximum distances (from Decode Zones) when symbologies other than Code 39 are used.

### ***Lens Damage***

A scratched scan beam aperture can impact read rates and distances. Beam apertures should be inspected frequently, particularly if bar code reading quality or distances get worse over time.

### ***Ambient Lighting***

High ambient conditions, particularly outdoor environments, will produce enough light to somewhat "blind" the bar code reader. This will result in shorter read distances.

### ***Temperature***

While small deviations in room temperature will have no impact on bar code reader performance, severe conditions like those found in freezers will have a negative impact on both the distance bar code readers can read and the speed the decode is

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acquired.

Some bar code reader engines contain protection circuitry that shuts the bar code reader down in temperatures that exceed the recommended operating temperature.

## Bar Code Help

- Whether there are beeps in conjunction with scan and decode functions is dependent on the application currently running in the Ring Decoder.
- Decrease decode time by disabling unused bar code types. The bar code reader engine can store several different bar code symbologies at the same time. This means the Ring Decoder is able to decode a Code 39 bar code, then an Interleaved 2 of 5 bar code, then a different bar code without requiring a parameter reset.
- The Ring Decoder Scan Wedge (or Data Collection Wedge) panel parameters are applied to the data resulting from successful bar code scans sent to the Ring Decoder for processing. The Control Panel does not affect or change the programming bar code parameter settings contained in this guide.
- After reading the Reset All (or equivalent) bar code with the Ring Decoder's integrated bar code reader engine or tethered ring scanner, the next step is to open the Scan (or Data Collection Wedge) panel, click the OK button and then close the panel. This action will synchronize all bar code reader formats.

## Printing Bar Codes

### Problem

Bar codes on the printed page are too compact to be read, especially with a long range scanner.

### Solution - Printing Adobe Acrobat PDF File Pages

*When printing pages from an Adobe Acrobat PDF file*, there is a difference between laser printer types and how they handle some Adobe Acrobat print functions – specifically, the “shrink to fit” option on the Print Options screen.

Before clicking Print, make sure the “Shrink oversized pages to paper size” checkbox is unchecked. If the bar code is still too small to be read by the bar code reader engine, run the printed page through the laser printer again using the laser printer's Zoom feature until the bar code is large enough to scan satisfactorily.

*When printing pages from an on-line Web page*, run the printed page through a laser copier using the laser copier's Zoom feature until the bar code is large enough to decode satisfactorily.

### Solution - Printing from a Browser Page

#### *Print a Page*

Use the Print button on the Taskbar. Bar codes must be printed at 600 dots per inch (dpi) before they can be successfully scanned with a bar code reader.

---

## **Miscellaneous Programmable Bar Codes**

*Note: Ring decoding devices do not have the ability to emit a good read or bad read sound.*

### **Beep After Good Decode**

Audible scan progress indicators are generated by the bar code reader driver on Honeywell mobile devices, not the bar code reader engine. Use Windows Control Panel options to set up the mobile device audible indicators.

### **Beeper Frequency Adjustment**

Audible scan progress indicators are generated by the bar code reader driver on Honeywell mobile devices, not the bar code decoder engine. Use Windows Control Panel options to set up the mobile device audible indicators.

### **Beep on <BEL>**

This parameter is enabled on the Bluetooth Ring Scanner Module. There is no corresponding ring scanner programming bar code required.

This parameter is disabled/inactive on all other Honeywell mobile devices.

### **Beeper Tone / Beeper Volume**

Audible scan progress indicators are generated by the bar code reader driver on Honeywell mobile devices, not the bar code reader engine. Use Windows Control Panel options to set up the mobile device audible indicators.

### **Event Reporting**

Honeywell mobile devices aren't designed to process events triggered by a bar code reader engine. Events are processed by the operating system resident on the mobile device. Use Windows Control Panel options to set up the mobile device event reporting parameters.

### **LED Mode**

This parameter is disabled/inactive as the scan LEDs are controlled by the bar code reader driver, not the bar code reader engine.

### **Return to Factory Default Settings**

Important: After scanning the engine-specific bar code to return the scanner/imager to factory default settings, the next step is to open the bar code wedge panel on the mobile device collecting the scanned data. Click the OK button to close the panel. This action will synchronize all bar code reader formats for your device.

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## Cleaning the Beam Aperture

*Note: New devices -- Remove the shipping film from the beam aperture before first use.*

Keep fingers and rough, sharp or abrasive objects away from the beam aperture.

If the aperture becomes soiled or smudged, clean only with a standard household cleaner such as Windex® without vinegar or use Isopropyl Alcohol. Dampen the cloth with the cleaner; do not apply liquids directly to the aperture.

Do not use paper towels or harsh-chemical-based cleaning fluids since they may result in damage to the aperture surface.

Use a clean, damp, lint-free cloth. Do not scrub optical surfaces.

If possible, clean only those areas which are soiled.

Lint/particulates can be removed with clean, filtered canned air.

# Chapter 2 - Symbol Laser Scanner

These bar codes, explanations and instructions are for programming the Symbol Laser Scanner engine in your mobile device. Please do not scan the bar codes in this section with any other bar code reader engine.

## Introduction

*Note:* An SE955 tethered ring bar code reader does not have beep / audio capability.

Scan engine manufacturers may offer more bar codes and options than are contained in this section. Please note that the bar codes in this section are only those supported by Honeywell and the mobile devices it manufactures or supports. If you need assistance when using the bar codes in this section with your Ring Decoder, please contact [Technical Assistance](#).

The HX2 and HX3 will beep twice when a configuration bar code is successfully scanned.

An asterisk (\*) next to an option indicates the default setting.

## Bar Code Decoder Types

Bar code decoder engine types (for Honeywell equipment) covered in this section are:

- SE 955 <sup>1</sup> Ring

**To change a parameter value:** Scan the appropriate bar code in this section. After Save, the new value replaces the standard default value in memory.

The following bar code symbologies are supported:

| Symbology                             | Can be Decoded by ... |
|---------------------------------------|-----------------------|
| Chinese 2 of 5                        | SE 955 only           |
| Codabar                               | All                   |
| Code 11                               | SE 955 only           |
| Code 128                              | All                   |
| Code 39                               | All                   |
| Code 93                               | All                   |
| Discrete 2 of 5                       | All                   |
| Interleaved 2 of 5                    | All                   |
| MSI Plessey                           | All                   |
| GS1 DataBar (RSS)                     | SE 955                |
| GS1 Databar (RSS) and Composite Codes | SE 955                |
| UPC/EAN                               | All                   |

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<sup>1</sup>Short Range Laser Ring Scanner, SE955i

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## Aiming Modes

There are many aiming “modes” for laser bar code readers – aiming dots, aiming patterns, aim duration, etc. All aiming “modes” concern the length of time the beam is sent out, how wide the beam is and what happens when the timer expires. The terms are used interchangeably and may be confusing for the novice bar code reader user.

*Note: Decoding algorithms released by the bar code engine manufacturer often change upon each new release.*

*Programming parameters that were available at one release may not be available upon a later software release.*

*Honeywell supports the programming bar codes for the specific bar code reader engines in this guide only.*

## SE955 Scan Engine

The scan engine can have it's aiming beam/aiming dot setup using these bar codes:

- [Use Laser On Time](#)
- [Aim Duration](#), and
- [Scan Angle](#)

## Aiming Dot

### How to get an aiming dot when there is no “Aiming Dot” parameter

Set *Aim Duration* to .5 seconds and an aiming “dot” is sent while the scan trigger is held down. When the timer expires, the aiming beam widens and the bar code is read.

## Prefix / Suffix

Ring decoder engine prefix and suffix parameters should not be set, changed, or reset using the Prefix and Suffix bar codes in this section. When the Ring decoder engine is reset to defaults, the prefix and suffix settings revert to their default values also. Use the Windows wedge control panel in the host computer to set prefix and suffix values. The prefix and suffix bar codes are present in this section as a courtesy to Honeywell customers.

Refer to the Barcode Wedge or Data Collection Wedge control panel in the Mobile Device Reference Guide for information and instruction on setting up the following bar code reader parameters for ring scanner / ring imager bar code decoding:

- Enable/Disable decoding sounds
- Imager LED Illumination
- COM1 Serial Parameters
- Code ID: AIM, Symbol, Custom
- Symbology Settings including Prefix/Suffix
- Control Character Mapping
- Custom Identifiers

## Pre-Configured Default Values

| SE 955 Parameter                                 | Default          |
|--|------------------|
| <a href="#">Set Default Parameter</a>            | All Defaults     |
| <b>Scanning Options</b>                          |                  |
| <a href="#">Aim Duration</a>                     | 0.0 sec          |
| Aiming Mode                                      | Not Supported    |
| Beeper Volume                                    | Not Supported    |
| <a href="#">Bi-directional Redundancy</a>        | Disable          |
| <a href="#">Laser On Time</a>                    | 3.0 sec.         |
| <a href="#">Linear Code Type Security Levels</a> | 1                |
| <a href="#">Parameter Pass Through</a>           | Disable          |
| <a href="#">Parameter Scanning</a>               | Enable           |
| <a href="#">Power Mode</a>                       | Low Power        |
| Raster Expansion Rate                            | Not Supported    |
| Raster Height                                    | Not Supported    |
| <a href="#">Scan Angle</a>                       | Wide             |
| Scanning Mode                                    | Not Supported    |
| Time Delay to Low Power                          | Not Supported    |
| Time-out Between Different Symbols               | Not Supported    |
| Time-out Between Same Symbol                     | Not Supported    |
| <a href="#">Transmit "No Read" Message</a>       | Disable          |
| <a href="#">Trigger Mode</a>                     | Host             |
| <b>UPC/EAN</b>                                   |                  |
| UPC-A  | Enable           |
| UPC-E  | Enable           |
| UPC-E1   | Disable          |
| EAN-8  | Enable           |
| EAN-13   | Enable           |
| Bookland EAN                                     | Disable          |
| Bookland ISBN Format                             | Bookland ISBN-10 |
| Decode UPC/EAN Supplementals                     | Ignore           |
| Decode UPC/EAN Supplemental Redundancy           | 7                |
| Transmit UPC-A Check Digit                       | Enable           |
| Transmit UPC-E Check Digit                       | Enable           |

| SE 955 Parameter                  | Default                      |
|-----------------------------------|------------------------------|
| Transmit UPC-E1 Check Digit       | Enable                       |
| UPC-A Preamble                    | System Character             |
| UPC-E Preamble                    | System Character             |
| UPC-E1 Preamble                   | System Character             |
| Convert UPC-E to A                | Disable                      |
| Convert UPC-E1 to A               | Disable                      |
| EAN-8 Zero Extend                 | Disable                      |
| Convert EAN-8 to EAN-13 Type      | Type is EAN-13               |
| UPC/EAN Security Level            | 0                            |
| UCC Coupon Extended Code          | Disable                      |
| Linear UPC/EAN Decode             | Not Supported                |
| UPC Half Block Stitching          | Not Supported                |
| UPC Composite Mode                | Not Supported                |
| <b>Code 128</b>                   |                              |
| Code 128                          | Enable                       |
| GS1-128 (formerly UCC/EAN-128)    | Enable                       |
| Code 128 Decode Performance       | Not Supported                |
| Code 128 Decode Performance Level | Not Supported                |
| <b>Code 39</b>                    |                              |
| Code 39                           | Enable                       |
| Trioptic Code 39                  | Disable                      |
| Convert Code 39 to Code 32        | Disable                      |
| Code 32 Prefix                    | Disable                      |
| Set Length(s) for Code 39         | Length within Range: 02 – 55 |
| Code 39 Check Digit Verification  | Disable                      |
| Transmit Code 39 Check Digit      | Disable                      |
| Code 39 Full ASCII Conversion     | Disable                      |
| Code 39 Decode Performance        | Not Supported                |
| Code 39 Decode Performance Level  | Not Supported                |
| <b>Code 93</b>                    |                              |
| Code 93                           | Disable                      |
| Set Length(s) for Code 93         | Length within Range: 04 – 55 |
| <b>Code 11</b>                    |                              |



| SE 955 Parameter                     | Default                      |
|--------------------------------------|------------------------------|
| Code 11                              | Disable                      |
| Set Lengths for Code 11              | Length within Range: 04 – 55 |
| Code 11 Check Digit Verification     | Disable                      |
| Transmit Code 11 Check Digit(s)      | Disable                      |
| <b>Interleaved 2 of 5</b>            |                              |
| Interleaved 2 of 5                   | Enable                       |
| Set Length(s) for I 2 of 5           | 14                           |
| I 2 of 5 Check Digit Verification    | Disable                      |
| Transmit I 2 of 5 Check Digit        | Disable                      |
| Convert I 2 of 5 to EAN 13           | Disable                      |
| <b>Discrete 2 of 5</b>               |                              |
| Discrete 2 of 5                      | Disable                      |
| Set Length(s) for D 2 of 5           | 12                           |
| <b>Chinese 2 of 5</b>                |                              |
| Chinese 2 of 5                       | Disable                      |
| <b>Codabar</b>                       |                              |
| CLSI Editing                         | Disable                      |
| Codabar                              | Disable                      |
| NOTIS Editing                        | Disable                      |
| Set Lengths for Codabar              | Length within Range: 05-55   |
| <b>MSI Plessey</b>                   |                              |
| MSI Plessey                          | Disable                      |
| Set Length(s) for MSI Plessey        | Length within Range: 06-55   |
| MSI Plessey Check Digits             | One                          |
| Transmit MSI Plessey Check Digit     | Disable                      |
| MSI Plessey Check Digit Algorithm    | Mod 10/Mod 10                |
| <b>PDF417/MicroPDF417</b>            |                              |
| PDF417                               | Not Supported                |
| MicroPDF417                          | Not Supported                |
| Decode Linked Symbol                 | Not Supported                |
| Code 128 Emulation                   | Not Supported                |
| <b>GS1 DataBar (RSS)</b>             |                              |
| GS1 DataBar Omnidirectional (RSS-14) | Disable                      |
| GS1 DataBar Limited (RSS Limited)    | Disable                      |

| SE 955 Parameter                                       | Default          |
|--|------------------|
| GS1 DataBar Expanded (RSS Expanded)                    | Disable          |
| Convert GS1 DataBar (RSS) to UPC/EAN                   | Disable          |
| <b>Composite</b>                                       |                  |
| CC-C   | Not Supported    |
| CC-AB  | Not Supported    |
| TLC-39   | Not Supported    |
| <b>Data Options</b>                                    |                  |
| Transmit Code ID Character                             | None             |
| Prefix/Suffix Values<br>Prefix<br>Suffix 1<br>Suffix 2 | NULL<br>LF<br>CR |
| Scan Data Transmission Format                          | Data as is       |
| Decode Buffering                                       | Not Supported    |
| <b>Simple Serial Interface (SSI) Options</b>           |                  |
| Baud Rate  | 9600             |
| Parity   | None             |
| Check Parity   | Not Supported    |
| Software Handshaking                                   | Enable           |
| Decode Data Packet Format                              | Unpacketed       |
| Stop Bit Select  | 1                |
| Intercharacter Delay                                   | 0                |
| Host Serial Response Time-out                          | 2 sec            |
| Host Character Time-out                                | 200 msec         |
| <b>Macro PDF</b>                                       |                  |
| Macro PDF Transmit/Decode Mode                         | Not Supported    |
| Transmit Each Symbol in Codeword Format                | Not Supported    |
| Transmit Unknown Codewords                             | Not Supported    |
| Escape Character                                       | Not Supported    |
| <b>ECI</b>   |                  |
| Delete Character Set ECIs                              | Not Supported    |
| ECI Decoder  | Not Supported    |
| <b>Transmit Macro PDF User-Selected Field</b>          |                  |
| Transmit File Name                                     | Not Supported    |
| Transmit Block Count                                   | Not Supported    |

---

| SE 955 Parameter                  | Default       |
|-----------------------------------|---------------|
| Transmit Time Stamp               | Not Supported |
| Transmit Sender                   | Not Supported |
| Transmit Addressee                | Not Supported |
| Transmit Checksum                 | Not Supported |
| Transmit File Size                | Not Supported |
| Transmit Macro PDF Control Header | Not Supported |
| Last Block Marker                 | Not Supported |
| Flush Macro Buffer                | Not Supported |
| Abort Macro PDF Entry             | Not Supported |

---

## Set Default Parameter

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

|                       |  |
|-----------------------|--|
| Restore Defaults      | If custom defaults were set by scanning Write Custom Defaults, scan Restore Defaults to retrieve and restore the bar code reader's custom default settings. If no custom defaults were set, scan Restore Defaults to restore the factory default values. |
| Set Factory Defaults  | Restore the factory default values. If custom defaults were set, they are eliminated.  |
| Write Custom Defaults | Store the current bar code reader settings as custom defaults. Once custom default settings are stored, they can be recovered at any time by scanning the Restore Defaults bar code.   |

Restore Defaults



Set Factory Defaults



Write Custom Defaults



[See Also: "Return to Factory Default Settings"](#)

---

## Scanner Parameters – General

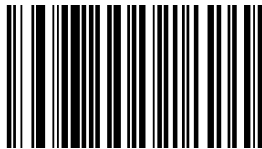
### *Aim Duration*

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:* For correct operation, reboot the mobile device after changing this value.

When a bar code reader with an aim mode is triggered either by a Scan button press, or a Start\_Decode command, this parameter sets the duration the aiming pattern is seen before a scan attempt begins. It does not apply to the aim signal or the Aim\_On command. It is programmable in 0.1 second increments from 0.0 to 9.9 seconds. No aim pattern is visible when the value is 0.0.

To **set aim duration**, scan the bar code below:



Next scan two numeric bar codes that correspond to the desired aim duration. Times less than 1.0 second must have a leading zero. For example, to set an aim duration of 0.5 seconds, scan the bar code above, [then scan the “0” and “5” bar codes](#) on the [Keypad Number Symbols](#) page. If you make an error, or wish to change your selection, scan the [Cancel](#) bar code.

---

## Bi-Directional Redundancy

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Use this parameter to decide whether a bar code is successfully scanned in both directions before being decoded.

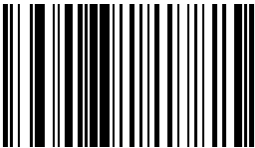
*Note: This parameter is only valid when a [Linear Code Type Security Level](#) has been enabled. The default for Security Level parameter is Level 1.*

Select an option by scanning either of the bar codes shown below.

Enable Bi-Directional Redundancy



\* Disable Bi-Directional Redundancy



---

## Data Options

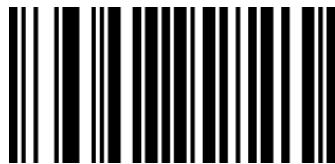
*Note:* SE955 ring bar code reader engine prefix and suffix parameters cannot be set, changed, or reset using the bar codes in this section. See previous section titled [Prefix / Suffix](#).

### Disable All Symbologies

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Scan the bar code below to disable the decoding of all symbologies. Use this to simplify selecting a single symbology to decode by scanning this bar code, then scanning the desired enable code type bar code.

Note that the decoder can still decode parameter bar codes.



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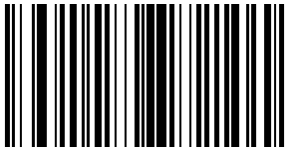
## Scan Data Transmission Format

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

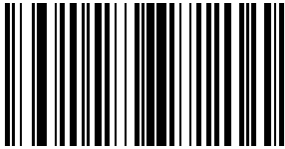
Use this option when you want to append a prefix and suffix to the decode data.  
Set this parameter by scanning one of the following bar codes.

*Note:* Parameter “[Prefix/Suffix Values](#)” should be set after setting this parameter.

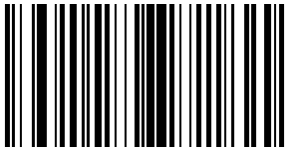
\* Data As Is



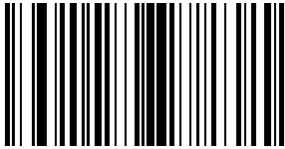
[Data] [Suffix 1]



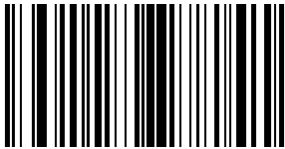
[Data] [Suffix 2]



[Data] [Suffix 1] [Suffix 2]



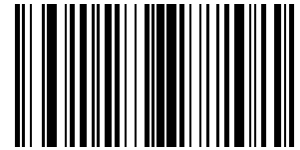
[Prefix] [Data]



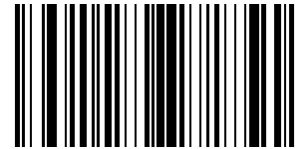


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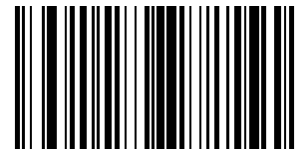
[Prefix] [Data] [Suffix 1]



[Prefix] [Data] [Suffix 2]



[Prefix] [Data] [Suffix 1] [Suffix 2]



Now you are ready to scan one of the “[Prefix/Suffix Values](#)” bar codes.

---

## Transmit Code ID Character

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

A code ID character identifies the code type of a scanned bar code. This may be useful when the bar code reader is decoding more than one code type. In addition to any single character prefix already selected, the code ID character is inserted between the prefix and the decoded symbol.

Scan one of the following bar codes to select either no code ID character, a Symbol Code ID character or an AIM Code ID character. *Default = No Code ID Character.*

### ***Transmit No Code ID Character***



---

## ***Transmit Symbol Code ID Character***



|   |  |
|---|--|
| A | UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13  |
| B | Code 39, Code 32   |
| C | Codabar  |
| D | Code 128   |
| E | Code 93  |
| F | Interleaved 2 of 5   |
| G | Discrete 2 of 5 or<br>Discrete 2 of 5 IATA   |
| H | Code 11  |
| J | MSI Plessey  |
| K | UCC/EAN-128  |
| L | Bookland EAN   |
| M | Trioptic Code 39   |
| N | Coupon Code  |
| R | GS1 DataBar Omnidirectional (RSS-14),<br>GS1 Limited (RSS-Limited),<br>GS1 Expanded (RSS-Expanded) |

---

## Transmit AIM Code ID Character



Each AIM Code Identifier contains the three character string ]cm where:

] = Flag Character (ASCII 93)

c = Code Character

|   |                                |
|---|--------------------------------|
| A | Code 39                        |
| C | Code 128                       |
| E | UPC/EAN                        |
| F | Codabar                        |
| G | Code 93                        |
| H | Code 11                        |
| I | Interleaved 2 of 5             |
| M | MSI Plessey                    |
| S | D2 of 5, IATA 2 of 5           |
| X | Code 39 Trioptic, Bookland EAN |
| e | GS1 DataBar (RSS)              |

m = Modifier Character

The modifier character is the sum of the applicable option values based on the following table.

| Code Type      | Option Value | Option  |
|----------------|--------------|---|
| <b>Code 39</b> |              |   |
|                | 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 ]A7AimId where 7 = (3+4). |

| Code Type                 | Option Value | Option  |
|---------------------------|--------------|---|
| <b>Trioptic Code 39</b>   |              |   |
|                           | 0            | No option specified at this time. Always transmit 0.  |
|                           |              | Example: A Trioptic bar code 412356 is transmitted as JX0412356   |
| <b>Code 128</b>           |              |   |
|                           | 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 in the first position, FNC <sup>1</sup> Aim Id is transmitted as JCI AimId |
| <b>Interleaved 2 of 5</b> |              |   |
|                           | 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 JI04123  |
| <b>Codabar</b>            |              |   |
|                           | 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 JF04123  |
| <b>Code 93</b>            |              |   |
|                           | 0            | No options specified at this time. Always transmit 0.   |
|                           |              | Example: A Code 93 bar code 012345678905 is transmitted as JG0012345678905  |
| <b>MSI (Plessey)</b>      |              |   |
|                           | 0            | Single check digit checked.   |
|                           | 1            | Two check digits checked.   |
|                           | 2            | Single check digit verified and stripped before transmission.   |
|                           | 3            | Two check digits verified and stripped before transmission.   |
|                           |              | Example: An MSI Plessey bar code 4123, with a single check digit checked, is transmitted as JM04123                                     |
| <b>Discrete 2 of 5</b>    |              |   |
|                           | 0            | No options specified at this time. Always transmit 0.   |
|                           |              | Example: A D 2 of 5 bar code 4123, is transmitted as JS04123  |
| <b>UPC/EAN</b>            |              |   |

| Code Type           | Option Value | Option   |
|---------------------|--------------|--|
|                     | 0            | Standard packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including supplemental data). |
|                     | 1            | Two digit supplement data only   |
|                     | 2            | Five digit supplement data only  |
|                     | 4            | EAN-8 data packet.   |
|                     |              | Example: A UPC-A bar code 012345678905 is transmitted as JE00012345678905  |
| <b>Bookland EAN</b> |              |  |
|                     | 0            | No options specified at this time. Always transmit 0.  |
|                     |              | Example: A Bookland EAN bar code 123456789X is transmitted as JX0123456789X  |

According to AIM standards, a UPC with supplemental bar code is transmitted in the following format:

]EO (UPC chars) (terminator) ]E2 (supplemental) (terminator)

Therefore, a UPC with two supplemental characters, 01234567890510, is transmitted to the host as a 21-character string, JE00012345678905]E110.

---

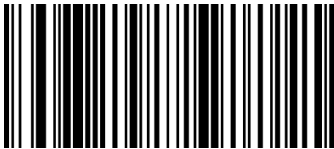
## Laser On Time

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:* For correct operation, reboot the Ring Decoder after changing this value.

This parameter sets the maximum time decode processing continues during a scan attempt. It is programmable in 0.1 second increments from 0.50 to 25.5 seconds. If a label has not been decoded before this time expires and the session is terminated, the system regards it as a failed scan attempt.

To begin setting **Laser On Time**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired on time using the [Keypad Number Symbols](#) at the end of this section. Times less than 1.0 second must have a leading zero. *Default = 3.0 seconds.*

If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

[See Also: "Laser On Time \(superseded\)"](#)

---

## Linear Code Type Security Level (Redundancy Level)

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Use this parameter to determine the security level appropriate for bar code quality. The security level indicates how many times the bar code must be successfully read by the bar code reader before being decoded.

There are four security levels. Higher security levels are selected for decreasing levels of bar code quality. As security levels increase, the bar code reader's aggressiveness decreases.

| Linear Security Level | Rules   |
|-----------------------|---|
| Level 1               | The following code types must be successfully read twice before being decoded:<br>Codabar : All lengths<br>MSI Plessey : Length of 4 characters or less<br>D 2 of 5 : Length of 8 characters or less<br>I 2 of 5 : Length of 8 characters or less                                     |
| Level 2               | All code types must be successfully read twice before being decoded.  |
| Level 3               | Code types other than the following must be successfully read two times before being decoded. The following codes must be read three times:<br>MSI Plessey : Length of 4 characters or less<br>D 2 of 5 : Length of 8 characters or less<br>I 2 of 5 : Length of 8 characters or less |
| Level 4               | All code types must be successfully read three times before being decoded.  |



---

Select an option by scanning one of the bar codes shown below. If you wish to change your selection, scan Cancel.

*Note: Linear Code Type Security does not apply to Code 128.*

\* Level 1



Level 2



Level 3



Level 4



---

## Parameter Pass Through

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Enable Parameter Pass Through to transmit bar codes in the following format, in Code 128, to the host:

<FNC3>L<any length data>

<FNC3>B<12 characters of data>

Note that the special Code 128 character <FNC3> must appear at the beginning of this data. However, if the appropriate data does not follow this as shown above, it does not transmit to the host device.

Enable Parameter Pass Through



\* Disable Parameter Pass Through



---

## Parameter Scanning

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Use this parameter to decide whether bar code reader parameters can be set using the bar codes in this section.

*Note:* When this parameter is disabled, scan the [Set Defaults](#) parameter bar code to enable parameter scanning.

When disabled, either scan the Enable Parameter Scanning bar code or the Set All Defaults bar code (or set this parameter to 01h via a serial command) to reset the parameter and bar codes in this section can then be scanned.

When enabled, bar code readers can be configured using the bar codes in this section.

Select a mode by scanning either of the bar codes shown below.

\* Enable Parameter Scanning



Disable Parameter Scanning



---

## Power Mode

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

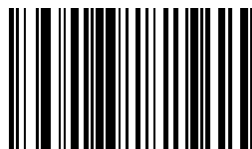
*Note: Honeywell mobile devices are designed to be operated in Low Power Mode. Honeywell recommends leaving this value unchanged.*

A parameter setting of Continuous On means the laser bar code reader will not power down until the mobile device is powered off.

A parameter setting of Low Power means the laser bar code reader will enter low power mode after one second of waiting for a Scan button press. Pressing the Scan button will begin the decode sequence.

Select a Power Mode by scanning either of the bar codes shown below.

Continuous On



\* Low Power



---

## Simple Serial Interface (SSI) Options

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

*Note: Baud Rate Parameter must remain at 9600 bps at all times.*

### SSI Default Values

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

| Option  | Default Value |
|---|---------------|
| Baud Rate                                     | Not Supported |
| Beep on < BEL >                               | Not Supported |
| Check Parity                                  | Not Supported |
| Beep on < BEL >                               | Disable       |
| <a href="#">Check Parity</a>                  | Enable        |
| <a href="#">Decode Data Packet Format</a>     | Unpacketed    |
| <a href="#">Host Character Time-out</a>       | 200 msec      |
| <a href="#">Host Serial Response Time-out</a> | 2 sec         |
| <a href="#">Intercharacter Delay</a>          | 0             |
| <a href="#">Parity</a>                        | None          |
| <a href="#">Software Handshaking</a>          | Enable        |
| <a href="#">Stop Bit Select</a>               | 1             |

---

## Baud Rate

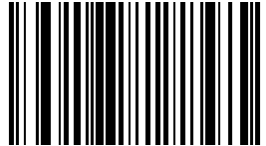
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Baud rate is the number of bits of data transmitted per second. The bar code readers baud rate setting should match the data rate setting of the host device. If not, data may not reach the host device or may reach it in distorted form. *Default = 9600 bps.*

Baud rate should always be set to 9600. If the baud rate is set to any other value but 9600, a transmit error will occur. Either scan the 9600 bps bar code or reset the mobile device to factory default (or last saved good default) values.

Set this parameter by scanning this bar code.

9600 bps



The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

---

## Decode Data Packet Format

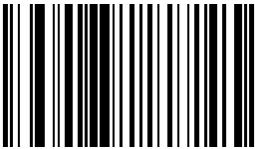
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

This parameter selects whether decoded data is transmitted in raw format (unpacketed), or transmitted with the packet format as defined by the serial protocol.

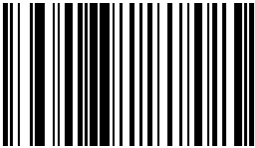
If the raw format is chosen, ACK/NAK handshaking is automatically disabled for decode data.

Set this parameter by scanning either of the following bar codes.

Send Raw Decode Data



\* Send Packeted Decode Data



The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

---

## Host Character Time-out

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

This parameter determines the maximum time the decoder waits between characters transmitted by the host before discarding the received data and declaring an error. The time-out is set in 0.01 second increments from 0.01 seconds to 0.99 seconds. After scanning the bar code below, scan two numerical bar codes to set the desired time-out. *Default = 200 msec.*

To begin setting the **time-out value**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value using the “Keypad Number Symbols” at the end of this section. Single digit numbers must have a leading zero. For example, a value of 300 msec is selected by scanning the “3” and the “0” numeric bar codes. A value of 30 msec is selected by scanning the “0” and the “3” bar codes.

If you wish to change your selection, scan Cancel on the “[Keypad Number Symbols](#)” page.

The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).



---

## Host Serial Response Time-out

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

This parameter determines the maximum time the decoder waits for an ACK or NAK before resending. Also, if the decoder wants to send, and the host has already been granted permission to send, the decoder waits for the designated time-out before declaring an error. The delay period can range from 0.0 to 9.9 seconds in 0.1 second increments. After scanning the bar code below, scan two numerical bar codes to set the delay. *Default = 2 seconds.*

To begin setting the **time-out value**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value using the “[Keypad Number Symbols](#)” at the end of this section. Time durations of less than 1.0 second require a leading zero. For example, a value of 4.5 seconds is selected by scanning the “4” and the “5” numeric bar codes. A value of 0.3 seconds is selected by scanning the “0” and the “3” bar codes.

If you wish to change your selection, scan Cancel on the “Keypad Number Symbols” page.

The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

---

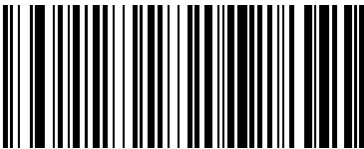
## Intercharacter Delay

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Select the intercharacter delay option matching host requirements. The intercharacter delay gives the host system time to service its receiver and perform other tasks between characters.

The delay period can range from no delay to 99 msec in 1 msec increments. After scanning the bar code below, scan two numerical bar codes to set the delay. *Default = 0 msec.*

To begin setting the **delay value**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value using the “[Keypad Number Symbols](#)” at the end of this section. Time durations of less than 1 msec require a leading zero. For example, a value of 25 msec is selected by scanning the “2” and the “5” numeric bar codes. A value of 6 msec is selected by scanning the “0” and the “6” bar codes.

If you wish to change your selection, scan Cancel on the “Keypad Number Symbols” page.

The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

---

## Parity

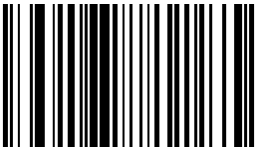
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

A parity check bit is the most significant bit of each ASCII coded character. Select the parity type according to host device requirements.

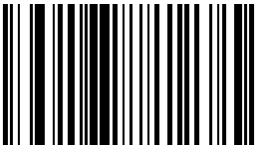
|              |   |
|--------------|---|
| Odd Parity   | The Odd parity bit has a value 0 or 1, based on data, to ensure that an odd number of 1 bits is contained in the coded character.   |
| Even Parity  | The Even parity bit has a value 0 or 1, based on data, to ensure that an even number of 1 bits is contained in the coded character. |
| Mark Parity  | The parity bit is always 1.   |
| Space Parity | The parity bit is always 0.   |
| No Parity    | No parity is required.  |

Set this parameter by scanning one of the following bar codes.

Odd Parity



Even Parity

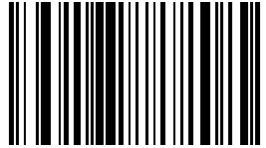


Mark Parity

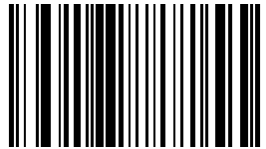


---

Space Parity



\* No Parity



The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

---

## Software Handshaking

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

*Default = Enable*

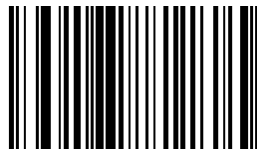
This parameter offers control of the data transmission process in addition to that offered by hardware handshaking.

Hardware handshaking is always enabled and cannot be disabled by the user.

Scan one of the following bar codes to set software handshaking.

### ***Disable ACK/NAK Handshaking***

When this option is selected, the decoder will neither generate nor expect ACK/NAK handshaking packets.



### ***Enable ACK/NAK Handshaking***

When this option is selected, after transmitting data, the bar code reader expects either an ACK or NAK response from the host. The bar code reader will also ACK or NAK messages from the host when this option is selected.

The bar code reader waits up to the programmable [Host Serial Response Time-out](#) to receive an ACK or NAK. If the bar code reader does not get a response in this time, it resends its data up to two times before discarding the data and declaring a transmit error.



---

# Stop Bit Select

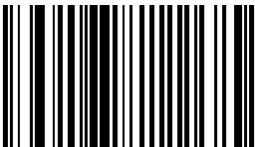
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream.

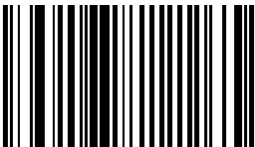
The number of stop bits selected (one or two) depends on the number the receiving computer is programmed to accommodate. Set the number of stop bits to match host device requirements.

Set this parameter by scanning one of the following bar codes.

\* One Stop Bit



Two Stop Bits



The SSI Options bar codes are directed toward the host programmer when writing host/bar code reader interface programs for different hosts. For help see [Technical Assistance](#).

---

## Time-out Between Decodes, Same Symbol

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Use this parameter to prevent the beeper from continuously beeping when a symbol is left in the bar code reader's field of view.  
*Default = 1.0 Second.*

To begin setting **differing symbol timeout values**, scan this bar code:



Using the "[Keypad Number Symbols](#)" section at the end of this section, scan two numeric bar codes that represent the desired interval, in 0.1 second increments. Valid values are between 0.0 and 9.9 seconds. Single digit values must be predefined by a leading zero. For example, to set a timeout of 0.5 seconds, scan the Timeout/Decodes – Same bar code, then scan the number 0 and 5 bar codes.

If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

---

## Transmit “No Read / Decode” Message

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Use this parameter to decide whether a message is sent to the host when a bar code symbol does not decode.

When enabled, and a symbol does not decode within either:

- A trigger pull activates the laser and decode processing, the processing continues until a trigger release, or
- The laser decode processing continues until the Laser On Timeout is reached.

A “NR” (No Read) is transmitted to the host. Any prefix or suffixes which have been enabled are appended around this message.

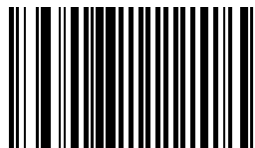
When disabled, and a symbol does not decode, no message is sent to the host.

Select an option by scanning either of the bar codes shown below.

Enable No Read



\* Disable No Read





---

## Trigger Mode

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:* Body worn devices with ring bar code readers are designed to be operated in Host Trigger Mode. Honeywell recommends leaving the Trigger Mode default value unchanged for these devices.

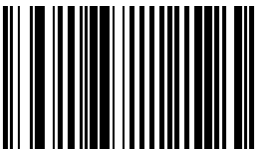
Use this parameter to determine when the laser is activated and decoding begins, how long the laser remains on and what determines the cessation of the laser scan and decode process.

| Trigger Mode | Function   |
|--------------|--|
| Level        | A trigger pull or Scan button press activates the laser and decode processing. The laser remains on and decode processing continues until a trigger release, a valid decode or the <a href="#">Laser On Time-out</a> is reached. |
| Pulse        | A trigger pull or Scan button press activates the laser and decode processing. The laser remains on and decode processing continues until a valid decode, or the Laser On Time-out is reached.                                   |
| Continuous   | The laser is always on and decoding.<br>See Also: <a href="#">Time-out Between Same Symbol</a>   |
| Blinking     | This trigger mode is used for triggerless scanning operations. Scanning range is reduced in this mode. This mode cannot be used with bar code readers that support an aim mode.  |
| Host         | Triggering signal comes from a host command. Any actual trigger pull or Scan button press will be interpreted by the bar code reader engine as a Level triggering option.  |

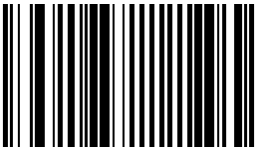
---

Select a trigger mode by scanning the appropriate bar code. If you wish to change your selection, scan Cancel.

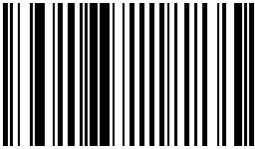
Level



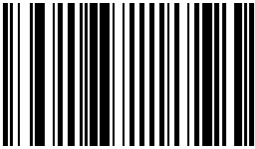
Pulse



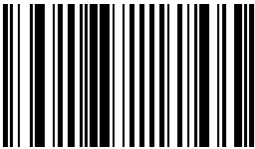
Continuous



Blinking



\* Host



---

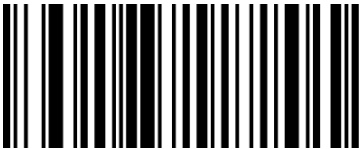
# Scan Angle (SE955 only)

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Choose one of the options below to set the scan angle to narrow or wide. Once the parameter bar code is scanned, the Scan Angle setting is persistently stored.

Select an option by scanning one of the bar codes shown below.

Narrow Angle (35°)



\* Wide Angle



See Also: ["Scan Angle \(SE955 only\) superseded"](#)

---

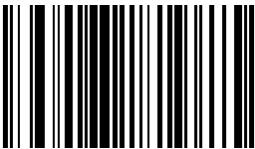
## Scanner Parameters – Bar Code Type Specific

### *Chinese 2 of 5*

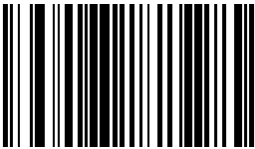
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, Chinese 2 of 5 symbols will be scanned, decoded and transmitted. Set this parameter by scanning either of the bar codes shown below.

Enable Chinese 2 of 5



\* Disable Chinese 2 of 5



---

## Codabar

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, Codabar symbols will be scanned, decoded and transmitted. Set this parameter by scanning either of the bar codes shown below.

Enable Codabar



\* Disable Codabar



## CLSI Editing

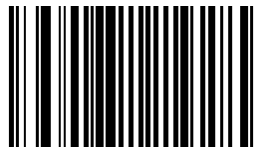
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, the start and stop characters are stripped from the bar code and a space is inserted after the 1<sup>st</sup>, 5<sup>th</sup>, and 10<sup>th</sup> characters of a 14 character Codabar symbol.

Set this parameter by scanning either of the bar codes shown below.

*Note: Symbol length does not include start and stop characters.*

Enable CLSI Editing



\* Disable CLSI Editing



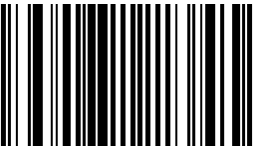
---

## NOTIS Editing

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, the start and stop characters are stripped from a decoded Codabar symbol. Set this parameter by scanning either of the bar codes shown below.

Enable NOTIS Editing



\* Disable NOTIS Editing



## Set Lengths for Codabar

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Lengths for Codabar may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

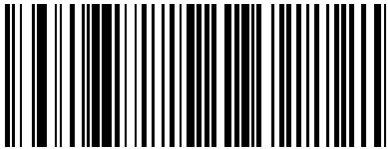
See the table titled “[ASCII Character Equivalents](#)”.

---

### ***One Discrete Length (Parameter L1)***

This option decodes only those codes containing a selected length. For example, when you want to scan only Codabar symbols containing 14 characters, scan the “Codabar One Discrete Length” bar code and then “1” and “4” bar codes using the [“Keypad Number Symbols”](#). *Default = 5.*

To begin setting **one discrete length**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the [“Keypad Number Symbols”](#) page.

### ***Two Discrete Lengths (Parameter L2)***

This option decodes only those codes containing two selected lengths. For example, when you want to scan only Codabar symbols containing 2 or 14 characters, scan the “Codabar Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the [“Keypad Number Symbols”](#) at the end of this section. *Default = 55.*

To begin setting **two discrete lengths**, scan this bar code:



Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the [“Keypad Number Symbols”](#) page.

---

## ***Length Within Range***

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Codabar symbols containing between 4 and 12 characters, scan the “Codabar Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes.

To begin setting **lengths within a range**, scan this bar code:



Next, scan numeric bar codes that correspond to the desired value using the “[Keypad Number Symbols](#)”. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

## ***Any Length***

This option decodes Codabar bar codes containing any number of characters.

To set **any length**, scan this bar code:





---

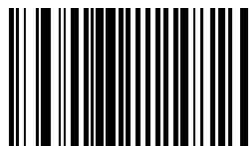
## Code 11

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, Code 11 symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the bar codes shown below.

Enable Code 11



\* Disable Code 11



## Set Lengths for Code 11

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Lengths for Code 11 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

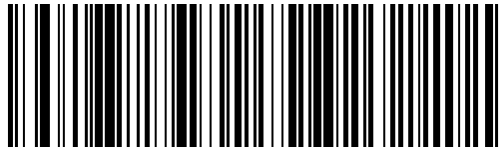
See the table titled "[ASCII Character Equivalents](#)".

---

### ***One Discrete Length (Parameter L1)***

This option decodes only those codes containing a selected length. For example, when you want to scan only Code 11 symbols containing 14 characters, scan the “Code 11 One Discrete Length” bar code and then “1” and “4” bar codes using the “Keypad Number Symbols”. *Default = 4.*

To begin setting **one discrete length**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

### ***Two Discrete Lengths (Parameter L2)***

This option decodes only those codes containing two selected lengths. For example, when you want to scan only Code 11 symbols containing 2 or 14 characters, scan the “Code 11 Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the “Keypad Number Symbols” at the end of this section. *Default = 55.*

To begin setting **two discrete lengths**, scan this bar code:



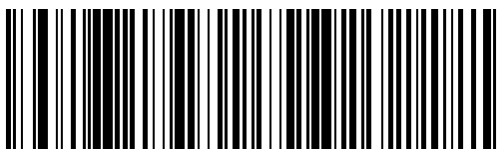
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

---

## ***Length Within Range***

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Code 11 symbols containing between 4 and 12 characters, scan the “Code 11 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes.

To begin **setting lengths within a range**, scan this bar code:

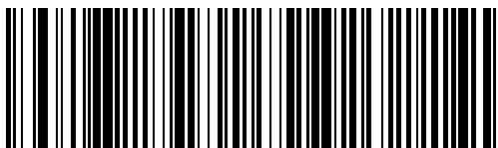


Next, scan numeric bar codes that correspond to the desired value using the “[Keypad Number Symbols](#)”. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

## ***Any Length***

This option decodes Code 11 bar codes containing any number of characters.

To set **any length**, scan this bar code:



---

# Code 11 Check Digit Verification

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, this parameter checks the integrity of a Code 11 symbol to ensure it complies with the specified check digit algorithm.

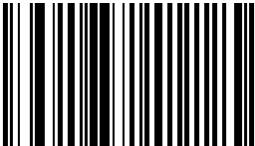
*Note:* Enable “Code 11 Check Digit Verification” when “[Transmit Code 11 Check Digits](#)” is enabled.

Set this parameter by scanning one of the bar codes shown below.

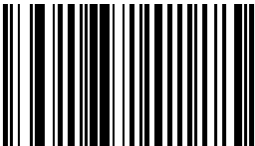
\* Disable this feature



One Check Digit



Two Check Digits



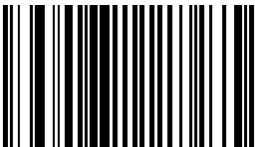
---

## Transmit Code 11 Check Digits

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Note: [Code 11 Check Digit Verification](#) must be enabled for this parameter to function.

Transmit (Enable)



\* Do Not Transmit (Disable)



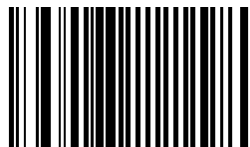
---

## Code 128

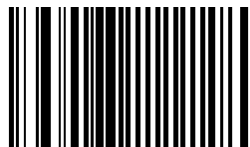
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Set this parameter by scanning either of the bar codes shown below.

\* Enable Code 128



Disable Code 128



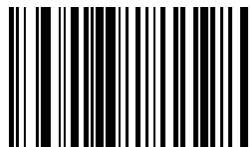
---

## GS1-128 (formerly UCC/EAN-128)

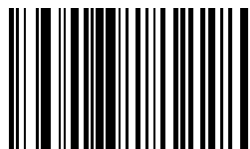
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Set this parameter by scanning either of the bar codes shown below.

\* Enable GS1-128



Disable GS1-128



GS1-128 is a convention for printing data fields with standard Code 128 bar code symbols. GS1-128 symbols are distinguished by a leading FNC 1 character as the first or second character in the symbol. Other FNC 1 characters are used to delineate fields.

When GS1-128 symbols are read, they are transmitted after special formatting strips off the leading FNC 1 character, and replaces other FNC 1 characters with the ASCII 29 (GS) control character.

When AIM symbology identifiers are transmitted, the modifier character indicates the position of the leading FNC 1 character according to AIM guidelines. For example, ]c1 indicates a GS1-128 symbol with a leading FNC1 character.

Standard Code 128 bar codes which do not have a leading FNC 1 may still be used, but are not encoded according to the GS1-128 convention. Standard Code 128 and GS1-128 may be mixed in an application. The SE955 autodiscriminates between these symbols, and can enable or disable one or both code types.

The following table indicates the behavior of the SE955 in each of the four possible parameter settings.

| Standard Code 128 | UCC/EAN 128 | Effect and Example   |
|-------------------|-------------|--|
| Disable           | Disable     | No Code 128 symbols can be read.   |
| Disable           | Enable      | Read only symbols with leading FNC1.                                     |
|                   |             | Examples:  |
|                   |             | FNC1ABCD <sup>FNC1</sup> E are read as ABCD <sup>29</sup> E              |
|                   |             | A <sup>FNC1</sup> BCD <sup>FNC1</sup> E are read as ABCD <sup>29</sup> E |
|                   |             | FNC1FNC1ABCD <sup>FNC1</sup> E are read as ABCD <sup>29</sup> E          |
|                   |             | ABCD <sup>FNC1</sup> E cannot be read                                    |
|                   |             | ABCDE cannot be read   |
| Enable            | Disable     | Read only symbols without leading FNC1.                                  |
|                   |             | Examples:  |
|                   |             | FNC1ABCD <sup>FNC1</sup> E cannot be read                                |
|                   |             | A <sup>FNC1</sup> BCD <sup>FNC1</sup> E cannot be read                   |
|                   |             | FNC1FNC1ABCD <sup>FNC1</sup> E cannot be read                            |
|                   |             | ABCD <sup>FNC1</sup> E is read as ABCD <sup>29</sup> E                   |
|                   |             | ABCDE is read as ABCDE   |
| Enable            | Enable      | Read both types of symbols.  |
|                   |             | Examples:  |
|                   |             | FNC1ABCD <sup>FNC1</sup> E are read as ABCD <sup>29</sup> E              |
|                   |             | A <sup>FNC1</sup> BCD <sup>FNC1</sup> E are read as ABCD <sup>29</sup> E |
|                   |             | FNC1FNC1ABCD <sup>FNC1</sup> E are read as ABCD <sup>29</sup> E          |
|                   |             | ABCD <sup>FNC1</sup> E is read as ABCD <sup>29</sup> E                   |
|                   |             | ABCDE is read as ABCDE   |

## Lengths for Code 128

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

No length setting is required for Code 128. The default setting is Any Length.



---

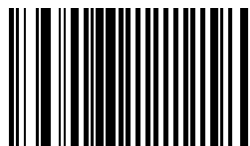
## Code 39

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:* This parameter must be enabled when “[Convert Code 39 to Code 32](#)” is to be enabled.

Set this parameter by scanning either of the bar codes shown below.

\* Enable Code 39



Disable Code 39



## Code 39 Check Digit Verification

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

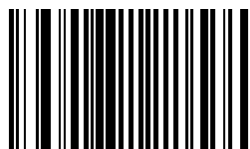
When enabled, this parameter checks the integrity of a Code 39 symbol to ensure it complies with specified algorithms. Only those Code 39 symbols which include a modulo 43 check digit are decoded when this parameter is enabled.

Set this parameter by scanning either of the bar codes shown below.

Enable Code 39 Check Digit Verification



\* Disable Code 39 Check Digit Verification



---

## Code 32 Prefix

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

This parameter adds the prefix character “A” to all Code 32 bar codes.

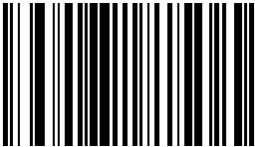
*Note: When enabled, “[Convert Code 39 to Code 32](#)” parameter must also be enabled.*

Set this parameter by scanning either of the bar codes shown below.

Enable Code 32 Prefix



\* Disable Code 32 Prefix



---

## Convert Code 39 to Code 32

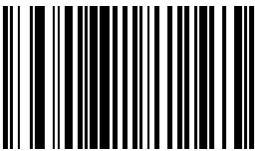
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:*    **Code 39** must be enabled in order for this parameter to function.

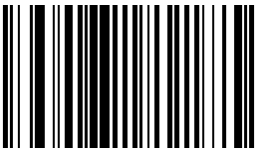
*Note:*    When parameter “**Code 32 Prefix**” is to be enabled, this Convert Code 39 to Code 32 (Italian Pharma Code) parameter must also be enabled.

Set this parameter by scanning either of the bar codes shown below.

Enable Convert Code 39 to Code 32



\* Disable Convert Code 39 to Code 32



---

## Code 39 Full ASCII Conversion

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:* Code 39 Full ASCII and [Trioptic Code 39](#) should not be enabled simultaneously.

When enabled, the ASCII character set assigns a code to letter, punctuation marks, numerals, and most control keystrokes on the keyboard.

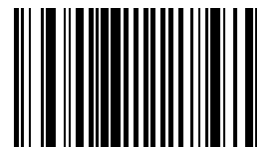
The first 32 codes are non-printable and are assigned to keyboard control characters such as [Backspace] and [Return or Enter]. The other 96 are called printable codes because all but [Space] and [Delete] produce visible characters.

Code 39 Full ASCII interprets the bar code special character (\$ + % /) preceding a Code 39 character and assigns an ASCII character value to the pair.

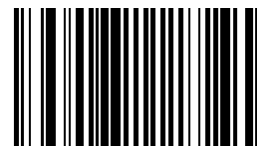
See the table titled "[ASCII Character Equivalents](#)".

Set this parameter by scanning either of the bar codes shown below.

Enable Code 39 Full ASCII Conversion



\* Disable Code 39 Full ASCII Conversion



## Set Lengths for Code 39

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Lengths for Code 39 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains. If "[Code 39 Full ASCII](#)" is enabled, "Length Within a Range" or "Any Length" are the preferred options.

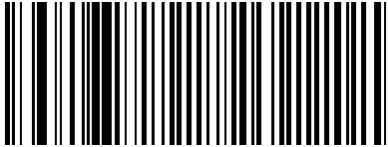
See the table titled "[ASCII Character Equivalents](#)".

---

### **Code 39 One Discrete Length (Parameter L1)**

This option decodes only those codes containing a selected length. For example, when you want to scan only Code 39 symbols containing 14 characters, scan the “Code 39 One Discrete Length” bar code and then “1” and “4” bar codes using the [“Keypad Number Symbols”](#) at the end of this section. *Default = 2.*

To begin setting **one discrete length**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

### **Code 39 Two Discrete Lengths (Parameter L2)**

This option decodes only those codes containing two selected lengths. For example, when you want to scan only Code 39 symbols containing 2 or 14 characters, scan the “Code 39 Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the [“Keypad Number Symbols”](#) at the end of this section. *Default = 55.*

To begin setting **two discrete lengths**, scan this bar code:



Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

---

### ***Code 39 Length Within Range***

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Code 39 symbols containing between 4 and 12 characters, scan the “Code 39 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the [“Keypad Number Symbols”](#).

To begin setting **lengths within a range**, scan this bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

### ***Code 39 Any Length***

This option decodes Code 39 bar codes containing any number of characters.

To set **any length**, scan this bar code:



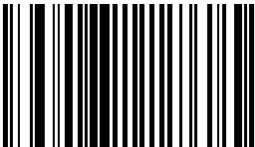
---

# Transmit Code 39 Check Digit

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, the check digit is transmitted with the data.  
Parameter setting for “Code 39 Check Digit Verification” has no effect on this parameter value.  
Set this parameter by scanning either of the bar codes shown below.

Enable Transmit Code 39 Check Digit



\* Disable Transmit



---

# Trioptic Code 39

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Trioptic Code 39 symbols always contain six characters.

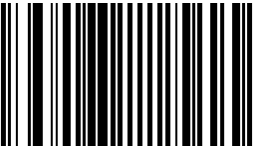
*Note: When Trioptic Code 39 is enabled, set the “Code 39 Full ASCII” parameter to disabled. Both parameters should not be enabled simultaneously.*

Set this parameter by scanning either of the bar codes shown below.

Enable Trioptic Code 39



\* Disable Trioptic Code 39





---

# Code 93

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, Code 93 symbols will be scanned, decoded and transmitted. Set this parameter by scanning either of the bar codes shown below.

Enable Code 93



\* Disable Code 93



## Set Lengths for Code 93

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Lengths for Code 93 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

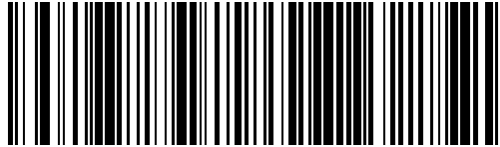
The length of a code refers to the number of characters, including check digits, the code contains.  
See the table titled “[ASCII Character Equivalents](#)”.

---

### ***One Discrete Length (Parameter L1)***

This option decodes only those codes containing a selected length. For example, when you want to scan only Code 93 symbols containing 14 characters, scan the “Code 93 One Discrete Length” bar code and then “1” and “4” bar codes using the bar codes on the “[Keypad Number Symbols](#)” page. *Default = 4.*

To begin setting **one discrete length**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

### ***Two Discrete Lengths (Parameter L2)***

This option decodes only those codes containing two selected lengths. For example, when you want to scan only Code 93 symbols containing 2 or 14 characters, scan the “Code 93 Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the “[Keypad Number Symbols](#)” at the end of this section. *Default = 55.*

To begin setting **two discrete lengths**, scan this bar code:



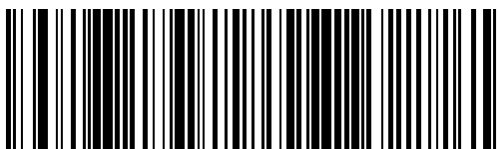
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

---

## ***Length Within Range***

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Code 93 symbols containing between 4 and 12 characters, scan the “Code 93 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the “[Keypad Number Symbols](#)” at the end of this section.

To begin setting **lengths within a range**, scan this bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

## ***Any Length***

This option decodes Code 93 bar codes containing any number of characters.

To set **any length**, scan this bar code:



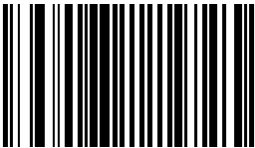
---

# Discrete 2 of 5

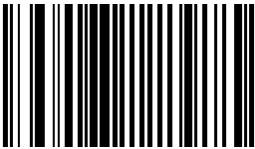
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, Discrete 2 of 5 (D 2 of 5) symbols will be scanned, decoded and transmitted. Set this parameter by scanning either of the bar codes shown below.

Enable Discrete 2 of 5



\* Disable Discrete 2 of 5



## Set Lengths for Discrete 2 of 5

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Lengths for D 2 of 5 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains.

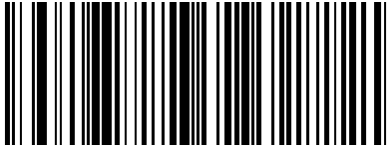
See the table titled “[ASCII Character Equivalents](#)”.

---

### ***One Discrete Length (Parameter L1)***

This option decodes only those codes containing a selected length. For example, when you want to scan only D 2 of 5 symbols containing 14 characters, scan the “D 2 of 5 One Discrete Length” bar code and then “1” and “4” bar codes using the bar codes on the “[Keypad Number Symbols](#)” page. *Default = 12.*

To begin setting **one discrete length**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

### ***Two Discrete Lengths (Parameter L2)***

This option decodes only those codes containing two selected lengths. For example, when you want to scan only D 2 of 5 symbols containing 2 or 14 characters, scan the “D 2 of 5 Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the “[Keypad Number Symbols](#)” . *Default = 12.*

To begin setting **two discrete lengths**, scan this bar code:



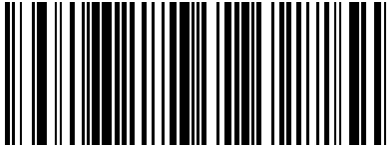
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

---

## ***Length Within Range***

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only D 2 of 5 symbols containing between 4 and 12 characters, scan the “D 2 of 5 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the “[Keypad Number Symbols](#)”.

To begin setting **lengths within a range**, scan this bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

## ***Any Length***

This option decodes D 2 of 5 bar codes containing any number of characters.

*Note: **Important:** Selecting this option may lead to misdecodes for D 2 of 5 codes.*

To set **any length**, scan this bar code:



---

# GS1 DataBar (RSS) Codes

## GS1 DataBar Omnidirectional (RSS-14)

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Enable GS1 DataBar Omnidirectional (RSS-14)



\* Disable GS1 DataBar Omnidirectional (RSS-14)



## GS1 DataBar Limited (RSS-Limited)

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Enable GS1 DataBar Limited (RSS-Limited)



\* Disable GS1 DataBar Limited (RSS-Limited)



---

## GS1 DataBar Expanded (RSS-Expanded)

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Enable GS1 DataBar Expanded (RSS-Expanded)



\* Disable GS1 DataBar Expanded (RSS-Expanded)



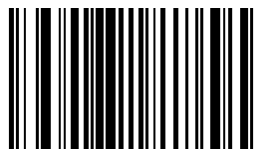
## Convert GS1 DataBar (RSS) to UPC/EAN

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

This parameter only applies to GS1 DataBar Omnidirectional (RSS-14) and GS1 DataBar Limited (RSS Limited) symbols. When this conversion is enabled, GS1 DataBar Omnidirectional (RSS-14) and GS1 DataBar Limited (RSS Limited) symbols encoding a single zero as the first digit have the leading '010' stripped and the bar code reported as EAN-13.

Bar codes beginning with two or more zeros but not six zeros have the leading '0100' stripped and the bar code reported as UPC-A. The UPC-A Preamble parameter to transmit the system character and country code applies to converted bar codes. Note that neither the system character nor the check digit can be stripped.

Enable Convert GS1 DataBar (RSS) to UPC/EAN



\* Disable Convert GS1 DataBar (RSS) to UPC/EAN





---

## ***Interleaved 2 of 5***

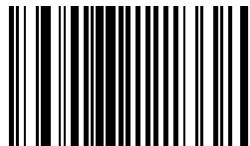
|                         |
|-------------------------|
| Bar Code Decoder Engine |
|-------------------------|

|       |
|-------|
| SE955 |
|-------|

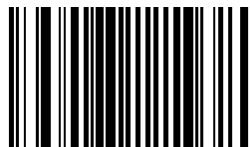
When enabled, Interleaved 2 of 5 (I 2 of 5) symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the bar codes shown below.

\* Enable Interleaved 2 of 5



Disable Interleaved 2 of 5



---

## I 2 of 5 Digit Verification

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, this parameter checks the integrity of an I 2 of 5 symbol to ensure it complies with a specified algorithm, either USS (Uniform Symbology Specification) or OPCC (Optical Product Code Council).

Set this parameter by scanning one of the bar codes shown below.

\* Disable I 2 of 5 Check Digit Verification



USS Check Digit



OPCC Check Digit



---

## Convert I 2 of 5 to EAN-13

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

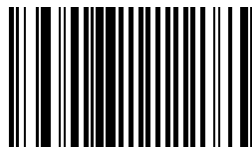
A successful bar code conversion requires the following to be true:

- Interleaved 2 of 5 scanning is enabled.
- One of the I 2 of 5 lengths is set to 14.
- The bar code has a leading zero.
- The bar code has a valid EAN-13 check digit.

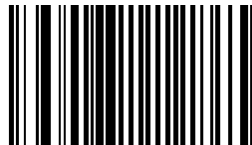
When enabled, the parameter converts a 14 character Interleaved 2 of 5 bar code into EAN-13 and transmits it to the host as EAN-13.

Set this parameter by scanning either of the bar codes shown below.

Enable Convert Interleaved 2 of 5 to EAN-13



\* Disable Convert Interleaved 2 of 5 to EAN-13



## Set Lengths for I 2 of 5

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Lengths for I 2 of 5 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains. When settings lengths, single digit numbers must always be preceded by a leading zero.

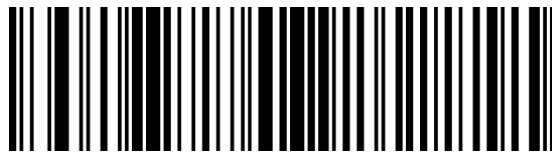
See the table titled "[ASCII Character Equivalents](#)".

---

### ***One Discrete Length (Parameter L1)***

This option decodes only those codes containing a selected length. For example, when you want to decode 1 2 of 5 symbols containing only 14 characters, scan the “1 2 of 5 One Discrete Length” bar code and then the “1” and “4” bar codes using the [“Keypad Number Symbols”](#). *Default = 14.*

To begin setting **one discrete length**, scan this “1 2 of 5 One Discrete Length” bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

### ***Two Discrete Lengths (Parameter L2)***

This option decodes only those codes containing two selected lengths. For example, when you want to scan only 1 2 of 5 symbols containing 6 or 14 characters, scan the “1 2 of 5 Two Discrete Lengths” bar code and then “0”, “6”, “1” and “4” bar codes to decode only 1 2 of 5 symbols containing 6 or 14 characters. Use the [“Keypad Number Symbols”](#) at the end of this section. *Default = 14.*

To begin setting **two discrete lengths**, scan this “1 2 of 5 Two Discrete Lengths” bar code:



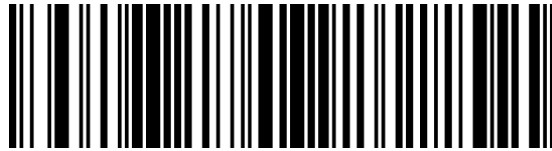
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

---

## ***Length Within Range***

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only I 2 of 5 symbols containing between 4 and 12 characters, scan the "I 2 of 5 Length Within Range" bar code and then "0", "4", "1" and "2" bar codes using the ["Keypad Number Symbols"](#) at the end of this section.

To begin setting **lengths within a range**, scan this "I 2 of 5 Length Within Range" bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

## ***Any Length***

This option decodes I 2 of 5 bar codes containing any number of characters.

*Note: **Important:** Selecting this option may lead to misdecodes for I 2 of 5 codes.*

To set **any length**, scan this "I 2 of 5 Any Length" bar code:



[See Also: "Set Lengths for I 2 of 5 \(superseded\)"](#)

---

## Transmit I 2 of 5 Check Digit

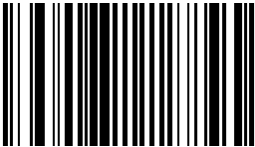
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, the check digit is transmitted with the data.  
Parameter setting for “[I 2 of 5 Check Digit Verification](#)” has no effect on this parameter value.  
Set this parameter by scanning either of the bar codes shown below.

Enable Transmit I 2 of 5 Check Digit



\* Disable Transmit I 2 of 5 Check Digit



---

## MSI Plessey

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, MSI Plessey symbols will be scanned, decoded and transmitted.  
Set this parameter by scanning either of the bar codes shown below.

Enable MSI Plessey



\* Disable MSI Plessey

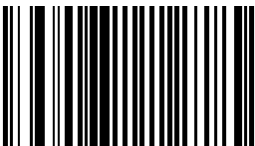


## MSI Plessey Check Digit Algorithm

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When the “[Two MSI Plessey Check Digits](#)” option is selected, an additional verification is required to ensure integrity. Either of the two following algorithms may be selected.  
Set this parameter by scanning either of the algorithm bar codes shown below.

Mod 10/Mod 11



\* Mod 10/Mod 10



---

## MSI Plessey Check Digits

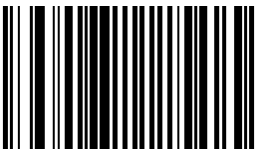
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Check digits placed at the end of the MSI Plessey bar code verify the integrity of the data. At least one check digit is always required. Check digits are not automatically transmitted with the data.

*Note:* When Two Check Digits is selected, an “[MSI Plessey Check Digit Algorithm](#)” must also be selected.

Set the number of check digits to be included with the bar code by scanning either of the bar codes shown below.

\* One MSI Plessey check digit



Two MSI Plessey check digits



## Set Lengths for MSI Plessey

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Lengths for MSI Plessey may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains.

See the table titled “[ASCII Character Equivalents](#)”.

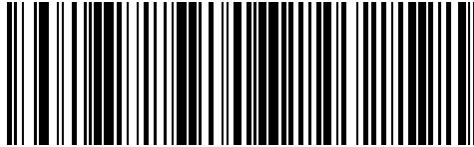


---

### ***One Discrete Length (Parameter L1)***

This option decodes only those codes containing a selected length. For example, when you want to scan only MSI Plessey symbols containing 14 characters, scan the “MSI Plessey One Discrete Length” bar code and then “1” and “4” bar codes using the “[Keypad Number Symbols](#)”. *Default = 6.*

To begin setting **one discrete length**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

### ***Two Discrete Lengths (Parameter L2)***

This option decodes only those codes containing two selected lengths. For example, when you want to scan only MSI Plessey symbols containing 2 or 14 characters, scan the “MSI Plessey Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the “[Keypad Number Symbols](#)”. *Default = 55.*

To begin setting **two discrete lengths**, scan this bar code:



Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

---

## ***Length Within Range***

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only MSI Plessey symbols containing between 4 and 12 characters, scan the “MSI Plessey Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the [“Keypad Number Symbols”](#).

To begin setting **lengths within a range**, scan this bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

## ***Any Length***

This option decodes MSI Plessey bar codes containing any number of characters.

*Note: **Important:** Selecting this option may lead to misdecodes for MSI Plessey codes.*

To set **any length**, scan this bar code:



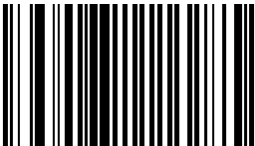
---

# Transmit MSI Plessey Check Digit

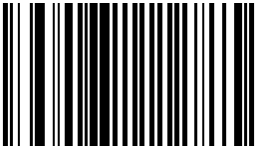
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

When enabled, the check digit is transmitted with the data.  
Set this parameter by scanning either of the bar codes shown below.

Enable Transmit MSI Plessey Check Digit



\* Disable Transmit MSI Plessey Check Digit



---

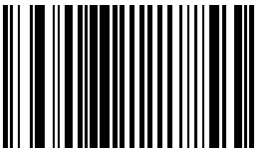
**UPC/EAN**

**UPC-A**

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Select an option by scanning either of the bar codes shown below.

\* Enable UPC-A



Disable UPC-A



---

**UPC-E**

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Select an option by scanning either of the bar codes shown below.

\* Enable



Disable



---

**UPC-E1**

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Select an option by scanning either of the bar codes shown below.

Enable UPC-E1



\* Disable UPC-E1



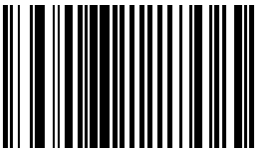
---

**EAN-8**

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Select an option by scanning either of the bar codes shown below.

\* Enable EAN-8



Disable EAN-8



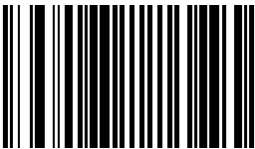
---

**EAN-13**

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Select an option by scanning either of the bar codes shown below.

\* Enable EAN-13



Disable EAN-13





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# Bookland EAN

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Select an option by scanning either of the bar codes shown below.

Enable Bookland EAN



\* Disable Bookland EAN



---

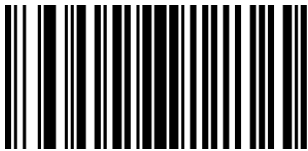
## Bookland ISBN Format

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

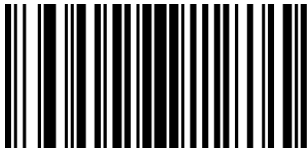
Select one of the following formats for Bookland data when Bookland EAN is enabled.

- **Bookland ISBN-10** - The bar code reader 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 bar code reader reports Bookland data (starting with either 978 or 979) as EAN-13 in 13-digit format to meet the 2007 ISBN-13 protocol.

\* Bookland ISBN-10



Bookland ISBN-13



For Bookland EAN to function properly, first enable Bookland EAN using [Enable/Disable Bookland EAN](#), then select either Decode UPC/EAN Supplementals, Autodiscriminate UPC/EAN Supplementals, or Enable 978/979 Supplemental Mode in [Decode UPC/EAN Supplementals](#).

---

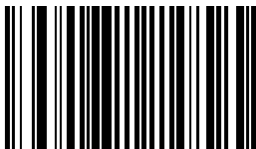
## Check Digits

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

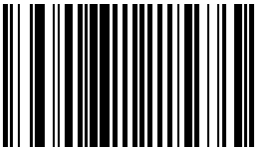
### *Transmit UPC-A Check Digit*

This parameter determines whether the symbol will be transmitted with or without the UPC-A check digit. Select an option by scanning either of the bar codes shown below.

\* Enable Transmit UPC-A Check Digit



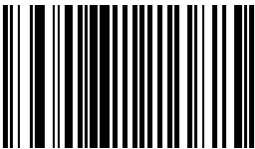
Disable Transmit UPC-A Check Digit



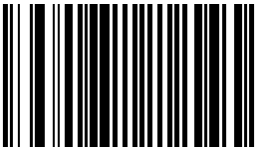
### *Transmit UPC-E Check Digit*

This parameter determines whether the symbol will be transmitted with or without the UPC-E check digit. Select an option by scanning either of the bar codes shown below.

\* Enable Transmit UPC-E Check Digit



Disable Transmit UPC-E Check Digit



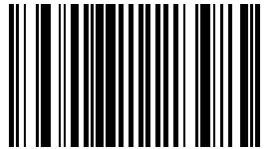
---

### ***Transmit UPC-E1 Check Digit***

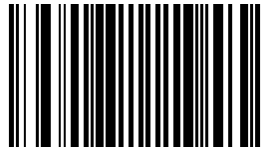
This parameter determines whether the symbol will be transmitted with or without the UPC-E1 check digit.

Select an option by scanning either of the bar codes shown below.

\* Enable Transmit UPC-E1 Check Digit



Disable Transmit UPC-E1 Check Digit



---

## Conversions

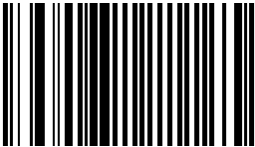
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

### ***Convert UPC-E to UPC-A***

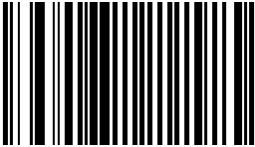
When this parameter is enabled, UPC-E (zero suppressed) decoded data is converted to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit, etc.).

When disabled, UPC-E (zero suppressed) decoded data is transmitted without conversion.  
Select an option by scanning either of the bar codes shown below.

Enable UPC-E to UPC-A conversion



\* Disable UPC-E to UPC-A conversion



---

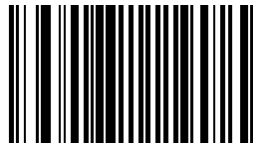
## ***Convert UPC-E1 to UPC-A***

When this parameter is enabled, UPC-E1 (zero suppressed) decoded data is converted to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit, etc.).

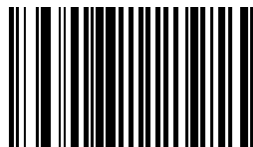
When disabled, UPC-E1 (zero suppressed) decoded data is transmitted without conversion.

Select an option by scanning either of the bar codes shown below.

Enable UPC-E1 to UPC-A conversion



\* Disable UPC-E1 to UPC-A conversion



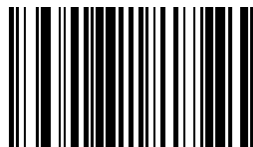
## ***Convert EAN-8 to EAN-13 Type***

When “EAN-8 Zero Extend” is enabled, this parameter setting labels the extended symbol as either an EAN-13 bar code or an EAN-8 bar code.

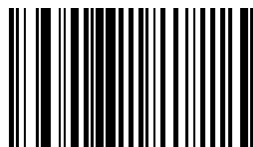
When “EAN-8 Zero Extend” is disabled, this parameter’s conversion setting is ignored.

Select an option by scanning either of the bar codes shown below.

\* Type is EAN-13



Type is EAN-8



---

## Preambles

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

### UPC-A Preamble

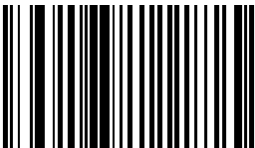
A preamble is a lead-in character for UPC-A symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

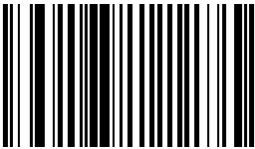
|                                   |                               |
|-----------------------------------|-------------------------------|
| No Preamble                       | [data]                        |
| System Character                  | [schar] [data]                |
| System Character and Country Code | [country code] [schar] [data] |

Select an option by scanning one of the bar codes shown below.

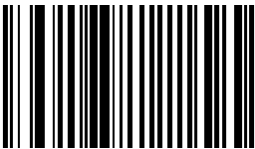
No UPC-A Preamble  
<DATA>



\* System Character  
<SYSTEM CHARACTER><DATA>



System Character and Country Code  
("0" for USA)  
<COUNTRY CODE> <SYSTEM CHARACTER> <DATA>



---

## UPC-E Preamble

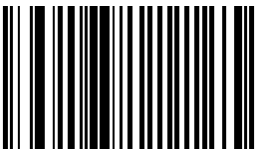
A preamble is a lead-in character for UPC-E symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

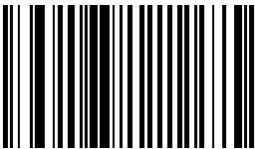
|                                   |                               |
|-----------------------------------|-------------------------------|
| No Preamble                       | [data]                        |
| System Character                  | [schar] [data]                |
| System Character and Country Code | [country code] [schar] [data] |

Select an option by scanning one of the bar codes shown below.

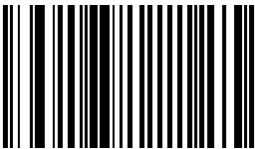
No UPC-E Preamble  
<DATA>



\* System Character  
<SYSTEM CHARACTER><DATA>



System Character and Country Code  
("0" for USA)  
<COUNTRY CODE> <SYSTEM CHARACTER> <DATA>





---

### UPC-E1 Preamble

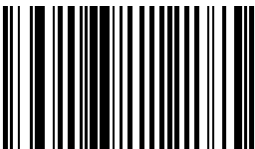
A preamble is a lead-in character for UPC-E1 symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

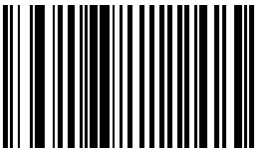
|                                   |                               |
|-----------------------------------|-------------------------------|
| No Preamble                       | [data]                        |
| System Character                  | [schar] [data]                |
| System Character and Country Code | [country code] [schar] [data] |

Select an option by scanning one of the bar codes shown below.

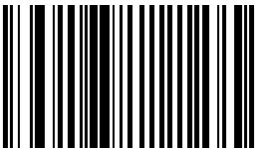
No UPC-E1 Preamble  
<DATA>



\* System Character  
<SYSTEM CHARACTER><DATA>



System Character and Country Code  
("0" for USA)  
<COUNTRY CODE> <SYSTEM CHARACTER> <DATA>



---

## Supplementals

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

### Decode UPC/EAN Supplementals

*Note:* In order to minimize the risk of invalid data transmission, Honeywell recommends that you select whether to read or ignore supplemental characters.

Supplementals are additionally appended characters (2 or 5) according to specific code format conventions (e.g., UPC-A + 2).

Select an option by scanning one of the bar codes shown below.

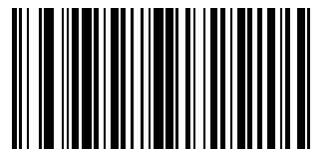
#### Decode UPC/EAN with Supplementals

UPC/EAN symbols without supplemental characters are not decoded.



#### \* Ignore UPC/EAN with Supplementals

When a UPC/EAN plus supplemental symbol is scanned, the UPC/EAN is decoded and the supplemental characters ignored.



#### Autodiscriminate UPC/EAN Supplementals

When this option is selected you must assign a value to the [“Decode UPC/EAN Supplemental Redundancy”](#) parameter. A value of 5 or more is recommended.



#### Enable 378/379 Supplemental Mode

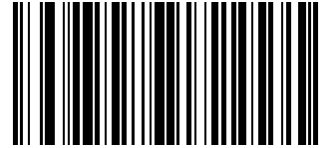
The bar code reader will identify supplementals for EAN-13 bar codes that start with a 378 or 379 prefix only. All other UPC/EAN codes are decoded immediately and the supplemental characters ignored.



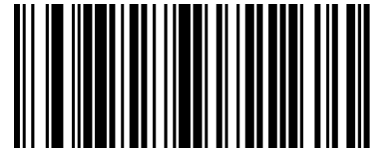
---

### Enable 978/979 Supplemental Mode

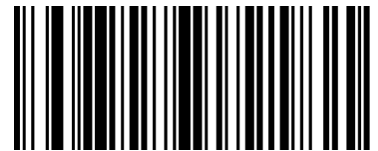
If you select 978/979 Supplemental Mode and are scanning Bookland EAN bar codes, see [Enable/Disable Bookland EAN](#) to enable Bookland EAN, and select a format using [Bookland ISBN Format](#).



### Enable 977 Supplemental Mode



### Enable 414/419/434/439 Supplemental Mode



### Enable 491 Supplemental Mode



### Enable Smart Supplemental Mode

Applies to EAN-13 bar codes starting with any prefix listed previously.



### 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***

When Supplemental User-Programmable option is selected from [Decode UPC/EAN Supplementals](#), select **User-Programmable Supplemental 1** to set the 3-digit prefix. Then select the 3 digits using the “[Keypad Number Symbols](#)”.

**User-Programmable Supplemental 1**



**User-Programmable Supplemental 2**



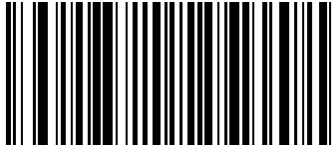
When Supplemental User-Programmable option is selected from [Decode UPC/EAN Supplementals](#), select **User-Programmable Supplemental 2** to set the 3-digit prefix. Then select the 3 digits using the “[Keypad Number Symbols](#)”..

---

## ***Decode UPC/EAN Supplemental Redundancy***

With Autodiscriminate UPC/EAN Supplementals selected, this option adjusts the number of times a symbol without supplementals will be decoded before transmission. The range is from 2 to 20 times. Five or above is recommended when decoding a mix of UPC/EAN symbols with and without supplementals, and the autodiscriminate option is selected. *Default = 7 Times.*

To begin **setting the decode redundancy value**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value using the [“Keypad Number Symbols”](#). Single digit numbers must have a leading zero.

If you wish to change your selection, scan Cancel on the “Keypad Number Symbols” page.

---

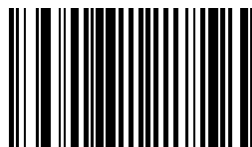
## EAN-8 Zero Extend

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

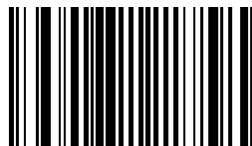
When this parameter is enabled, five leading zeros are added to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols. Use parameter “[Convert EAN-8 to EAN-13 Type](#)” to label the extended symbol.

When disabled, EAN-8 symbols are transmitted as is and parameter “Convert EAN-8 to EAN-13 Type” setting is ignored.  
Select an option by scanning either of the bar codes shown below.

Enable EAN-8 Zero Extend



\* Disable EAN-8 Zero Extend



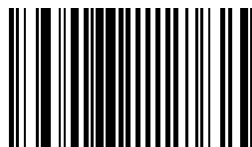
## UCC Coupon Extended Code

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

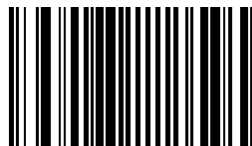
*Note: UCC Coupon Extended Code replaces UPC/EAN Coupon Code.*

The UCC Coupon Extended Code is an additional bar code adjacent to a UCC Coupon Code. To enable or disable UCC Coupon Extended Code, scan the appropriate bar code below.

Enable UCC Coupon Extended Code



\* Disable UCC Coupon Extended Code



---

## UPC/EAN Security Level

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

Use this parameter to determine the security level appropriate for UPC/EAN bar code quality. There is an inverse relationship between security and bar code reader aggressiveness, so be sure to choose only that level of security necessary for any given application.

There are four decode security levels. Higher security levels are selected for decreasing levels of bar code quality. As security levels increase, the bar code reader aggressiveness decreases.

| UPC/EAN Security Level  |  |
|-------------------------|--|
| <a href="#">Level 0</a> | The default setting.<br>Allows the bar code reader to operate in its most aggressive state, while providing sufficient security in decoding "in-spec" UPC/EAN bar codes.   |
| <a href="#">Level 1</a> | Misdecode 1,2,7,8<br>As bar code quality levels diminish, certain characters become prone to misdecodes before others (i.e., 1, 2, 7, 8). Select this level upon misdecodes of poorly printed labels that are limited to 1, 2, 7 and 8.  |
| <a href="#">Level 2</a> | Misdecodes not 1,2,7,8<br>Select this security level upon experiencing misdecodes of poorly printed bar codes and the misdecodes are not limited to characters 1,2,7 and 8.  |
| <a href="#">Level 3</a> | Select this security level if you have tried security level 2 and are still experiencing misdecodes. Using this level is an extreme measure against misdecoding severely out of spec bar codes. This level significantly impairs the decoding ability of the bar code reader. If this level of security is necessary, you should try to improve the quality of your bar codes. |

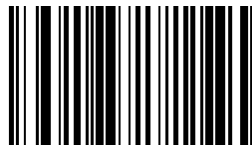
---

Select an option by scanning one of the bar codes shown below. If you wish to change your selection, scan Cancel.

\* Level 0



Level 1



Level 2



Level 3





---

## ASCII Character Equivalents

Values from 1128 through 1255 (hex values 80h through FFh) may also be set. But the conversion of those characters to printable characters is not standardized. Therefore, they are not included in the table.

| Scan Value | Hex Value | Full ASCII Code 39<br>Encode Char. | Keystroke | ASCII Character |
|------------|-----------|------------------------------------|-----------|-----------------|
| 1000       | 00h       | %U                                 | CTRL 2    | NUL             |
| 1001       | 01h       | \$A                                | CTRL A    | SOH             |
| 1002       | 02h       | \$B                                | CTRL B    | STX             |
| 1003       | 03h       | \$C                                | CTRL C    | ETX             |
| 1004       | 04h       | \$D                                | CTRL D    | EOT             |
| 1005       | 05h       | \$E                                | CTRL E    | ENQ             |
| 1006       | 06h       | \$F                                | CTRL F    | ACK             |
| 1007       | 07h       | \$G                                | CTRL G    | BELL            |
| 1008       | 08h       | \$H                                | CTRL H    | BCKSPC          |
| 1009       | 09h       | \$I                                | CTRL I    | HORIZ TAB       |
| 1010       | 0Ah       | \$J                                | CTRL J    | LF/NW LN        |
| 1011       | 0Bh       | \$K                                | CTRL K    | VT              |
| 1012       | 0Ch       | \$L                                | CTRL L    | FF              |
| 1013       | 0Dh       | \$M                                | CTRL M    | CR/ENTER        |
| 1014       | 0Eh       | \$N                                | CTRL N    | SO              |
| 1015       | 0Fh       | \$O                                | CTRL O    | SI              |
| 1016       | 10h       | \$P                                | CTRL P    | DLE             |
| 1017       | 11h       | \$Q                                | CTRL Q    | DC1/XON         |
| 1018       | 12h       | \$R                                | CTRL R    | DC2             |
| 1019       | 13h       | \$S                                | CTRL S    | DC3/XOFF        |
| 1020       | 14h       | \$T                                | CTRL T    | DC4             |
| 1021       | 15h       | \$U                                | CTRL U    | NAK             |
| 1022       | 16h       | \$V                                | CTRL V    | SYN             |
| 1023       | 17h       | \$W                                | CTRL W    | ETB             |
| 1024       | 18h       | \$X                                | CTRL X    | CAN             |
| 1025       | 19h       | \$Y                                | CTRL Y    | EM              |
| 1026       | 1Ah       | \$Z                                | CTRL Z    | SUB             |
| 1027       | 1Bh       | %A                                 | CTRL [    | ESC             |
| 1028       | 1Ch       | %B                                 | CTRL \    | FS              |
| 1029       | 1Dh       | %C                                 | CTRL ]    | GS              |
| 1030       | 1Eh       | %D                                 | CTRL 6    | RS              |
| 1031       | 1Fh       | %E                                 | CTRL -    | US              |

| Scan Value | Hex Value | Full ASCII Code 39<br>Encode Char. | Keystroke | ASCII Character |
|------------|-----------|------------------------------------|-----------|-----------------|
| 1032       | 20h       | Space                              | Space     | Space           |
| 1033       | 21h       | /A                                 | !         | !               |
| 1034       | 22h       | /B                                 | "         | "               |
| 1035       | 23h       | /C                                 | #         | #               |
| 1036       | 24h       | /D                                 | \$        | \$              |
| 1037       | 25h       | /E                                 | %         | %               |
| 1038       | 26h       | /F                                 | &         | &               |
| 1039       | 27h       | /G                                 | ,         | ,               |
| 1040       | 28h       | /H                                 | (         | (               |
| 1041       | 29h       | /I                                 | )         | )               |
| 1042       | 2Ah       | /J                                 | *         | *               |
| 1043       | 2Bh       | /K                                 | +         | +               |
| 1044       | 2Ch       | /L                                 | ,         | ,               |
| 1045       | 2Dh       | -                                  | -         | -               |
| 1046       | 2Eh       | .                                  | .         | .               |
| 1047       | 2Fh       | /                                  | /         | /               |
| 1048       | 30h       | 0                                  | 0         | 0               |
| 1049       | 31h       | 1                                  | 1         | 1               |
| 1050       | 32h       | 2                                  | 2         | 2               |
| 1051       | 33h       | 3                                  | 3         | 3               |
| 1052       | 34h       | 4                                  | 4         | 4               |
| 1053       | 35h       | 5                                  | 5         | 5               |
| 1054       | 36h       | 6                                  | 6         | 6               |
| 1055       | 37h       | 7                                  | 7         | 7               |
| 1056       | 38h       | 8                                  | 8         | 8               |
| 1057       | 39h       | 9                                  | 9         | 9               |
| 1058       | 3Ah       | /Z                                 | :         | :               |
| 1059       | 3Bh       | %F                                 | ;         | ;               |
| 1060       | 3Ch       | %G                                 | <         | <               |
| 1061       | 3Dh       | %H                                 | =         | =               |
| 1062       | 3Eh       | %I                                 | >         | >               |
| 1063       | 3Fh       | %J                                 | ?         | ?               |
| 1064       | 40h       | %V                                 | @         | @               |
| 1065       | 41h       | A                                  | A         | A               |
| 1066       | 42h       | B                                  | B         | B               |
| 1067       | 43h       | C                                  | C         | C               |

| Scan Value | Hex Value | Full ASCII Code 39<br>Encode Char. | Keystroke | ASCII Character |
|------------|-----------|------------------------------------|-----------|-----------------|
| 1068       | 44h       | D                                  | D         | D               |
| 1069       | 45h       | E                                  | E         | E               |
| 1070       | 46h       | F                                  | F         | F               |
| 1071       | 47h       | G                                  | G         | G               |
| 1072       | 48h       | H                                  | H         | H               |
| 1073       | 49h       | I                                  | I         | I               |
| 1074       | 4Ah       | J                                  | J         | J               |
| 1075       | 4Bh       | K                                  | K         | K               |
| 1076       | 4Ch       | L                                  | L         | L               |
| 1077       | 4Dh       | M                                  | M         | M               |
| 1078       | 4Eh       | N                                  | N         | N               |
| 1079       | 4Fh       | O                                  | O         | O               |
| 1080       | 50h       | P                                  | P         | P               |
| 1081       | 51h       | Q                                  | Q         | Q               |
| 1082       | 52h       | R                                  | R         | R               |
| 1083       | 53h       | S                                  | S         | S               |
| 1084       | 54h       | T                                  | T         | T               |
| 1085       | 55h       | U                                  | U         | U               |
| 1086       | 56h       | V                                  | V         | V               |
| 1087       | 57h       | W                                  | W         | W               |
| 1088       | 58h       | X                                  | X         | X               |
| 1089       | 59h       | Y                                  | Y         | Y               |
| 1090       | 5Ah       | Z                                  | Z         | Z               |
| 1091       | 5Bh       | %K                                 | [         | [               |
| 1092       | 5Ch       | %L                                 | \         | \               |
| 1093       | 5Dh       | %M                                 | ]         | ]               |
| 1094       | 5Eh       | %N                                 | ^         | ^               |
| 1095       | 5Fh       | %O                                 | _         | _               |
| 1096       | 60h       | %W                                 | `         | `               |
| 1097       | 61h       | +A                                 | a         | a               |
| 1098       | 62h       | +B                                 | b         | b               |
| 1099       | 63h       | +C                                 | c         | c               |
| 1100       | 64h       | +D                                 | d         | d               |
| 1101       | 65h       | +E                                 | e         | e               |
| 1102       | 66h       | +F                                 | f         | f               |
| 1103       | 67h       | +G                                 | g         | g               |

| Scan Value | Hex Value | Full ASCII Code 39<br>Encode Char. | Keystroke | ASCII Character |
|------------|-----------|------------------------------------|-----------|-----------------|
| 1104       | 68h       | +H                                 | h         | h               |
| 1105       | 69h       | +I                                 | i         | i               |
| 1106       | 6Ah       | +J                                 | j         | j               |
| 1107       | 6Bh       | +K                                 | k         | k               |
| 1108       | 6Ch       | +L                                 | l         | l               |
| 1109       | 6Dh       | +M                                 | m         | m               |
| 1110       | 6Eh       | +N                                 | n         | n               |
| 1111       | 6Fh       | +O                                 | o         | o               |
| 1112       | 70h       | +P                                 | p         | p               |
| 1113       | 71h       | +Q                                 | q         | q               |
| 1114       | 72h       | +R                                 | r         | r               |
| 1115       | 73h       | +S                                 | s         | s               |
| 1116       | 74h       | +T                                 | t         | t               |
| 1117       | 75h       | +U                                 | u         | u               |
| 1118       | 76h       | +V                                 | v         | v               |
| 1119       | 77h       | +W                                 | w         | w               |
| 1120       | 78h       | +X                                 | x         | x               |
| 1121       | 79h       | +Y                                 | y         | y               |
| 1122       | 7Ah       | +Z                                 | z         | z               |
| 1123       | 7Bh       | %P                                 | {         | {               |
| 1124       | 7Ch       | %Q                                 |           |                 |
| 1125       | 7Dh       | %R                                 | }         | }               |
| 1126       | 7Eh       | %S                                 | ~         | ~               |
| 1127       | 7Fh       |                                    | Undefined | Undefined       |

---

## Appendix

This appendix contains information that is superseded by newer information.  
It contains programming bar codes for Symbol SE955 scan engines only.

### ***Laser On Time (superseded)***

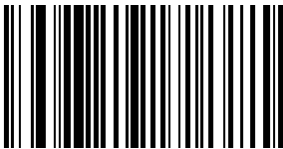
|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

For correct operation, reboot the Ring Decoder after changing this value.

*Note:* The bar code on this page has been replaced with a newer bar code. [See Also: "Laser On Time"](#).

This parameter sets the maximum time decode processing continues during a scan attempt. It is programmable in 0.1 second increments from 0.5 to 9.9 seconds. If a label has not been decoded before this time expires and the session is terminated, the system regards it as a failed scan attempt.

To begin setting **Laser On Time**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired on time using the [Keypad Number Symbols](#) at the end of this section. Times less than 1.0 second must have a leading zero. *Default = 3.0 seconds.*

If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

---

## Scan Angle (SE955 only) superseded)

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:* The bar code on this page has been replaced with a newer bar code. [See Also: "Scan Angle \(SE955 only\)"](#).

Choose one of the options below to set the scan angle to narrow or wide. Once the parameter bar code is scanned, the Scan Angle setting is persistently stored.

Select an option by scanning one of the bar codes shown below.

Narrow Angle (35°)



\* Wide Angle



---

## Set Lengths for I 2 of 5 (superseded)

|                         |       |
|-------------------------|-------|
| Bar Code Decoder Engine | SE955 |
|-------------------------|-------|

*Note:* The bar codes on this page have been replaced with newer bar codes. [See Also: "Set Lengths for I 2 of 5"](#).

Lengths for I 2 of 5 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains.

See the table titled "[ASCII Character Equivalents](#)".

### One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. For example, when you want to scan only I 2 of 5 symbols containing 14 characters, scan the "I 2 of 5 One Discrete Length" bar code and then the "1" and "4" bar codes using the "[Keypad Number Symbols](#)". *Default = 14.*

To begin setting **one discrete length**, scan this "I 2 of 5 One Discrete Length" bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

### Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only I 2 of 5 symbols containing 2 or 14 characters, scan the "I 2 of 5 Two Discrete Lengths" bar code and then "0", "2", "1" and "4" bar codes using the "[Keypad Number Symbols](#)" at the end of this section. *Default = 14.*

To begin setting **two discrete lengths**, scan this "I 2 of 5 Two Discrete Lengths" bar code:



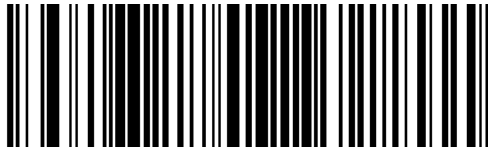
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

---

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only I 2 of 5 symbols containing between 4 and 12 characters, scan the “I 2 of 5 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the “[Keypad Number Symbols](#)” at the end of this section.

To begin setting **lengths within a range**, scan this “I 2 of 5 Length Within Range” bar code:



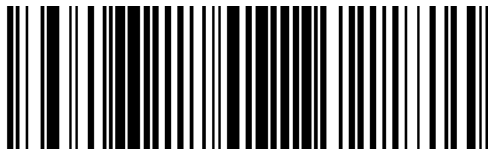
Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

## Any Length

This option decodes I 2 of 5 bar codes containing any number of characters.

*Note: **Important:** Selecting this option may lead to misdecodes for I 2 of 5 codes.*

To set **any length**, scan this “I 2 of 5 Any Length” bar code:





---

## Keypad Number Symbols

The bar code labels shown below represent a numeric keypad, with decimal values 0 through 9. Each label can be scanned individually to enter a numeric value. Use these numeric value symbols to enter numeric input in the course of performing a scan engine system configuration.

0



1



2



3



4

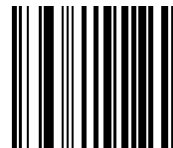


5



---

6



7



8



9



Cancel



# Chapter 3 - Symbol Imagers

This section's explanations and instructions are directed toward the Symbol SE4400 Imager engine in Ring Imagers . Please do not scan the bar codes in this section with any other imager or laser engine.

## Introduction

| Ring Imager Engine | HX2 | HX3 |
|--------------------|-----|-----|
|--------------------|-----|-----|

*Note: The SE4400 tethered ring imager does not have beep / audio capability.*

Scan engine manufacturers may offer more bar codes and options than are contained in this section. Please note that the bar codes in this section are only those supported by Honeywell on the devices listed above.

[Technical Assistance](#) is available if you need help when using the bar codes in this section.

An asterisk (\*) next to an option indicates the default setting. The HX2 and HX3 will beep twice when a configuration bar code is successfully scanned.

## Bar Code Decoder Types

**To change a parameter value:** Scan the appropriate bar code in this section. The new value replaces the standard default value in memory.

*Note: Using the imager like a camera (or for OCR decoding) is not supported in this release.*

The following SE4400 bar code symbologies are supported:

| Symbology          | Symbology                         |
|--------------------|-----------------------------------|
| Codabar            | Aztec / Aztec Inverse             |
| Code 11            | PDF417                            |
| Code 128           | MicroPDF                          |
| Code 39            | Code 128 Emulation                |
| Code 93            | Data Matrix / Data Matrix Inverse |
| Composites         | Maxicode                          |
| UPC / EAN          | MicroQR                           |
| Interleaved 2 of 5 | QR Code / QR Inverse              |
| MSI (Plessey)      | GS1 DataBar (was RSS)             |
| Discrete 2 of 5    | Postal Codes                      |

---

## Prefix / Suffix

Ring imager engine prefix and suffix parameters cannot be set, changed, or reset using the bar codes in this section.

*Note: Ring imager engine prefix and suffix parameters should not be set, changed, or reset using the Prefix and Suffix bar codes in this section. When the Ring Imager engine is reset to defaults, the prefix and suffix settings revert to their default values also. Use the scan wedge control panel in the host computer to set prefix and suffix values. The prefix and suffix bar codes are present in this section as a courtesy to Honeywell customers.*

Refer to **Start > Settings > Control Panel > Scanner** in the Body Worn device's Reference Guide for information and instruction on setting up the following imager parameters:

- Enable/Disable decoding sounds
- Imager LED Illumination
- COM1 Serial Parameters
- Code ID: AIM, Symbol, Custom
- Symbology Settings including Prefix/Suffix
- Control Character Mapping
- Custom Identifiers

## Pre-Configured Default Values

| Parameter                             | Default Value                          |
|---------------------------------------|--|
| Set Default Parameter                 | All Defaults                           |
| Parameter Scanning                    | Enable                                 |
| Operational Mode                      | Decode Mode                            |
| Beep After Good Decode                | Not Supported                          |
| Beeper Tone                           | Not Supported                          |
| Beeper Volume                         | Not Supported                          |
| Decode Session Timeout                | 9.9 sec                                |
| Power Mode PL4407                     | Low Power                              |
| Power Mode MS4407                     | Continuous On                          |
| Presentation Mode Session Timeout     | 2 sec                                  |
| Report Version                        | Current Software Version               |
| Time Delay to Low Power Mode          | 1 sec                                  |
| Timeout between Decodes, Same Symbol  | 0.6 sec                                |
| Trigger Mode PL4407                   | Level                                  |
| Trigger Mode MS4407                   | Presentation Mode                      |
| Imager Preferences Options            |  |
| Operational Mode                      | Decode Mode<br>(no bar code available) |
| Focus Mode                            | Far Focus                              |
| Decoding Autoexposure                 | Enable                                 |
| Decoding Illumination                 | Enable                                 |
| Decode Aiming Pattern                 | Enable                                 |
| LED Illumination PL4407               | Internal LED Illumination              |
| LED Illumination MS4407               | External LED Illumination              |
| Miscellaneous Imager Options          |  |
| FN1 Substitution Values               | <i>Not Supported</i>                   |
| Prefix / Suffix Values                | <i>Not Supported</i>                   |
| Scan Data Transmission Format         | Data As Is                             |
| Transmit "No Read" Message            | Disable                                |
| Transmit Code ID Character            | None                                   |
| Simple Serial Interface (SSI) Options | Not Supported                          |
| Event Reporting                       | Not Supported                          |

| Parameter  | Default Value    |
|--|------------------|
| Serial Host Parameters                             | Not Supported    |
| Symbologies  |                  |
| UPC/EAN  |                  |
| UPC-A  | Enable           |
| UPC-E  | Enable           |
| UPC-E1   | Disable          |
| EAN-8/JAN 8  | Enable           |
| EAN-13/JAN 13                                      | Enable           |
| Bookland EAN                                       | Disable          |
| Decode UPC/EAN/JAN Supplementals (2 and 5 digits)  | Ignore           |
| UPC/EAN/JAN Supplemental Redundancy                | 10               |
| Transmit UPC-A Check Digit                         | Enable           |
| Transmit UPC-E Check Digit                         | Enable           |
| Transmit UPC-E1 Check Digit                        | Enable           |
| UPC-A Preamble                                     | System Character |
| UPC-E Preamble                                     | System Character |
| UPC-E1 Preamble                                    | System Character |
| Convert UPC-E to A                                 | Disable          |
| Convert UPC-E1 to A                                | Disable          |
| EAN-8/JAN-8 Extend                                 | Disable          |
| UCC Coupon Extended Code                           | Disable          |
| Code 128   |                  |
| Code 128   | Enable           |
| UCC/EAN-128  | Enable           |
| ISBT 128   | Enable           |
| Code 39  |                  |
| Code 39  | Enable           |
| Trioptic Code 39                                   | Disable          |
| Convert Code 39 to Code 32 (Italian Pharmacy Code) | Disable          |
| Code 32 Prefix                                     | Disable          |
| Set Length(s) for Code 39                          | 2 to 55          |
| Code 39 Check Digit Verification                   | Disable          |
| Transmit Code 39 Check Digit                       | Disable          |
| Code 39 Full ASCII Conversion                      | Disable          |

| Parameter                         | Default Value |
|-----------------------------------|---------------|
| Buffer Code 39                    | Disable       |
| Code 93                           |               |
| Code 93                           | Disable       |
| Set Length(s) for Code 93         | 4 to 55       |
| Code 11                           |               |
| Code 11                           | Disable       |
| Set Lengths for Code 11           | 4 to 55       |
| Code 11 Check Digit Verification  | Disable       |
| Transmit Code 11 Check Digit(s)   | Disable       |
| Interleaved 2 of 5 (ITF)          |               |
| Interleaved 2 of 5 (ITF)          | Enable        |
| Set Lengths for I 2 of 5          | 14            |
| I 2 of 5 Check Digit Verification | Disable       |
| Transmit I 2 of 5 Check Digit     | Disable       |
| Convert I 2 of 5 to EAN 13        | Disable       |
| Discrete 2 of 5 (DTF)             |               |
| Discrete 2 of 5                   | Disable       |
| Set Length(s) for D 2 of 5        | 12            |
| Codabar (NW - 7)                  |               |
| Codabar                           | Disable       |
| Set Lengths for Codabar           | 5 to 55       |
| CLSI Editing                      | Disable       |
| NOTIS Editing                     | Disable       |
| MSI                               |               |
| MSI                               | Disable       |
| Set Length(s) for MSI             | 4 to 55       |
| MSI Check Digits                  | One           |
| Transmit MSI Check Digit          | Disable       |
| MSI Check Digit Algorithm         | Mod 10/Mod 10 |
| Postal Codes                      |               |
| US Postnet                        | Enable        |
| US Planet                         | Enable        |
| UK Postal                         | Enable        |
| Transmit UK Postal Check Digit    | Enable        |

| Parameter   | Default Value |
|---|---------------|
| Japan Postal  | Enable        |
| Australian Postal   | Enable        |
| Dutch Postal  | Enable        |
| Transmit US Postal Check Digit                              | Enable        |
| GS1 DataBar   |               |
| GS1 DataBar 14  | Enable        |
| GS1 DataBar Limited   | Enable        |
| GS1 DataBar Expanded  | Enable        |
| Convert GS1 DataBar to UPC/EAN                              | Disable       |
| Composite   |               |
| Composite CC-C  | Disable       |
| Composite CC-A/B  | Disable       |
| Composite TLC-39  | Disable       |
| UPC Composite Mode  | Not Supported |
| Composite Beep Mode   | Not Supported |
| UCC/EAN Code 128 Emulation Mode for UCC/EAN Composite Codes | Disable       |
| 2D Symbolologies  |               |
| PDF417  | Enable        |
| MicroPDF417   | Disable       |
| Code 128 Emulation  | Disable       |
| Data Matrix   | Enable        |
| Maxicode  | Enable        |
| QR Code   | Enable        |
| Symbology-Specific Security Levels                          |               |
| Redundancy Level  | 1             |
| Security Level  | 1             |
| Intercharacter Gap Size                                     | Normal        |
| Macro PDF   | Not Supported |
| Macro PDF Transmit/Decode Mode Symbols                      | Not Supported |
| Transmit Macro PDF Control Header                           | Not Supported |
| Escape Characters   | Not Supported |
| Flush Macro PDF Buffer                                      | Not Supported |
| Abort Macro PDF Entry                                       | Not Supported |



---

## Set All Defaults / Cancel Bar Codes

Use the Set All Defaults bar code to return all parameters to their [default values](#). Scanning this bar code does not affect the mobile device's operating system, wireless client or installed software (e.g., AppLock) settings.

*Note: When the [Parameter Scanning](#) parameter is disabled, the scan engine can still scan the Set All Defaults bar code. Default value of Parameter Scanning is Enable.*

When parameters are changed, the new value replaces the standard default value in memory.

Set All Defaults



Cancel



See Also: "Return to Factory Default Settings"

---

## Enable / Disable Parameter Scanning

Use this parameter to decide whether bar code reader parameters can be set using the bar codes in this section.

*Note:* When this parameter is disabled, scan the [Set All Defaults](#) parameter bar code to enable parameter scanning.

When disabled, either scan the Enable Parameter Scans bar code or the Set All Defaults bar code to reset the parameter.

When enabled, bar code readers can be configured using the bar codes in this section.

Select a mode by scanning either of the bar codes shown below.

\* Enable Parameter Scans



Disable Parameter Scans



---

## Imager Parameters – General

Except for the General imager attributes in this section that can be set by the end-user, imager programming attributes are set using the Windows scan wedge panel resident on the mobile device. Bar code manipulation parameters assigned using the Windows scan wedge panels are applied to the data resulting from successful bar code scans.

### ***Decode Session Timeout***

This parameter sets the maximum time decode processing continues during a scan attempt. It is programmable in 0.1 second increments from 0.5 to 9.9 seconds. If a label has not been decoded before this time expires and the session is terminated, the software regards it as a failed scan attempt. *Default = 9.9 Seconds*.

To begin setting a decode session time-out in seconds, scan this Decode Session Timeout bar code:



Next, scan two numeric bar codes that correspond to the desired time-out using the [Imager Keypad Number Symbols](#) page. Times less than 1.0 second must have a leading zero.

If you wish to change your number selection, scan Cancel on the Imager Keypad Number Symbols page.

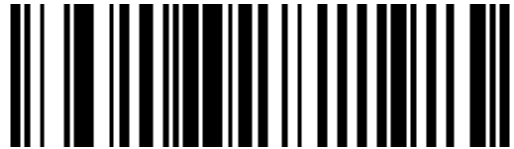
---

## ***Decode Aiming Pattern***

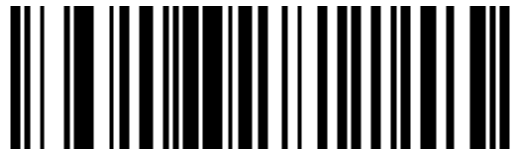
*Note:* This parameter only applies when in Decode Mode. See Also: [Operational Mode](#).

Scan Enable Decode Aiming Pattern to project the aiming pattern during bar code capture, or Disable Decode Aiming Pattern to turn the aiming pattern off.

\* Enable Decode Aiming Pattern



Disable Decode Aiming Pattern

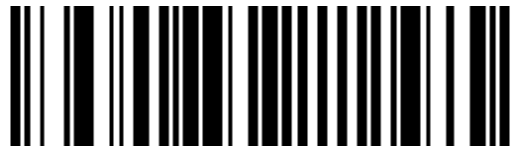


## ***Decoding Autoexposure***

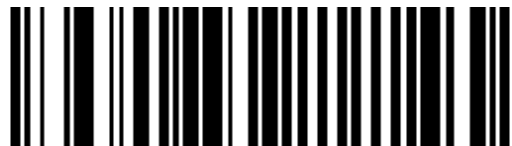
Select Enable Autoexposure to allow the imager to control gain settings and exposure (integration) time to best capture an image for the selected operation mode.

Select Disable Autoexposure to manually adjust the gain and exposure time (not supported in this version). This option is only recommended for advanced users with difficult image capture situations.

\* Enable Decoding Autoexposure



Disable Decoding Autoexposure



---

## Decoding Illumination

*Note: When this parameter is disabled, any LED Illumination parameter setting is ignored.*

The decoder has three small bright LEDs situated above the scan aperture.

Enable this parameter for LED illumination upon every decode. The effectiveness of the illumination decreases as the distance to the target increases.

Disable this parameter to prevent LED illumination.

See Also: [LED Illumination](#).

Select a setting by scanning one of the bar codes shown below.

\* Enable Illumination



Disable Illumination



---

## ***Focus Mode***

Select a focus mode to control the working range of the imager.

- When Far Focus is selected, the imager is optimized to read at its far position.
- With Near Focus, the imager is optimized to read at its near position.
- Smart Focus toggles the focus position after every frame. There may be audible signals from the ring imager as Smart Focus toggles after every frame.

Scan the appropriate bar code below.

\* Far Focus



Near Focus



Smart Focus



---

## LED Illumination

*Note: This parameter only applies for decoding if [Decoding Illumination](#) is enabled. If Decoding Illumination is disabled, all illumination is off for that mode, regardless of this LED Illumination setting.*

*Default = PL4407: Internal Illumination MS4407: External Illumination*

The imager has three small bright LEDs situated above the scan aperture. Internal LED illumination turns the LEDs on during scan mode. The effectiveness of the illumination decreases as the distance to the target increases.

External illumination setting turns the LEDs off during scan mode.

Internal and External Illumination turns the LEDs on during scan mode.

See Also: [Decoding Illumination](#).

Select an illumination setting by scanning one of the bar codes shown below.

Internal Illumination



External Illumination



Internal and External Illumination



---

## Operational Mode

In **Decode Mode** (the default mode), and upon a Scan button event, the imager attempts to locate and decode enabled bar codes within its field of view.

The decoder remains in this mode as long as the Scan button is pressed or until a bar code is decoded.

*Note: A Decode Mode bar code is not available. The default is as follows – in other modes, when the trigger is released the imager returns to Decode Mode.*

Use **Snapshot mode** to capture a high quality image and transmit it to the host. While in this mode the decoder blinks the green LED at 1-second intervals to indicate it is not in standard operating (decode) mode.

In Snapshot Mode, the decoder turns on the laser aiming pattern to highlight the area to be captured in the image. The next trigger event instructs the decoder to capture a high quality image and transmit it to the host. A short time may pass (less than 2 seconds) between when the trigger is activated and the image is captured as the decoder adjusts to the lighting conditions.

Hold the imager steady until the image is captured, denoted by a single beep. If a trigger event is not activated within the Snapshot Mode Timeout period, the decoder returns to Decode Mode.

Use Snapshot Mode Timeout (not supported in this version) to adjust this timeout period. The default timeout period is 30 seconds.

To disable the laser aiming pattern during Snapshot Mode, see Snapshot Aiming Pattern (not supported in this version).

Use Video View Finder (not supported in this version) to enable Snapshot with Viewfinder Mode. In this mode the decoder behaves as a video camera until the trigger is active, at which time a Snapshot is performed as described above.

In Video mode the decoder behaves as a video camera as long as the trigger is active. When the trigger is released the imager returns to Decode Mode.

Snapshot Mode



Video Mode





---

## Power Mode

*Note: Honeywell mobile devices are designed to be operated in Low Power Mode. Honeywell recommends leaving this value unchanged.*

*Default = PL4407: Low Power MS4407: Continuous On*

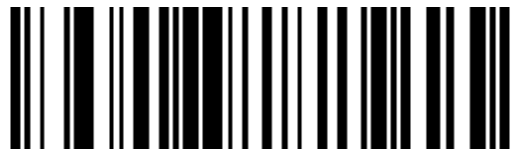
A parameter setting of Continuous On means the laser will not power down until the mobile device is powered off.

A parameter setting of Low Power means the laser will enter low power consumption mode after each decode attempt. Pressing the Scan button will begin another decode sequence.

See Also: [Time Delay to Low Power Mode](#).

Select a Power Mode by scanning either of the bar codes shown below.

Continuous On



Low Power



---

## ***Presentation Mode Session Timeout***

This parameter, and the Presentation Mode parameter, are directed toward ring decoders that can scan a bar code that enters its field of view, determine a good read/bad read, then scan again.

This parameter determines how long the ring decoder will attempt to decode a bar code before determining if it is a good read or a bad read.

Presentation Mode means the ring decoder is always On and will scan bar codes that enter its field of view. Presentation Mode applies to Decode Mode only.

See Also: [Trigger Modes](#).

To set the duration of the attempt to decode a bar code detected in presentation mode, scan the **Presentation Mode Session Timeout** bar code below. *Default = 2 Seconds*.



Next scan three numeric bar codes from [Imager Keypad Number Symbols](#) to select a value between 1 and 255 that represents tenths of a second. Single digit numbers must have a leading zero.

For example, to set 0.5 seconds, scan the Presentation Mode Session Timeout bar code, then scan the 0, 0, 5 bar codes from the section titled Imager Keypad Number Symbols. To correct an error or change the selection, scan the Cancel bar code and try again.

---

## ***Time Delay to Low Power Mode***

This parameter sets the time the decoder remains active after decoding. The decoder wakes upon a Scan button press or when the host attempts to communicate with the decoder.

This parameter only applies when [Power Mode](#) is set to Low Power.

\* 1 Second Delay



5 Second Delay



1 Minute Delay



5 Minute Delay



15 Minute Delay



---

60 Minute Delay



### ***Time-out between Decodes, Same Symbol***

This option is used in presentation mode to prevent multiple reads of a symbol left in the ring decoder's field of view. The timeout begins when the bar code is removed from the field of view. It is programmable in 0.1 second increments from 0.0 to 9.9 seconds.

To select the timeout between decodes for the same symbol, scan the following bar code, then scan two numeric bar codes from the [Imager Keypad Number Symbols](#) at the end of this section that correspond to the desired interval, in 0.1 second increments. *Default = 0.6 Seconds.*



Times less than 1.0 second must have a leading zero.

If you wish to change your number selection, scan Cancel on the "Imager Keypad Number Symbols" page.

---

## Trigger Modes

*Note: Honeywell mobile devices with ring bar code readers are designed to be operated in Level Trigger Mode. Honeywell recommends leaving the Trigger Mode default value unchanged.*

*Default PL4407 = Level Trigger Mode MS4407 = Presentation Mode*

Use this parameter to determine when the laser is activated and decoding begins, how long the laser remains on and what determines the cessation of the laser scan and decode process.

Select a trigger mode by scanning one of the bar codes that follow. If you wish to change your selection, scan Cancel.

Level Trigger Mode - A Scan button press activates the laser and decode processing. The laser remains on and decode processing continues until a Scan button release, a valid decode or the decode session time-out is reached.

Presentation Trigger Mode - When the ring bar code reader detects an object in its field of view it scans and attempts to decode. The range of object detection does not vary under normal lighting conditions. This applies to decode mode only. In Presentation Mode the unit does not enter its sleep state.

Host Trigger Mode - Triggering signal comes from a host command. Any actual Scan button press is interpreted by the bar code reader engine as a Level triggering option.

Level Trigger Mode



Presentation Trigger Mode



Host Trigger Mode



See Also: [Presentation Mode Session Timeout](#).

---

## ***Report Version***

Scan the following bar code to view the **version of software currently installed** in the ring decoder. The result will be displayed on the host device display.



---

## Transmit Code ID Character

A code ID character identifies the code type of a scanned bar code. This may be useful when the imager is decoding more than one code type. In addition to any single character prefix already selected, the code ID character is inserted between the prefix and the decoded symbol. *Default = None.*

Scan one of the following bar codes to select either [no code ID character](#), a [Symbol Code ID character](#) or an [AIM Code ID character](#).

## Transmit No Code ID Character



---

## Transmit Symbol Code ID Character



|     |   |
|-----|---|
| A   | UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13                       |
| B   | Code 39, Code 32  |
| C   | Codabar   |
| D   | Code 128  |
| E   | Code 93   |
| F   | Interleaved 2 of 5  |
| G   | Discrete 2 of 5 or Discrete 2 of 5 IATA                   |
| H   | Code 11   |
| J   | MSI Plessey   |
| K   | UCC/EAN-128   |
| L   | Bookland EAN  |
| M   | Trioptic Code 39  |
| N   | Coupon Code   |
| R   | GS1 DataBar-14, GS1 DataBar-Limited, GS1 DataBar-Expanded |
| T   | UCC Composite, TLC 39                                     |
| X   | PDF417, MacroPDF417, MicroPDF417                          |
| P00 | Data Matrix   |
| P01 | QR Matrix   |
| P02 | Maxicode  |
| P03 | US Postnet  |
| P04 | US Planet   |
| P05 | Japan Postal  |
| P06 | UK Postal   |
| P08 | Dutch Postal  |
| P09 | Australian Postal   |
| P09 | UK Postal   |



---

## Transmit AIM Code ID Character



Each AIM Code Identifier contains the three character string **Jcm** where:

**J**= Flag Character (ASCII 93)

**c**= Code Character

|   |   |
|---|---|
| A | Code 39, Code 39 Full ASCII, Code 32  |
| C | Code 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   |
| I | Interleaved 2 of 5  |
| L | PDF417, Macro PDF417, Micro PDF417  |
| M | MSI (Plessey)   |
| Q | QR Code   |
| S | Discrete 2 of 5, IATA 2 of 5  |
| U | Maxicode  |
| X | Code 39 Trioptic, Bookland EAN, US Postnet, US Planet, UK Postal, Japan Postal, Australian Postal, Dutch Postal |

**m**= Modifier Character

The modifier character is the sum of the applicable option values based on the following table.

| Code Type        | Option Value | Option  |
|------------------|--------------|---|
| Code39           |              |   |
|                  | 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 J A7Aimld 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 JX0412356  |
| 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 in the first position, <sup>FNC1</sup> Aim Id is transmitted as J C I A i m l d |
| 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 J I 04123   |
| 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 J F 04123   |
| Code 93          |              |   |
|                  | 0            | No options specified at this time. Always transmit 0.   |
|                  |              | Example:A Code 93 bar code 012345678905 is transmitted as J G 0012345678905   |
| MSI              |              |   |
|                  | 0            | Single check digit checked.   |
|                  | 1            | Two check digits checked.   |
|                  | 2            | Single check digit verified and stripped before transmission.   |
|                  | 3            | Two check digits verified and stripped before transmission.   |
|                  |              | Example:An MSI bar code 4123, with a single check digit checked, is transmitted as J M 04123  |
| 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 J S 04123   |
| UPC/EAN          |              |   |
|                  | 0            | Standard packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including supplemental data).                  |

| Code Type  | Option Value | Option  |
|--|--------------|---|
|  | 1            | Two digit supplement data only  |
|  | 2            | Five digit supplement data only   |
|  | 3            | Combined data packet comprising 13 digits from a UPC-A, UPC-E, or EAN-13 symbol and 2 or 5 digits from a supplemental symbol.   |
|  | 4            | EAN-8 data packet.  |
|  |              | Example: A UPC-A bar code 012345678905 is transmitted as JE00012345678905   |
| Bookland EAN   |              |   |
|  | 0            | No options specified at this time. Always transmit 0.   |
|  |              | Example: A Bookland EAN bar code 123456789X is transmitted as JX0123456789X   |
| 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".<br>Note: In UCC/EAN-128 emulation mode, GS1 DataBar is transmitted using Code 128 rules (i.e., JC1).  |
|  |              | Example: An GS1 DataBar-14 bar code 100123456788902 is transmitted as Je001100123456788902.   |
| EAN/UCC Composites (GS1 DataBar, UCC/EAN-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.   |
|  | -            | UCC/EAN-128 emulation<br>Note: UPC portion of composite is transmitted using UPC rules.   |
|  | 1            | Data packet is a UCC/EAN-128 symbol (i.e., data is preceded with JJC1).   |
| 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 UCC/EAN-128 symbol, and the first codeword is 903-907, 912, 914, 915.   |
|  | 4            | The bar code contains a UCC/EAN-128 symbol, and the first codeword is in the range 908-909.   |
|  | 5            | The bar code contains a UCC/EAN-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 JL2ABCD.  |
| Data Matrix  |              |   |

| Code Type | Option Value | Option   |
|-----------|--------------|--|
|           | 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 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.     |
|           |              |  |

According to AIM standards, a UPC with supplemental bar code is transmitted in the following format:

]EO (UPC chars) (terminator) ]E2 (supplemental) (terminator)

Therefore, a UPC with two supplemental characters, 01234567890510, is transmitted to the host as a 21-character string, ]E00012345678905]E110.

---

## Prefix / Suffix Values

**SE4400 imager engine prefix and suffix parameters cannot be set, changed, or reset using the bar codes in this section.** See previous section titled [Prefix / Suffix](#) for an explanation.

*Prefix (P) Parameter Default = Null*

*Suffix1 (S1) Parameter Default = LF*

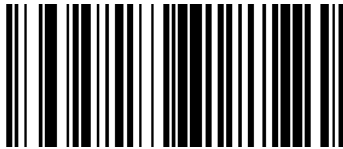
*Suffix2 (S2) Parameter Default = CR*

*Note: Parameter “[Scan Data Transmission Format](#)” must be set before selecting Prefix/Suffix values.*

A prefix and/or one or two suffixes may be appended to scan data for use in data editing. These values are set by scanning four bar codes (resulting in a four digit number) that correspond to key codes for various mobile devices. See the table titled [ASCII Character Equivalents](#) for keycodes.

### Prefix

To begin setting Prefix values for SSI hosts first set the [Scan Data Transmission Format](#), then scan this **Scan Prefix** bar code:



Next, scan four numeric bar codes that correspond to the computer key code using the [Imager Keypad Number Symbols](#) at the end of this section.

If you wish to change your selection, scan Cancel on the Imager Keypad Number Symbols page.

---

## Suffix 1

To begin setting Suffix 1 value, scan this **Scan Suffix 1** bar code:



Next, scan four numeric bar codes that correspond to the computer keycode using the [“Imager Keypad Number Symbols”](#).  
If you wish to change your selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Suffix 2

To begin setting Suffix 2 value, scan this **Scan Suffix 2** bar code:



Next, scan four numeric bar codes that correspond to the computer keycode using the [“Imager Keypad Number Symbols”](#).  
If you wish to change your numeric selection, scan Cancel on the “Imager Keypad Number Symbols” page.

---

## Scan Data Transmission Format

*Note: Parameter "Prefix/Suffix Values" for SSI hosts should be set after setting this parameter.*

Use this option when you want to append a prefix and suffix to the SSI host decode data.

If you wish to change your selection, scan the Cancel bar code and scan again.

Set the Scan Data Transmission Format parameter by scanning one of the following bar codes:

\* 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]



Now you are ready to scan one of the “Prefix/Suffix Values” bar codes.



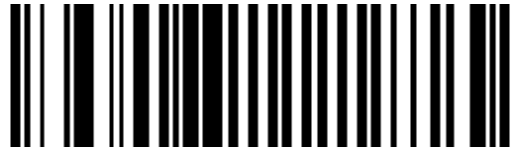
---

## Transmit “No Read” Message

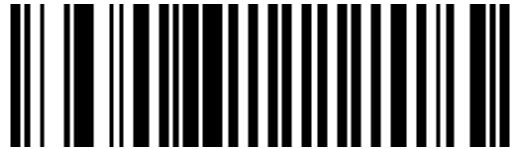
Scan a bar code below to select whether or not to transmit a No Read message.

When enabled, the characters NR are transmitted when a bar code is not decoded. When disabled, if a symbol does not decode, nothing is sent to the host.

Enable Transmit No Read



\* Disable Transmit No Read



---

## UPC/EAN

### ***UPC-A***

Select an option by scanning either of the bar codes shown below.

\* Enable UPC-A



Disable UPC-A



### ***UPC-E***

Select an option by scanning either of the bar codes shown below.

\* Enable UPC-E



Disable UPC-E



---

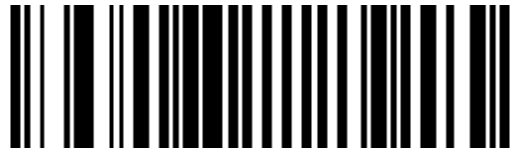
## ***UPC-E1***

Select an option by scanning either of the bar codes shown below.

Enable UPC-E1



\* Disable UPC-E1



*Note: UPC-E1 is not a UCC (Uniform Code Council) approved symbology.*

---

## ***EAN-8/JAN-8***

Select an option by scanning either of the bar codes shown below.

\* Enable EAN-8/JAN-8



Disable EAN-8/JAN-8



---

## ***EAN-13/JAN-13***

Select an option by scanning either of the bar codes shown below.

\* Enable EAN-13/JAN-13



Disable EAN-13/JAN-13



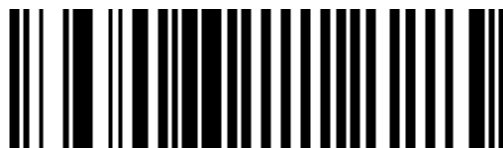
## ***Bookland EAN***

Select an option by scanning either of the bar codes shown below.

Enable Bookland EAN



\* Disable Bookland EAN



If you enable Bookland EAN, select a [Bookland ISBN Format](#). Also select either Decode UPC/EAN Supplementals, Autodiscriminate UPC/EAN Supplementals, or Enable 978/979 Supplemental Mode in [Decode UPC/EAN/JAN Supplementals](#).

---

## ***Bookland ISBN Format***

If Bookland EAN is enabled using [Enable/Disable Bookland EAN](#), select one of the following formats for Bookland data:

- Bookland ISBN-10 - The bar code reader 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 bar code reader reports Bookland data (starting with either 978 or 979) as EAN-13 in 13-digit format to meet the 2007 ISBN-13 protocol.

\* Bookland ISBN-10



Bookland ISBN-13



For Bookland EAN to function properly, first enable Bookland EAN using [Enable/Disable Bookland EAN](#), then select either Decode UPC/EAN Supplementals, Autodiscriminate UPC/EAN Supplementals, or Enable 978/979 Supplemental Mode in [Decode UPC/EAN/JAN Supplementals](#).

---

## Decode UPC/EAN/JAN Supplementals (2 and 5 digits)

Supplementals are bar codes appended according to specific format conventions (e.g., UPC A+2, UPC E+2, EAN 13+2). Six options are available:

Selecting:

| Option                                     | Result  |
|--|---|
| Decode UPC/EAN/JAN with Supplementals      | UPC/EAN/JAN symbols without supplemental characters are not decoded.  |
| Ignore Supplementals                       | The UPC/EAN/JAN symbol is decoded and the supplemental bar code is ignored.   |
| Autodiscriminate UPC/EAN/JAN Supplementals | When this option is selected you must assign a value to the "Decode UPC/EAN Supplemental Redundancy" parameter. A value of 5 or more is recommended.  |
| Enable 378/379 Supplemental Mode           | The bar code reader will identify supplementals for EAN-13/JAN-13 bar codes that start with a 378 or 379 prefix only. All other UPC/EAN/JAN codes are decoded immediately and the supplemental characters ignored.          |
| Enable 978 Supplemental Mode               | The bar code reader will identify supplementals for EAN-13/JAN-13 bar codes that start with a 978 prefix only. All other UPC/EAN/JAN codes are decoded immediately and the supplemental characters ignored.                 |
| Enable Smart Supplemental Mode             | The bar code reader will identify supplementals for EAN-13/JAN-13 bar codes that start with a 378, 379 or 978 prefix only. All other UPC/EAN/JAN bar codes are decoded immediately and the supplemental characters ignored. |

*Note: In order to minimize the risk of invalid data transmission, Honeywell recommends selecting whether to read or ignore supplemental characters.*

Select an option by scanning one of the bar codes shown below. If you wish to change your selection, scan the Cancel bar code and scan again.

Decode UPC/EAN/JAN only with Supplementals



\* Ignore Supplementals



---

Autodiscriminate UPC/EAN/JAN Supplementals



Enable 378/379 Supplemental Mode



Enable 978 Supplemental Mode



Enable Smart Supplemental Mode



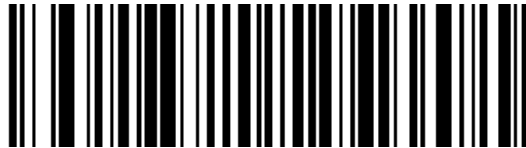


---

## ***UPC/EAN/JAN Supplemental Redundancy***

With Autodiscriminate UPC/EAN Supplementals selected, this option adjusts the number of times a symbol without supplementals is decoded before transmission. The range is from 2 to 30 times. Five or above is recommended when decoding a mix of UPC/EAN/JAN symbols with and without supplementals, and the autodiscriminate option is selected. *Default = 10 Times.*

To begin setting the **decode redundancy value**, scan this bar code:



Next, scan two numeric bar codes that correspond to the desired value using the [Imager Keypad Number Symbols](#). Single digit numbers must have a leading zero.

To correct an error or change a selection, scan Cancel on the Imager Keypad Number Symbols page.

---

## ***Transmit UPC-A Check Digit***

This parameter determines whether the symbol will be transmitted with or without the UPC-A check digit.

Select an option by scanning either of the bar codes shown below.

\* Enable Transmit UPC-A Check Digit



Disable Transmit UPC-A Check Digit



---

## ***Transmit UPC-E Check Digit***

This parameter determines whether the symbol will be transmitted with or without the UPC-E check digit.

Select an option by scanning either of the bar codes shown below.

\* Enable Transmit UPC-E Check Digit



Disable Transmit UPC-E Check Digit



---

## ***Transmit UPC-E1 Check Digit***

This parameter determines whether the symbol will be transmitted with or without the UPC-E1 check digit.

Select an option by scanning either of the bar codes shown below.

\* Enable Transmit UPC-E1 Check Digit



Disable Transmit UPC-E1 Check Digit



---

# UPC-A Preamble

A preamble is a lead-in character for UPC-A symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

|                                   |                               |
|-----------------------------------|-------------------------------|
| No Preamble                       | [data]                        |
| System Character                  | [schar] [data]                |
| System Character and Country Code | [country code] [schar] [data] |

Select an option by scanning one of the bar codes shown below.

No Preamble



\* System Character



System Character and Country Code ("0" for USA)



---

# UPC-E Preamble

A preamble is a lead-in character for UPC-E symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

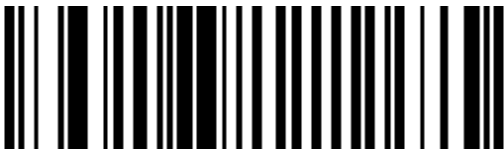
|                                   |                               |
|-----------------------------------|-------------------------------|
| No Preamble                       | [data]                        |
| System Character                  | [schar] [data]                |
| System Character and Country Code | [country code] [schar] [data] |

Select an option by scanning one of the bar codes shown below.

No Preamble



\* System Character



System Character and Country Code  
("0" for USA)



---

# UPC-E1 Preamble

A preamble is a lead-in character for UPC-E1 symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

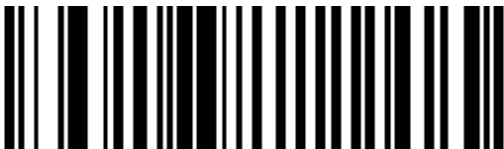
|                                   |                               |
|-----------------------------------|-------------------------------|
| No Preamble                       | [data]                        |
| System Character                  | [schar] [data]                |
| System Character and Country Code | [country code] [schar] [data] |

Select an option by scanning one of the bar codes shown below.

No Preamble



\* System Character



System Character and Country Code  
("0" for USA)



---

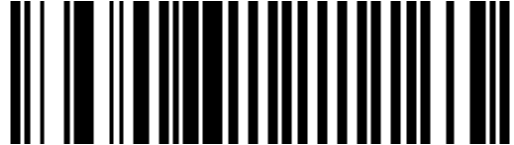
## ***Convert UPC-E to UPC-A***

When this parameter is enabled, UPC-E (zero suppressed) decoded data is converted to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit, etc.).

When disabled, UPC-E (zero suppressed) decoded data is transmitted without conversion.

Select an option by scanning either of the bar codes shown below.

Enable UPC-E to UPC-A



\* Disable UPC-E to UPC-A



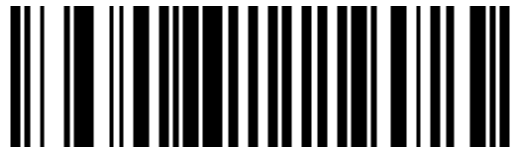
## ***Convert UPC-E1 to UPC-A***

When this parameter is enabled, UPC-E1 (zero suppressed) decoded data is converted to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit, etc.).

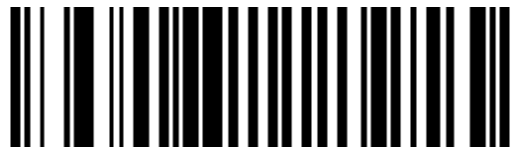
When disabled, UPC-E1 (zero suppressed) decoded data is transmitted without conversion.

Select an option by scanning either of the bar codes shown below.

Enable Convert UPC-E1 to UPC-A



\* Disable Convert UPC-E1 to UPC-A





---

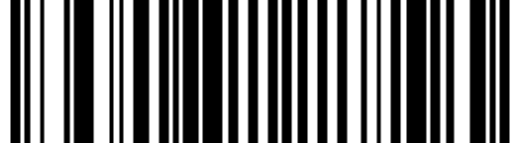
## ***EAN-8/JAN-8 Extend***

When this parameter is enabled, five leading zeros are added to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols. Use parameter “Convert EAN-8 to EAN-13 Type” to label the extended symbol.

When disabled, EAN-8 symbols are transmitted as is and parameter “Convert EAN-8 to EAN-13 Type” setting is ignored.

Select an option by scanning either of the bar codes shown below.

Enable EAN-8/JAN-8 Zero Extend



\* Disable EAN-8/JAN-8 Zero Extend



---

## ***UCC Coupon Extended Code***

*Note:* UCC Coupon Extended Code replaces UPC/EAN Coupon Code.

The UCC Coupon Extended Code is an additional bar code adjacent to a UCC Coupon Code. To enable or disable UCC Coupon Extended Code, scan the appropriate bar code below.

When enabled, this parameter decodes UPC-A bar codes starting with digit “5”, EAN-13 bar codes starting with digit “99” and UPC-A/EAN-128 Coupon Codes.

UPCA, EAN-13 and EAN-128 must be enabled to scan all types of Coupon Codes.

Enable UCC Coupon Extended Code



\* Disable UCC Coupon Extended Code



*Note:* Use the Decode UPC/EAN Supplemental Redundancy parameter to control autodiscrimination of the EAN128 (right half) of a coupon code.

---

## Code 128

Set this parameter by scanning either of the bar codes shown below.

\* Enable Code 128



Disable Code 128



## ***UCC/EAN-128***

Set this parameter by scanning either of the bar codes shown below.

\* Enable UCC/EAN-128



Disable UCC/EAN-128



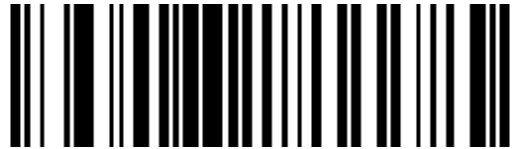
---

## ***ISBT-128***

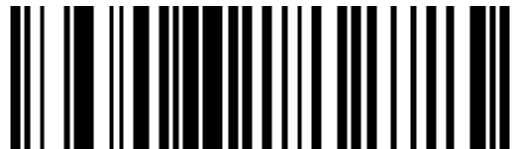
ISBT-128 is a variant of Code 128 used in the blood bank industry. If necessary, the host must perform concatenation of the ISBT data.

Set this parameter by scanning either of the bar codes shown below.

\* Enable ISBT-128



Disable ISBT-128



---

## Code 39

*Note: This parameter must be enabled when “Convert Code 39 to Code 32” is to be enabled.*

Set this parameter by scanning either of the bar codes shown below.

\* Enable Code 39



Disable Code 39



---

## ***Trioptic Code 39***

Trioptic Code 39 symbols always contain six characters.

When Trioptic Code 39 is enabled, set the [Code 39 Full ASCII](#) parameter to disabled. Both parameters should not be enabled simultaneously.

Set this parameter by scanning either of the bar codes shown below.

Enable Trioptic Code 39



\* Disable Trioptic Code 39



---

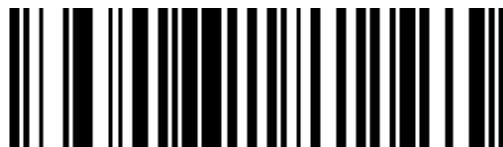
## Convert Code 39 to Code 32

Note: [Code 39](#) must be enabled in order for this parameter to function.

Note: When parameter [Code 32 Prefix](#) is to be enabled, this Convert Code 39 to Code 32 (Italian Pharmacy Code) parameter must also be enabled.

Set this parameter by scanning either of the bar codes shown below.

Enable Convert Code 39 to Code 32



\* Disable Convert Code 39 to Code 32



## Code 32 Prefix

This parameter adds the prefix character "A" to all Code 32 bar codes.

Note: When enabled, ["Convert Code 39 to Code 32"](#) parameter must also be enabled.

Set this parameter by scanning either of the bar codes shown below.

Enable Code 32 Prefix



\* Disable Code 32 Prefix



---

## Set Length(s) for Code 39

Lengths for Code 39 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

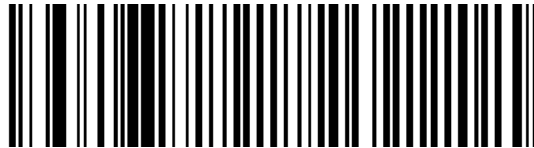
The length of a code refers to the number of characters, including check digits, the code contains. If Code 39 Full ASCII is enabled, Length Within a Range or Any Length are the preferred options.

See the table titled [ASCII Character Equivalents](#).

### One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. For example, when you want to scan only Code 39 symbols containing 14 characters, scan the following bar code and then “1” and “4” bar codes using the [Imager Keypad Number Symbols](#). Single digits must be preceded by a zero. *Default = 2*.

To begin setting one discrete length, scan this **One Discrete Length** bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan [Cancel](#) on the Imager Keypad Number Symbols page. *Default = 55*.

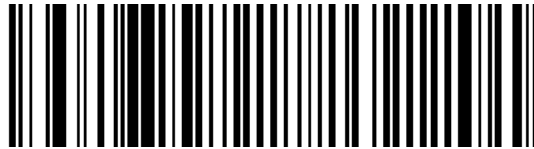


---

## Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only Code 39 symbols containing 2 or 14 characters, scan the following bar code and then “0”, “2”, “1” and “4” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting two discrete lengths, scan this **Two Discrete Lengths** bar code:

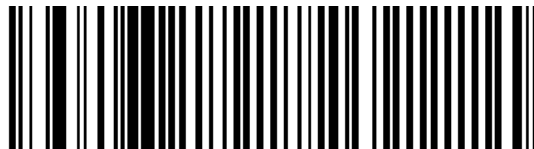


Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Code 39 symbols containing between 4 and 12 characters, scan the “Code 39 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting lengths within a range, scan this **Length Within Range** bar code:

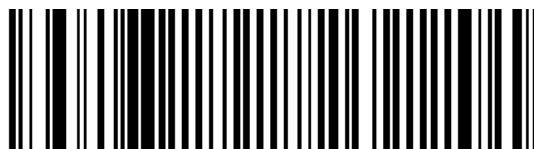


Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

## Any Length

This option decodes Code 39 bar codes containing any number of characters.

To set any length, scan this **Any Length** bar code:



---

## Code 39 Check Digit Verification

When enabled, this parameter checks the integrity of a Code 39 symbol to ensure it complies with specified check digit algorithms.

Only Code 39 symbols which include a Modulo 43 check digit are decoded when this parameter is enabled.

*Note:* When [Transmit Code 39 Check Digit](#) is enabled, this parameter must be enabled too.

Enable this feature if the code 39 bar codes contain a Modulo 43 check digit.

Set this parameter by scanning either of the bar codes shown below.

Enable Code 39 Check Digit Verification



\* Disable Code 39 Check Digit Verification



---

## ***Transmit Code 39 Check Digit***

When enabled, the check digit is transmitted with the data.

*Note:*    [Code 39 Check Digit Verification](#) must be enabled for this parameter to function.

Set this parameter by scanning either of the bar codes shown below.

Enable Transmit Code 39 Check Digit



\* Disable Transmit Code 39 Check Digit



---

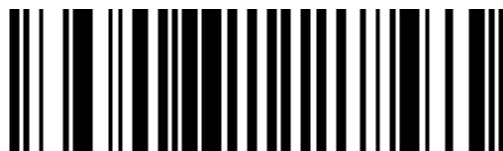
## Code 39 Full ASCII Conversion

*Note:* Code 39 Full ASCII and [Trioptic Code 39](#) should not be enabled simultaneously.

Code 39 Full ASCII is a variant of Code 39 which pairs characters to encode the full ASCII character set.

Set this parameter by scanning either of the bar codes shown below.

Enable Code 39 Full ASCII Conversion



\* Disable Code 39 Full ASCII Conversion



When enabled, the ASCII character set assigns a code to letters, punctuation marks, numerals, and most control keystrokes on the keyboard.

The first 32 codes are non-printable and are assigned to keyboard control characters such as [Backspace] and [Return or Enter]. The other 96 are called printable codes because all but [Space] and [Delete] produce visible characters.

Code 39 Full ASCII interprets the bar code special character (\$ + % /) preceding a Code 39 character and assigns an ASCII character value to the pair.

See the table titled "[ASCII Character Equivalents](#)".

---

## Code 93

- Disable Code 93
- L1 Parameter Default Value : 4
- L2 Parameter Default Value: 55

When enabled, Code 93 symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the bar codes shown below.

Enable Code 93



\* Disable Code 93



## ***Set Lengths for Code 93***

Lengths for Code 93 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains.

See the table titled "[ASCII Character Equivalents](#)".

---

## One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. For example, when you want to scan only Code 93 symbols containing 14 characters, scan the “Code 93 One Discrete Length” bar code and then “1” and “4” bar codes using the [Imager Keypad Number Symbols](#). *Default = 4.*

To begin setting one discrete length, scan this **Code 93 One Discrete Length** bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only Code 93 symbols containing 2 or 14 characters, scan the “Code 93 Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the [Imager Keypad Number Symbols](#). *Default = 55.*

To begin setting two discrete lengths, scan this **Code 93 Two Discrete Lengths** bar code:



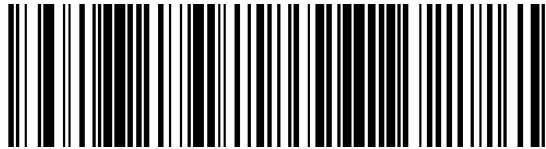
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

---

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Code 93 symbols containing between 4 and 12 characters, scan the “Code 93 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting lengths within a range, scan this **Code 93 Length Within Range** bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Any Length

This option decodes Code 93 bar codes containing any number of characters.

To set any length, scan this **Code 93 Any Length** bar code:



---

## Code 11

When enabled, Code 11 symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the bar codes shown below.

Enable Code 11



\* Disable Code 11



## ***Set Lengths for Code 11***

Lengths for Code 11 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

See the table titled [ASCII Character Equivalents](#).

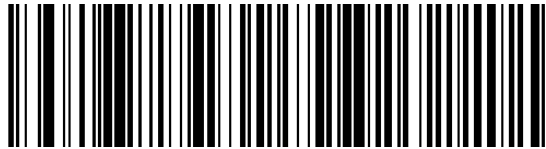


---

## One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. For example, when you want to scan only Code 11 symbols containing 14 characters, scan the “Code 11 One Discrete Length” bar code and then “1” and “4” bar codes using the [Imager Keypad Number Symbols](#). *Default = 4.*

To begin setting one discrete length, scan this **Code 11 One Discrete Length** bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only Code 11 symbols containing 2 or 14 characters, scan the Code 11 Two Discrete Lengths bar code and then “0”, “2”, “1” and “4” bar codes using the [Imager Keypad Number Symbols](#). *Default = 55.*

To begin setting two discrete lengths, scan this **Code 11 Two Discrete Lengths** bar code:



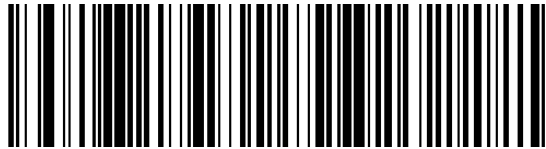
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

---

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Code 11 symbols containing between 4 and 12 characters, scan the “Code 11 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes.

To begin setting lengths within a range, scan this **Code 11 Length Within Range** bar code:



Next, scan numeric bar codes that correspond to the desired value using the [Imager Keypad Number Symbols](#). Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Any Length

This option decodes Code 11 bar codes containing any number of characters.

To set any length, scan this **Code 11 Any Length** bar code:



---

## Code 11 Check Digit Verification

Enable this parameter by scanning either One Check Digit bar code or Two Check Digits bar code.

When enabled, this parameter checks the integrity of a Code 11 symbol to ensure it complies with the specified check digit algorithm.

*Note: Enable Code 11 Check Digit Verification when Transmit Code 11 Check Digits is enabled.*

Set this parameter by scanning one of the bar codes shown below.

\* Disable Code 11 Check Digit Verification



One Check Digit



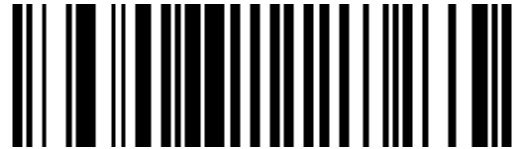
Two Check Digits



## Transmit Code 11 Check Digits

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

## Transmit (Enable) Code 11 Check Digits



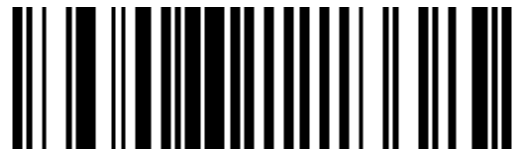
\* Do Not Transmit (Disable) Code 11 Check Digits



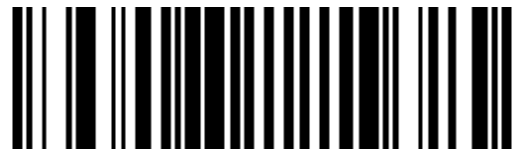
## Interleaved 2 of 5 (ITF)

When enabled, Interleaved 2 of 5 (I 2 of 5) symbols will be scanned, decoded and transmitted.  
Set this parameter by scanning either of the bar codes shown below.

\* Enable Interleaved 2 of 5



Disable Interleaved 2 of 5



---

## ***Set Lengths for I 2 of 5***

Lengths for Interleaved 2 of 5 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains.

See the table titled “[ASCII Character Equivalents](#)”.

*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 be interpreted as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (using I 2 of 5 – One Discrete Length and I 2 of 5 Two Discrete Lengths) for I 2 of 5 applications.*

---

## One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. For example, when you want to scan only 1 2 of 5 symbols containing 14 characters, scan the “1 2 of 5 One Discrete Length” bar code and then “1” and “4” bar codes using the [“Imager Keypad Number Symbols”](#). *Default = 14.*

To begin setting one discrete length, scan this **1 2 of 5 One Discrete Length** bar code:

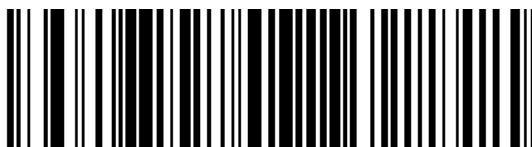


Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only 1 2 of 5 symbols containing 2 or 14 characters, scan the “1 2 of 5 Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the [“Imager Keypad Number Symbols”](#). *Default = 14.*

To begin setting two discrete lengths, scan this **1 2 of 5 Two Discrete Lengths** bar code:



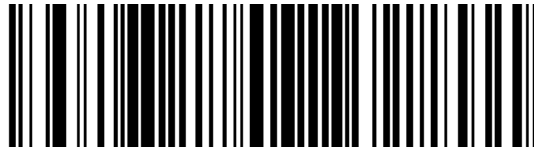
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

---

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only I 2 of 5 symbols containing between 4 and 12 characters, scan the “I 2 of 5 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting lengths within a range, scan this **I 2 of 5 Length within Range** bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Any Length

This option decodes I 2 of 5 bar codes containing any number of characters.

*Note:* Selecting this option may lead to misdecodes for I 2 of 5 codes.

To set any length, scan this **I 2 of 5 Any Length** bar code:



---

## ***I 2 of 5 Check Digit Verification***

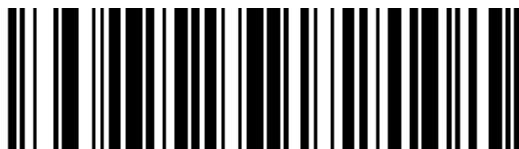
When enabled, this parameter checks the integrity of an I 2 of 5 symbol to ensure it complies with a specified algorithm, either USS (Uniform Symbology Specification) or OPCC (Optical Product Code Council).

Set this parameter by scanning one of the bar codes shown below.

\* Disable I 2 of 5 Check Digit Verification



USS (Uniform Symbology Specification)



OPCC (Optical Product Code Council)





---

## ***Transmit I 2 of 5 Check Digit***

When enabled, the check digit is transmitted with the data.

Parameter setting for “I 2 of 5 Check Digit Verification” has no effect on this parameter value.

Set this parameter by scanning either of the bar codes shown below.

Enable Transmit I 2 of 5 Check Digit



\* Disable Transmit I 2 of 5 Check Digit



---

## Convert I 2 of 5 to EAN 13

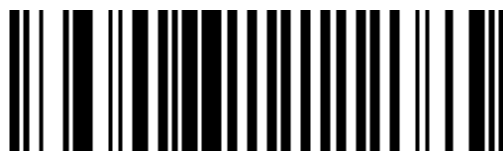
A successful bar code conversion requires the following to be true:

- Interleaved 2 of 5 scanning is enabled.
- One of the I 2 of 5 lengths is set to 14.
- The bar code has a leading zero.
- The bar code has a valid EAN-13 check digit.

When enabled, the parameter converts a 14 character I 2 of 5 bar code into EAN-13 and transmits it to the host as EAN-13.

Set this parameter by scanning either of the bar codes shown below.

Enable Convert I 2 of 5 to EAN-13



\* Disable Convert I 2 of 5 to EAN-13



## Discrete 2 of 5 (DTF)

When enabled, Discrete 2 of 5 (D 2 of 5) symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the bar codes shown below.

Enable Discrete 2 of 5



\* Disable Discrete 2 of 5



---

## ***Set Lengths for Discrete 2 of 5***

Lengths for D 2 of 5 may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains.

*Note: Due to the construction of the D2 of 5 symbology, it is possible for a scan line covering only a portion of the code to be interpreted as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (using D2 of 5 – One Discrete Length and D 2 of 5 Two Discrete Lengths) for D 2 of 5 applications.*

See the table titled [ASCII Character Equivalents](#).

---

## One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. *Default = 12.*

For example, when you want to scan only D 2 of 5 symbols containing 14 characters, scan the “D 2 of 5 One Discrete Length” bar code and then “1” and “4” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting one discrete length, scan this **D 2 of 5 One Discrete Length** bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. *Default = 12.* For example, when you want to scan only D 2 of 5 symbols containing 2 or 14 characters, scan the “D 2 of 5 Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting two discrete lengths, scan this **D 2 of 5 Two Discrete Lengths** bar code:



Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

---

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only D 2 of 5 symbols containing between 4 and 12 characters, scan the “D 2 of 5 Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting lengths within a range, scan this **D 2 of 5 Length Within Range** bar code:



Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Any Length

This option decodes D 2 of 5 bar codes containing any number of characters.

*Note:* Selecting this option may lead to misdecodes for D 2 of 5 codes. See next note.

To set any length, scan this **D 2 of 5 Any Length** bar code:



*Note:* Due to the construction of the D2 of 5 symbology, it is possible for a scan line covering only a portion of the code to be interpreted as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (using D2 of 5 – One Discrete Length and D 2 of 5 Two Discrete Lengths) for D 2 of 5 applications.

---

## Codabar

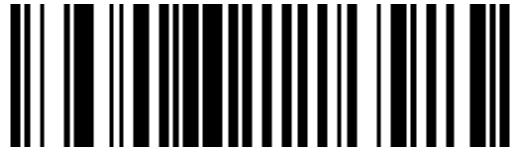
When enabled, Codabar symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the bar codes shown below.

Enable Codabar



\* Disable Codabar



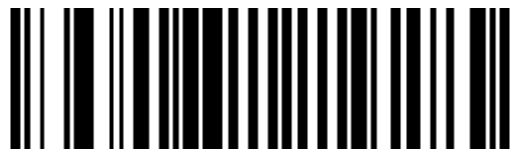
## CLSI Editing

When enabled, the start and stop characters are stripped from the bar code and a space is inserted after the 1<sup>st</sup>, 5<sup>th</sup>, and 10<sup>th</sup> characters of a 14 character Codabar symbol.

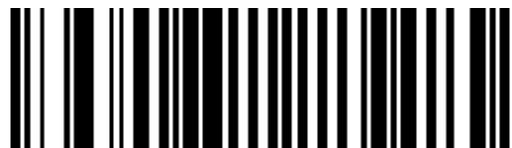
Set this parameter by scanning either of the bar codes shown below.

*Note: Symbol length does not include start and stop characters.*

Enable CLSI Editing



\* Disable CLSI Editing



---

## ***NOTIS Editing***

When enabled, the start and stop characters are stripped from a decoded Codabar symbol.

Set this parameter by scanning either of the bar codes shown below.

Enable NOTIS Editing



\* Disable NOTIS Editing



## ***Set Lengths for Codabar***

Lengths for Codabar may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

See the table titled [ASCII Character Equivalents](#).

---

## One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. For example, when you want to scan only Codabar symbols containing 14 characters, scan the Codabar One Discrete Length bar code and then “1” and “4” bar codes using the [Imager Keypad Number Symbols](#). *Default = 5.*

To begin setting one discrete length, scan this **Codabar One Discrete Length** bar code:



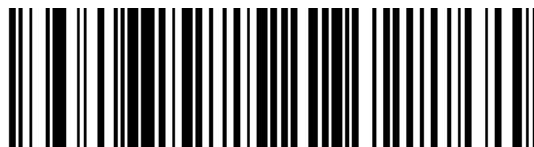
Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

## Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths.

For example, when you want to scan only Codabar symbols containing 2 or 14 characters, scan the Codabar Two Discrete Lengths bar code and then “0”, “2”, “1” and “4” bar codes using the [Imager Keypad Number Symbols](#). *Default = 55.*

To begin setting two discrete lengths, scan this **Codabar Two Discrete Lengths** bar code:



Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

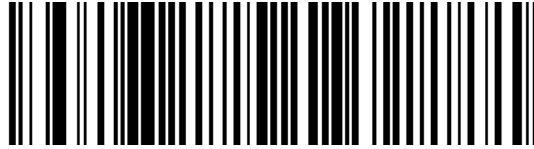


---

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only Codabar symbols containing between 4 and 12 characters, scan the Codabar Length Within Range bar code and then “0”, “4”, “1” and “2” bar codes using the [Imager Keypad Number Symbols](#) .

To begin setting lengths within a range, scan this **Codabar Length Within Range** bar code:

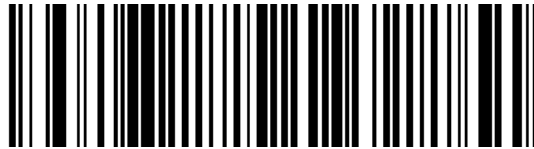


Next, scan numeric bar codes that correspond to the desired value using the Imager Keypad Number Symbols. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

## Any Length

This option decodes Codabar bar codes containing any number of characters.

To set any length, scan this **Codabar Any Length** bar code:



---

## MSI

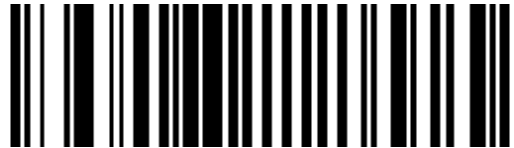
When enabled, MSI symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the bar codes shown below.

Enable MSI



\* Disable MSI



### ***Set Length(s) for MSI***

Lengths for MSI may be set for:

- any length,
- one or two discrete lengths,
- or lengths within a specific range.

The length of a code refers to the number of characters, including check digits, the code contains.

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

See the table titled "[ASCII Character Equivalents](#)".

---

## One Discrete Length (Parameter L1)

This option decodes only those codes containing a selected length. For example, when you want to scan only MSI symbols containing 14 characters, scan the “MSI One Discrete Length” bar code and then “1” and “4” bar codes using the [“Imager Keypad Number Symbols”](#). *Default = 4.*

To begin setting one discrete length, scan this **MSI One Discrete Length** bar code:



Next, scan two numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only MSI symbols containing 2 or 14 characters, scan the “MSI Two Discrete Lengths” bar code and then “0”, “2”, “1” and “4” bar codes using the [“Imager Keypad Number Symbols”](#). *Default = 55.*

To begin setting two discrete lengths, scan this **MSI Two Discrete Lengths** bar code:



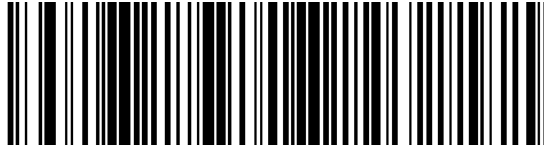
Next, scan four numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

---

## Length Within Range

This option decodes a code type within a specified minimum and maximum range. For example, when you want to scan only MSI symbols containing between 4 and 12 characters, scan the “MSI Length Within Range” bar code and then “0”, “4”, “1” and “2” bar codes using the [Imager Keypad Number Symbols](#).

To begin setting lengths within a range, scan this **MSI Length Within Range** bar code:



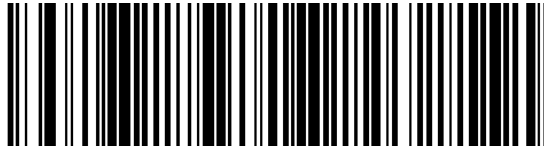
Next, scan numeric bar codes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

## Any Length

This option decodes MSI bar codes containing any number of characters.

*Note:* Selecting this option may lead to misdecodes for MSI codes. See following Note.

To set any length, scan this **MSI Any Length** bar code:



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

---

## ***MSI Check Digits***

With MSI symbols, one check digit is mandatory and always verified by the reader. The second check digit is optional.

If the MSI codes include two check digits, scan the Two MSI Check Digits bar code to enable verification of the second check digit.

Check digits are not automatically transmitted with the data.

*Note:* When Two MSI Check Digits is selected, an [MSI Check Digit Algorithm](#) must also be selected.

Set the number of check digits to be included with the bar code by scanning either of the bar codes shown below.

\* One MSI check digit



Two MSI check digits



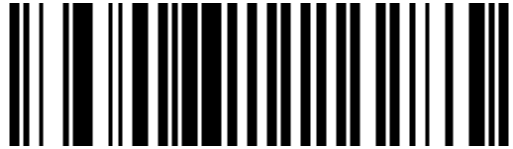
---

## ***Transmit MSI Check Digit***

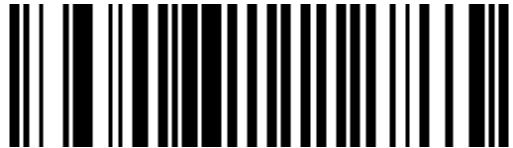
When enabled, the check digit is transmitted with the data.

Set this parameter by scanning either of the bar codes shown below.

Enable Transmit MSI Check Digit



\* Disable Transmit MSI Check Digit



---

## ***MSI Check Digit Algorithm***

With MSI symbols, one check digit is mandatory and always verified by the reader. The second check digit is optional.

If the MSI codes include two check digits, scan the [Two MSI Check Digits](#) bar code to enable verification of the second check digit.

When the “Two MSI Check Digits” option is selected, an additional verification is required to ensure integrity. Either of the two following algorithms may be selected.

Set this parameter by scanning either of the bar codes shown below.

Mod 10/Mod 11

MSI Check Digit Algorithm



\* Mod 10/Mod 10

MSI Check Digit Algorithm



---

## Postal Codes

*Note: The default value for all Postal Code symbologies is “Enabled” (except 4State Postal). For best performance when reading a specific postal symbology, all other postal symbologies should be disabled.*

### ***4 State Postal***

To enable or disable 4 State Postal, scan the appropriate bar code:

Enable 4 State Postal



\* Disable 4 State Postal



### ***Australian Postal***

To enable or disable Australian Postal, scan the appropriate bar code:

\* Enable Australian Postal



Disable Australian Postal





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## ***Dutch Postal***

To enable or disable Dutch Postal, scan the appropriate bar code:

\* Enable Dutch Postal



Disable Dutch Postal



---

## ***Japan Postal***

To enable or disable Japan Postal, scan the appropriate bar code:

\* Enable Japan Postal



Disable Japan Postal



## ***Transmit US Postal Check Digit***

Select whether to transmit US Postal data with or without the check digit:

\* Transmit US Postal Check Digit



Do Not Transmit US Postal Check Digit



---

## ***UK Postal***

To enable or disable UK Postal, scan the appropriate bar code:

\* Enable UK Postal



Disable UK Postal



## **Transmit UK Postal Check Digit**

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



---

## ***US Planet***

To enable or disable US Planet, scan the appropriate bar code:

\* Enable US Planet



Disable US Planet



## ***US Postnet***

To enable or disable US Postnet, scan the appropriate bar code:

\* Enable US Postnet



Disable US Postnet



---

## GS1 DataBar (RSS)

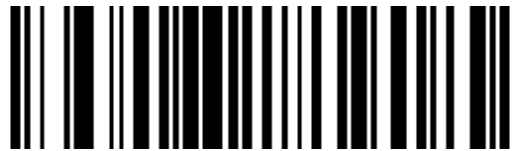
The variants of GS1 DataBar [RSS (Reduced Space Symbology)] are GS1 DataBar Omnidirectional (RSS-14), GS1 DataBar Expanded (RSS Expanded) and GS1 DataBar Limited (RSS Limited). The limited and expanded versions have stacked variants.

Scan the appropriate bar codes that follow to enable or disable each variant of GS1 DataBar (RSS).

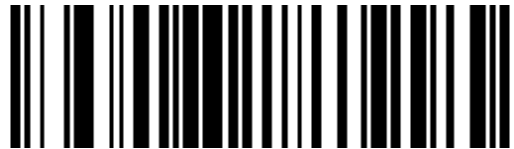
### ***GS1 DataBar Omnidirectional (RSS-14)***

To enable or disable GS1 DataBar Omnidirectional (RSS-14), scan the appropriate bar code:

\* Enable GS1 DataBar Omnidirectional (RSS-14)



Disable GS1 DataBar Omnidirectional (RSS-14)



See Also: [Convert GS1 DataBar \(RSS\) to UPC/EAN](#)

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## ***GS1 DataBar Limited (RSS Limited)***

To enable or disable GS1 DataBar Limited (RSS Limited), scan the appropriate bar code:

\* Enable GS1 DataBar Limited (RSS Limited)



Disable GS1 DataBar Limited (RSS Limited)



See Also: [Convert GS1 DataBar \(RSS\) to UPC/EAN](#)

## ***GS1 DataBar Expanded (RSS Expanded)***

To enable or disable GS1 DataBar Expanded (RSS Expanded), scan the appropriate bar code:

\* Enable GS1 DataBar Expanded (RSS Expanded)



Disable GS1 DataBar Expanded (RSS Expanded)



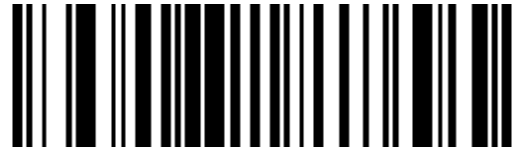
## Convert GS1 DataBar (RSS) to UPC/EAN

This parameter only applies to GS1 DataBar Omnidirectional (RSS-14) and GS1 DataBar Limited (RSS Limited) symbols not decoded as part of a Composite symbol.

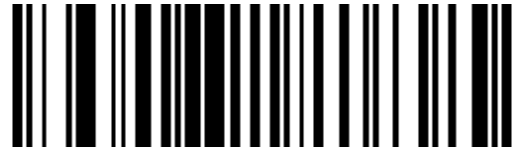
Enable this parameter to strip the leading “010” from GS1 DataBar Omnidirectional (RSS-14) and GS1 DataBar Limited (RSS Limited) symbols, encoding a single zero as the first digit, and report the bar code as EAN-13.

For bar codes beginning with two or more zeros but not six zeros this parameter strips the leading “0100” and reports the bar code as UPC-A. The UPC-A Preamble parameter that transmits the system character and country code applies to converted bar codes. Note that neither the system character nor the check digit can be stripped.

\* Enable Convert GS1 DataBar (RSS) to UPC/EAN



### Disable Convert GS1 DataBar (RSS) to UPC/EAN



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## Composite

### ***Composite CC-C***

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

Enable Composite CC-C



\* Disable Composite CC-C





---

## ***Composite CC-A/B***

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

Enable Composite CC-A/B



\* Disable Composite CC-A/B



## ***Composite TLC-39***

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

Enable Composite TLC-39



\* Disable Composite TLC-39



---

# UPC Composite Mode

UPC symbols can be linked with a 2D symbol during transmission as if they were one symbol. There are three options for these symbols:

|                                 |  |
|---------------------------------|--|
| 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, the UPC bar code does not transmit.                   |
| Autodiscriminate UPC Composites | The decoding engine 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



---

## ***UCC/EAN Code 128 Emulation Mode***

Select whether to enable or disable UCC/EAN Code 128 Emulation Mode for UCC/EAN Composite Codes.

Enable UCC/EAN Code 128 Emulation Mode for UCC/EAN  
Composite Codes



\* Disable UCC/EAN Code 128 Emulation Mode for UCC/EAN  
Composite Codes



---

## 2D Symbolologies

### ***Aztec***

To enable or disable Aztec, scan the appropriate bar code below.

\* Enable Aztec



Disable Aztec



---

## ***Aztec Inverse***

This parameter controls the setting of the Aztec Inverse decoder. Scan the appropriate bar code below.

\* Regular Only



Inverse Only



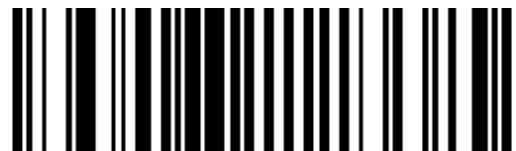
Inverse Auto Detect



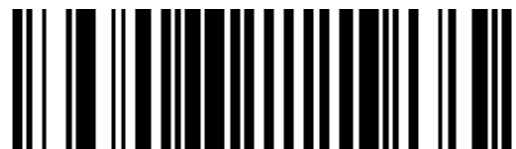
## ***PDF417***

To enable or disable PDF417, scan the appropriate bar code below.

\* Enable PDF417



Disable PDF417

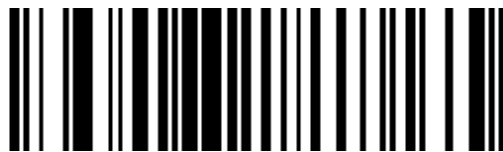


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## ***MicroPDF417***

To enable or disable MicroPDF417, scan the appropriate bar code below.

Enable MicroPDF417



\* Disable MicroPDF417



---

## Code 128 Emulation

To enable or disable Code 128 Emulation, scan the appropriate bar code below.

Enable Code 128 Emulation



\* Disable Code 128 Emulation



When this parameter is enabled, the bar code reader transmits data from certain MicroPDF417 symbols as if it was encoded in Code 128 symbols. Transmit AIM Symbology Identifiers must be enabled for this parameter to work.

If Code 128 Emulation is enabled, these MicroPDF417 symbols are transmitted with one of the following prefixes:

- ]C1 if the first codeword is 903-907, 912, 914, 915
- ]C2 if the first codeword is 908 or 909
- ]C0 if the first codeword is 910 or 911

If disabled, they are transmitted with one of the following prefixes:

- ]L3 if the first codeword is 903-907, 912, 914, 915
- ]L4 if the first codeword is 908 or 909
- ]L5 if the first codeword is 910 or 911

---

## ***Data Matrix***

To enable or disable Data Matrix, scan the appropriate bar code below.

\* Enable Data Matrix



Disable Data Matrix



## ***Data Matrix Inverse***

This parameter controls the setting of the Data Matrix inverse decoder. Scan the appropriate bar code below.

\* Regular Only



Inverse Only



Inverse Auto Detect





---

## ***Maxicode***

To enable or disable Maxicode scan the appropriate bar code below.

\* Enable Maxicode



Disable Maxicode



## ***MicroQR***

To enable or disable MicroQR, scan the appropriate bar code below.

\* Enable MicroQR



Disable MicroQR



---

## ***QR Code***

To enable or disable QR Code scan the appropriate bar code below.

\* Enable QR Code



Disable QR Code



## ***QR Inverse***

This parameter controls the setting of the QR Inverse decoder. Scan the appropriate bar code below.

\* Regular Only



Inverse Only



Inverse Auto Detect



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## Redundancy Level

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

Select the redundancy level appropriate for the bar code quality and then scan the appropriate Redundancy Level bar code on the following page.

### Redundancy Level 1

The following code types must be successfully read twice before being decoded:

| Code Type | Code Length          |
|-----------|----------------------|
| Codabar   | 8 characters or less |
| MSI       | 4 characters or less |
| D 2 of 5  | 8 characters or less |
| I 2 of 5  | 8 characters or less |

### Redundancy Level 2

The following code types must be successfully read twice before being decoded:

| Code Type | Code Length |
|-----------|-------------|
| All       | All         |

### Redundancy Level 3

Code types other than the following must be successfully read twice before being decoded. The following codes must be read three times:

| Code Type   | Code Length          |
|-------------|----------------------|
| MSI Plessey | 4 characters or less |
| D 2 of 5    | 8 characters or less |
| I 2 of 5    | 8 characters or less |
| Codabar     | 8 characters or less |

### Redundancy Level 4

The following code types must be successfully read three times before being decoded:

| Code Type | Code Length |
|-----------|-------------|
| All       | All         |

---

\* Redundancy Level 1



Redundancy Level 2



Redundancy Level 3



Redundancy Level 4



# Security Level

The decoder offers four levels of decode security for delta bar codes, which include the Code 128 family, UPC/EAN, and Code 93.

Select increasing levels of security for decreasing levels of bar code quality.

There is an inverse relationship between security and decoder aggressiveness, so choose only that level of security necessary for any given application.

|                  |   |
|------------------|---|
| Security Level 0 | This setting allows the decoder to operate in its most aggressive state, while providing sufficient security in decoding most ?in-spec? bar codes.  |
| Security Level 1 | Select this option if misdecodes occur. This default setting should eliminate most misdecodes.  |
| Security Level 2 | Select this option if Security level 1 fails to eliminate misdecodes.   |
| Security Level 3 | If Security Level 2 was selected and misdecodes still occur, select this security level. Be advised, selecting this option is an extreme measure against misdecoding severely out of spec bar codes. Selecting this level of security significantly impairs the decoding ability of the decoder. If this level of security is necessary, try to improve the quality of the bar codes. |

Select the security level appropriate for the bar code quality and then scan the appropriate Security Level bar code:

Security Level 0



\* Security Level 1



Security Level 2



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Security Level 3



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## 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 decoder from decoding the symbol.

If this problem occurs, scan the *Large Intercharacter Gaps* parameter to tolerate these out-of-specification bar codes.

\* Normal Intercharacter Gaps



Large Intercharacter Gaps



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## Imager Keypad Number Symbols

The bar code labels shown below represent a numeric keypad, with decimal values 0 through 9. Each label should be scanned individually.

Use these numeric value symbols to enter numeric input in the course of performing an imager engine system configuration.

To correct an error or change a selection, scan [Cancel](#) then scan a desired bar code.

0



1



2



3



4



5





---

6



7



8



9



Cancel



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## Chapter 4 - Decode Zones

The scan ranges listed in the following tables are based on the following factors:

- Decode zone is a function of various symbol characteristics including density, print contrast, wide-to-narrow ratio and edge acuity. Symbols test labels are examples of optimum quality bar codes.
- As distance decreases the visible scan line also decreases (visible scan length =  $1.8 \times \text{distance to label} \times \text{TAN}(\text{scan angle} / 2)$ ). The useable scan length is approximately 90% of visible scan line and must fully encompass the bar code label to be successfully decoded. On larger symbol densities of 20 mil, 40 mil and 55 mil, this affects minimum decode distance.
- $\pm 5^\circ$  pitch is used to reduce the inhibiting effects of spectral reflection (glare) near  $0^\circ$  of the scan head aspect to the bar code. Optimal operation is obtained at  $2^\circ$  to  $15^\circ$  pitch offset.
- Scan rate of 25  $\pm$  scans second with bi-directional redundancy.
- The long range and advanced long range scanners support the aim-mode feature which allows generation of the laser for aiming prior to actual bar code decoding with a duration from 1 sec to 8 sec.

The following "good scan and decode" ranges (decode zones) are related to a specific scan engine either integrated or connected to your mobile device. If you do not see your type of scan engine listed, you may be using a tethered Bluetooth bar code scanner or a serial port connected bar code scanner (these types of external scanners are not included in this list).

---

## Ring Laser

|           |      |     |     |
|-----------|------|-----|-----|
| Valid for | BTRS | HX2 | HX3 |
|-----------|------|-----|-----|

Factory Default Scan Angle – Wide (47°)

| Symbol Density | Typical Working Ranges |                      | Guaranteed Working Ranges |                     |
|----------------|------------------------|----------------------|---------------------------|---------------------|
|                | Near                   | Far                  | Near                      | Far                 |
| 4 mil          | 1.0 in / 2.50 cm       | 5.50 in / 13.97 cm   | 2.20 in / 5.60 cm         | 3.20 in / 8.13 cm   |
| 5 mil          | 1.25 in / 3.18 cm      | 8.00 in / 20.32 cm   | 2.20 in / 5.60 cm         | 5.50 in / 13.97 cm  |
| 7.5 mil        | 1.50 in / 3.81 cm      | 13.00 in / 33.02 cm  | 2.00 in / 5.08 cm         | 9.50 in / 24.13 cm  |
| 10 mil         | 1.50 in / 3.81 cm      | 18.00 in / 45.72 cm  | 1.75 in / 4.45 cm         | 14.00 in / 35.56 cm |
| 13 mil         | 1.50 in / 3.81 cm      | 24.00 in / 60.96 cm  | 1.75 in / 4.45 cm         | 18.00 in / 45.72 cm |
| 15 mil         | 1.50 in / 3.81 cm      | 28.00 in / 71.12 cm  | 1.75 in 4.45 cm           | 21.00 in / 53.34 cm |
| 20 mil         | 1.75 in / 4.45 cm      | 33.00 in / 83.82 cm  | *                         | 27.00 in / 68.58 cm |
| 40 mil         | *                      | 36.00 / 91.44 cm     | *                         | 28.00 in / 71.12 cm |
| 55 mil         | *                      | 45.00 in / 114.30 cm | *                         | 34.00 in / 86.36 cm |

\* Near ranges are largely dependent upon the width of the bar code and the scan angle.

---

## Ring Imager

|           |      |     |     |
|-----------|------|-----|-----|
| Valid for | BTRS | HX2 | HX3 |
|-----------|------|-----|-----|

The decode distances in this section are based on the current **Focus Mode** setting in the ring imager. Note that when Far Focus is set, the imager is optimized to read at its far position. With Near Focus, the imager is optimized to read at its near position. Smart Focus toggles the focus position after every frame.

The decode distances in this section are based on the Focus Mode set currently in the ring imager.

### ***PL4407 Near Focus Decode Distances***

| Symbol Density | Typical Working Ranges |                   | Guaranteed Working Ranges |                   |
|----------------|------------------------|-------------------|---------------------------|-------------------|
|                | Near                   | Far               | Near                      | Far               |
| 5.0 mil        | 3.5 in / 8.9 cm        | 7.0 in / 17.8 cm  | 4.25 in / 10.8 cm         | 6.0 in / 15.2 cm  |
| 6.67 mil       | 3.75 in / 9.5 cm       | 6.0 in / 15.2 cm  | 4.5 in / 11.4 cm          | 5.75 in / 14.6 cm |
| 7.5 mil        | 2.75 in / 7.0 cm       | 7.75 in / 19.7 cm | 3.5 in / 8.9 cm           | 6.5 in / 16.5 cm  |
| 10 mil         | 3.25 in / 8.3 cm       | 7.25 in / 18.4 cm | 4.0 in / 10.2 cm          | 6.5 in / 16.5 cm  |
| 13 mil         | 2.25 in / 5.7 cm       | 8.75 in / 22.2 cm | 3.0 in / 7.6 cm           | 7.0 in / 17.8 cm  |
| 15 mil         | *                      | 7.5 in / 19.1 cm  | *                         | 7.0 in / 17.8 cm  |
| 20 mil         | *                      | 11.0 in / 27.9 cm | *                         | 9.5 in / 24.1 cm  |

\* Near ranges are field-of-view limited. Working range specifications at temperature 23° C.

### ***PL4407 Far Focus Decode Distances***

| Symbol Density | Typical Working Ranges |                    | Guaranteed Working Ranges |                    |
|----------------|------------------------|--------------------|---------------------------|--------------------|
|                | Near                   | Far                | Near                      | Far                |
| 5.0 mil        | 6.5 in / 16.5 cm       | 7.5 in / 19.1 cm   | N/A                       | N/A                |
| 6.67 mil       | N/A                    | N/A                | N/A                       | N/A                |
| 7.5 mil        | 4.25 in / 10.8 cm      | 10.0 in / 25.4 cm  | 5.5 in / 14.0 cm          | 8.5 in / 21.6 cm   |
| 10 mil         | 5.75 in / 14.6 cm      | 10.25 in / 26.0 cm | 6.5 in / 16.5 cm          | 9.5 in / 24.1 cm   |
| 13 mil         | 3.0 in / 7.6 cm        | 16.0 in / 40.6 cm  | 3.75 in / 9.5 cm          | 13 in / 33.0 cm    |
| 15 mil         | *                      | 13.75 in / 34.9 cm | *                         | 12.75 in / 32.4 cm |
| 20 mil         | *                      | 21.5 in / 51.6 cm  | *                         | 17.0 in / 43.2 cm  |

\* Near ranges are field-of-view limited. Working range specifications at temperature 23° C.

## ***PL4407 Toggled Focus Decode Distances***

| Symbol Density | Typical Working Ranges |                    | Guaranteed Working Ranges |                    |
|----------------|------------------------|--------------------|---------------------------|--------------------|
|                | Near                   | Far                | Near                      | Far                |
| 5.0 mil        | 3.5 in / 8.9 cm        | 7.5 in / 19.1 cm   | 4.25 in / 10.8 cm         | 6.0 in / 15.24 cm  |
| 6.67 mil       | 3.75 in / 9.5 cm       | 6.0 in / 15.24 cm  | 4.5 in / 11.4 cm          | 5.75 in / 14.61 cm |
| 7.5 mil        | 2.75 in / 7.0 cm       | 10.0 in / 25.4 cm  | 3.5 in / 8.9 cm           | 8.5 in / 21.6 cm   |
| 10 mil         | 3.25 in / 8.3 cm       | 10.25 in / 26.0 cm | 4.0 in / 10.2 cm          | 9.5 in / 24.1 cm   |
| 13 mil         | 2.25 in / 5.7 cm       | 16.0 in / 40.6 cm  | 3.0 in / 7.6 cm           | 13 in / 33.0 cm    |
| 15 mil         | *                      | 13.75 in / 34.9 cm | *                         | 12.75 in / 32.4 cm |
| 20 mil         | *                      | 21.5 in / 51.6 cm  | *                         | 17.0 in / 43.2 cm  |

\* Near ranges are field-of-view limited. Working range specifications at temperature 23° C.

## ***PL4407 Decode Distances in Darkness***

| Symbol Density | Focus Position | Typical Working Ranges |                    |
|----------------|----------------|------------------------|--------------------|
|                |                | Near                   | Far                |
| 5.0 mil        | Near           | 3.5 in / 8.9 cm        | 5.875 in / 14.1 cm |
|                | Far            | 6.5 in / 16.5 cm       | N/A                |
| 6.67 mil       | Near           | 3.75 in / 9.5 cm       | 5.75 in / 14.6 cm  |
|                | Far            | N/A                    | N/A                |
| 7.5 mil        | Near           | 2.75 in / 7.0 cm       | 6.875 in / 17.5 cm |
|                | Far            | 4.25 in / 10.8 cm      | 7.125 in / 18.1 cm |
| 10 mil         | Near           | 3.25 in / 8.3 cm       | 6.375 in / 16.2 cm |
|                | Far            | 5.75 in / 14.6 cm      | 7.25 in / 18.4 cm  |
| 13 mil         | Near           | 2.25 in / 5.7 cm       | 7.375 in / 18.7 cm |
|                | Far            | 3.00 in / 7.6 cm       | 8.375 in / 21.3 cm |

\* Near ranges are field-of-view limited. Working range specifications at temperature 23° C.

# Chapter 5 - Technical Assistance

If you need assistance installing or troubleshooting your device, please contact us by using one of the methods below:

**Knowledge Base:** [www.hsmknowledgebase.com](http://www.hsmknowledgebase.com)

Our Knowledge Base provides thousands of immediate solutions. If the Knowledge Base cannot help, our Technical Support Portal (see below) provides an easy way to report your problem or ask your question.

**Technical Support Portal:** [www.hsmsupportportal.com](http://www.hsmsupportportal.com)

The Technical Support Portal not only allows you to report your problem, but it also provides immediate solutions to your technical issues by searching our Knowledge Base. With the Portal, you can submit and track your questions online and send and receive attachments.

**Web form:** [www.hsmcontactsupport.com](http://www.hsmcontactsupport.com)

You can contact our technical support team directly by filling out our online support form. Enter your contact details and the description of the question/problem.

**Telephone:** [www.honeywellaidc.com/locations](http://www.honeywellaidc.com/locations)

For our latest contact information, please check our website at the link above.

## Product Service and Repair

Honeywell International Inc. provides service for all of its products through service centers throughout the world. To obtain warranty or non-warranty service, please visit [www.honeywellaidc.com](http://www.honeywellaidc.com) and select **Support > Contact Service and Repair** to see your region's instructions on how to obtain a Return Material Authorization number (RMA #). You should do this prior to returning the product.

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