Bluetooth Ring Scanner Guide

E-SW-BLUESCANPG-D

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Introduction

This guide contains installation instructions and configuration / programming barcodes specifically designed for the LXE Bluetooth® Ring Scanner and its tethered ring scanner and ring imager.

LXE barcode decoding laser engines and barcode decoding imager engines are designed to read, decode and collect barcoded data from any nearby compatible barcode label that is visible and on printed media.

The Bluetooth Ring Scanner consists of a ring decoder tethered to a sturdy, compact, mobile Bluetooth module and battery. The module's lightweight battery provides power to the ring decoder. The hand strap assembly is designed to be worn on the back of either hand or on either wrist. The hook and loop fabric on the hand strap enables one-handed installation, adjustment and removal of the hand strap.

Barcodes, Ring Scanners and Scanner Engines

LXE Bluetooth enabled mobile devices can pair with more than one Bluetooth barcode reader at a time. The Bluetooth enabled mobile device can only manipulate the data received from one barcode reading device at a time.

See section titled Identify Your Ring Barcode Decoder Type before scanning any barcode in this programming guide.

Note: The function to use the imager for OCR decoding is not supported in this release.

When using the ring device to scan the barcodes in this guide, the user can change scanning parameters for the **Bluetooth Module** such as:

- Enable / disable suspend timeout length
- Set the Beeper volume (Bluetooth module only)
- Assign a Friendly Name
- and Restore the Bluetooth Module to factory default settings.

And, for the tethered ring decoder parameters:

- Enable / disable a specific barcode type (UPC/EAN, Code 90, PDF417, and many others)
- Scan beam timing – short, medium, long
- Set barcode type parameters

It is important that the barcodes in this guide to be scanned by any device are the barcodes that have been designed specifically for the device.

Bluetooth Module – Use the programming barcodes created specifically for the Bluetooth Ring Scanner module.

Laser Scanner – Use programming barcodes created specifically for the SE955 scanner engine in the Ring Scanner cabled to the Bluetooth Ring Scanner module.

Laser Imager – Use programming barcodes created specifically for the SE4400 imager engine in the Ring Imager cabled to the Bluetooth Ring Scanner module.

Supported scanning ranges for the different barcode readers are contained in Decode Zones.

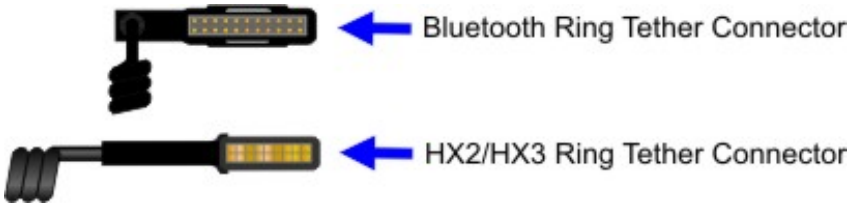
Note: Wireless handheld Bluetooth scanner and Bluetooth imager (i.e. LXE 8500, 8700 and 8800 series) programming barcodes and user instruction is not included in this guide. Please refer to the section titled LXE Tethered Scanners and Mobile Bluetooth Scanners.

Tether Connectors

Note: The LXE Bluetooth Module ring scanner and ring imager connectors are not interchangeable with the ring scanner and ring imager connectors designed for the HX2 or the HX3 mobile device.

For HX2 and ring scanner/ring imager component description, installation and instruction please refer to the HX2 User Guide, HX2 Reference Guide, and the Ring Scanner ProgrammingGuide.

For HX3 and ring scanner/ring imager component description, installation and instruction please refer to the HX3 User Guide, HX3 Reference Guide, and the Ring Scanner Programming Guide.



Ring Tether Connectors

See Compatible Devices.

Identify Your Ring Barcode Decoder Type

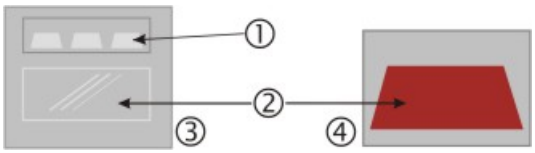
- Keep fingers away from the scan trigger when looking at the scanner/imager lens.
- Do not look into the ring scanner/imager lens.
- Do not stare directly into any beam emitted from the scanner/imager lens.

Note: Imagers and scanners use laser beams when scanning a barcode.

- The ring scanner has an SE955 scan engine.
- The ring imager has an SE4400 scan engine.

Carefully look at the laser apertures of your ring scanning devices.

Ring Imager (L) and Ring Scanner (R)



Ring Imager (L) and Ring Scanner (R) Apertures

1. Imager - Illumination LEDs
2. Beam Aperture
3. Imager - Clear Glass Lens
4. Scanner - Red Glass Lens

Ring Decoder Warnings and Labels

- Do not look into the ring scanner/imager aperture.
- Do not stare directly into the ring scanner/imager laser beam.
- Do not remove the laser caution labels from the ring scanner/imager.
- Do not connect the ring decoder aperture to any other device.

Laser radiation when open. Please read the caution labels.

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

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.

Ring Scanner Caution Label – Class 2 Laser Scanner

LXE Tethered Scanners and Mobile Bluetooth Scanners

This guide does not include the barcodes to be used when programming tethered scanners connected to a COM port or serial port on LXE Bluetooth enabled mobile devices or their cradles/docks, the LXE 8500 scanner series specifically, or Bluetooth mobile scanners /imagers with trigger handles.

Please refer to the scanner and imager manufacturer's User Guide. The manufacturer usually includes the printed manuals with the tethered device or mobile Bluetooth device shipment.

Note: Full programming guides for Bluetooth barcode decoders and COM port tethered scanners may be available on the manufacturer's web site.

Factors That May Impact Scanner Performance

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

Barcode Quality

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

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

Large barcodes can be scanned at the maximum distance. Hold the scanner closer to small barcodes (or with bars that are very close together).

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

Barcode Source

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

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

Barcode Symbology

Barcodes 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. LXE will not support scanner 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 scanning quality or distances get worse over time.

Ambient Lighting

High ambient conditions, particularly outdoor environments, will produce enough light to somewhat “blind” the scanner. This will result in shorter read distances.

Temperature

While small deviations from room temperature will have no impact on scanner performance, severe conditions like those found in freezers will have a negative impact on both the distance scanners can read and the speed the read is acquired.

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

Troubleshooting

Notes

- Decrease decode time by disabling unused barcode types. The scan engine can store several different barcode symbologies at the same time. This means the Bluetooth Ring Scanner is able to scan a Code 39 barcode, then an Interleaved 2 of 5 barcode, then a different barcode without requiring a parameter reset.
- The LXE mobile device Scanner (or Data Collection Wedge) panel parameters are applied to the data resulting from successful barcode scans sent to the host (e.g. MX9, VX6) for processing. The wedge panel does not affect or change the programming barcode parameter settings in this guide.
- After scanning the Reset All to default (or equivalent) barcode with the tethered ring scanner, the next step is to open the Scanner (or Data Collection Wedge) panel on the host (e.g. MX9, VX6), click the OK button and then close the panel. This action will synchronize all scanner formats.

Printing Barcodes

Problem

Barcodes on the printed page are too compact to be scanned, especially with a long range scanner.

Solution

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 barcode is still too small to be read by the scanner engine, run the printed page through the laser printer again using the laser printer’s Zoom feature until the barcode 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 barcode is large enough to scan satisfactorily.

Miscellaneous Programmable Barcodes

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 scanner driver on LXE mobile devices, not the barcode decoder engine. Use the Windows wedge panel options to set up the mobile device audible indicators.

Beeper Frequency Adjustment

Audible scan progress indicators are generated by the scanner driver on LXE mobile devices, not the barcode decoder engine. Use the Windows wedge 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 barcode required.

This parameter is disabled/inactive on LXE host mobile devices.

Beeper Tone / Beeper Volume

Audible scan progress indicators are generated by the scanner driver on LXE mobile devices, not the barcode decoder engine. Use the Windows wedge panel options to set up the mobile device audible indicators.

Event Reporting

LXE mobile devices aren't designed to process events triggered by a barcode decoder 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 scanner driver, not the scanner engine.

Return to Factory Default Settings

Choose *one* of the following methods to restore factory defaults in the module:

- Scan the Restore Factory Defaults barcode.
- To physically reset the module to factory default settings, remove the battery. Replace the battery while pressing the ring scanner trigger for 30 or more seconds and the factory default configuration is restored.

Important: After resetting the module to factory default settings, the next step is to open the barcode wedge panel on the host mobile device collecting the scanned data. Click the OK button to close the panel. This action will synchronize all scanner formats.

Bluetooth Ring Scanner Module

Bluetooth Ring Scanner - Secured to the Wrist or Back of Hand

The Bluetooth Ring Scanner consists of a ring scanner tethered to a sturdy, compact, mobile Bluetooth module and battery.

The module's lightweight battery is the power source for the module and the ring scanner.

The handstrap assembly is designed to be worn on the back of either hand, or at the wrist. The hook and loop fabric on the hand strap enables one-handed installation, adjustment and removal of the hand strap.

Compatible Devices

At a minimum, the Bluetooth Ring Scanner provides wireless communication with Bluetooth enabled LXE computers.

The Bluetooth tethered ring scanner and tethered ring imager connectors are not interchangeable with other LXE mobile devices that also use tethered ring scanners/ring imagers (i.e. HX2 / HX3).

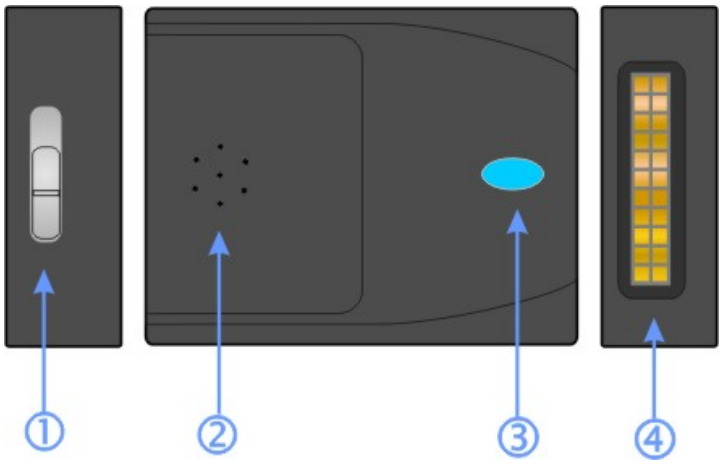
The scan engine manufacturer may offer more barcodes and parameter options than are contained in this guide. Please note that the barcodes in this guide are only those supported by LXE and the imagers or scanners linked to LXE mobile devices that LXE manufactures or supports. If you need assistance when using the barcodes in this guide, please contact your LXE representative.

Note: Please read all cautions, warnings and labels on the scanning device before scanning the barcodes in this guide.

Components

Bluetooth Module

Note: The Bluetooth Module ring scanner and ring imager connectors are not interchangeable with the ring scanner and ring imager connectors designed for the HX2 or the HX3 mobile device.



Components - Module

1. Battery Compartment Latch
2. Speaker
3. LED
4. I/O Port: Ring Device Cable Connection

Ring Imager / Ring Scanner

The ring scanner can scan and decode 1D barcodes.

The ring imager can scan and decode 1D and 2D barcodes.

The type of barcodes scanned successfully depends on the scan type of the tethered ring device. After pairing with an LXE mobile device, it can then send the collected barcode data to the specific Bluetooth enabled LXE mobile device for processing.

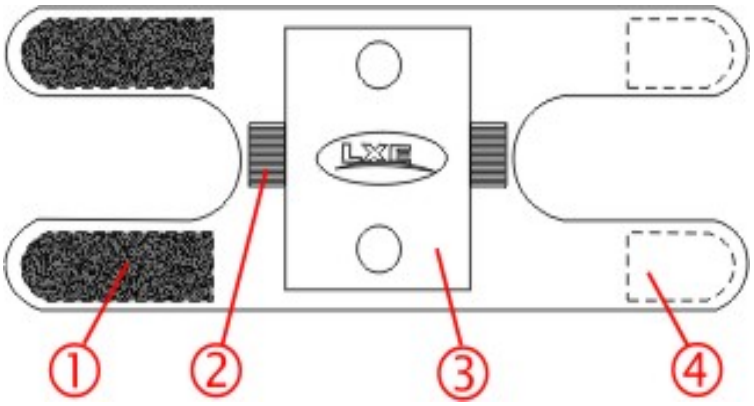
The Bluetooth Ring Scanner **module** emits good read or bad read sounds based on the ring scan results. See section titled Status LED and Beep Indicators for an explanation of the LED and beep patterns emitted by these devices.

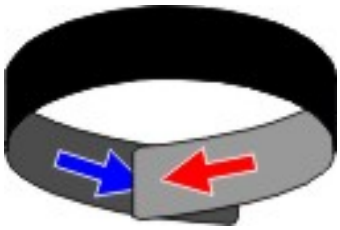
Note: These ring decoding devices do not have the ability to emit a good read or bad read sound.

Ring Imager | Ring Scanner | Cable Connection

Components – Ring Imager / Ring Scanner

Wrist Strap / Back of Hand Strap





Press Loops against Hooks to secure

Wrist Strap

1. Loops
2. Elastic ring cable protector
3. Bluetooth module sleeve
4. Hooks

Battery

The spring-loaded battery in the Bluetooth ring scanner module can be hotswapped (removed/replaced) using one hand. No special tools are needed. A single bay spare battery charger and an eight bay battery multi-charger are available from LXE.

Rechargeable Lithium Ion Battery Pack

The Bluetooth ring scanner module does not have a power or on-off switch. When the battery is installed, the unit and it's accessories are on. Remove the battery to power down the unit.

The batteries are recharged using the Bluetooth Ring Scanner Battery Charger.

See "Bluetooth Module Reboot Sequences" on page 19

Bluetooth MAC ID Barcode Label

Sample MX8 Bluetooth Address (MAC ID) Barcode Label

Locate the barcode label, similar to the one shown above, attached to the LXE Bluetooth capable mobile device. It may be on any side of the device.

The label is the Bluetooth address identifier for the LXE Bluetooth capable mobile device. It must be scanned before pairing connection can occur.

The barcode label on the Bluetooth Ring Scanner module is a barcode and numeric representation of the MAC ID of the module.

Troubleshooting

The MAC ID barcodes on some LXE Bluetooth capable mobile devices are quite small. If you are unsuccessful using the ring imager when scanning a MAC ID barcode, change the ring imager's default Smart Focus Mode to Near Focus by scanning the Enable Near Focus barcode. Ensure focus mode is changed back to the default value of Smart Focus after the MAC ID barcode read is successful.

Important: The Bluetooth module MAC ID label should remain protected from damage (rips, tears, spills, soiling, erasure, etc.) at all times.

Bluetooth Module Assembly

Note: Do not touch, push against or brace your finger on the scan aperture at any time.

The battery and ring scanner cables should not be exchanged or replaced in a dirty, harsh or hazardous environment. When the ring tethers are disconnected, any dust or moisture that adheres to the tether connector can potentially cause damage upon cable re-connection with the Bluetooth Module.

Connect the Ring decoder to the Bluetooth Module before inserting a battery into the module. The Bluetooth Module performs initialization with the Ring Scanner on bootup.

When new, there is a clear, tabbed protective film covering the ring decoder scan window. Remove and discard the clear, tabbed protective film before scanning a barcode.

Connecting the Ring Device Cable

Note: Do not use a metal object, or extreme force, to remove the cable connector from the module.

Assumption: LXE logo on the module protective sleeve is up (visible).

Slip the ring cable connector through the ring cable guide on the side of the Bluetooth module sleeve. The connector can be inserted from the left or the right. The ring cable guides are designed to minimize excessive pulling or tugging on the scanner cable after the ring scanner is connected to the Bluetooth module.

Press the connector firmly into the I/O port until the Bluetooth module LED illuminates and the module beeps, signifying a ring cable I/O secure connection.

To remove the ring scanner cable, pinch and pull the cable connector (not the cable!) straight up and away from the Bluetooth module.

Inserting the Battery

The battery is spring loaded and will slide out when the battery cover latch is opened. The battery slides out of the battery bay far enough to be grasped, removed and then replaced with a fully powered battery.

Open

Orientation: Bluetooth LED on the module is up.

Slide the battery bay latch to the right. The battery bay cover springs open.

Note: As soon as the battery contacts lose connection with the battery terminals in the battery bay, the Bluetooth module turns Off.

Insert Battery

Orientation: Bluetooth LED on the module is up.

Insert a fully charged battery into the battery bay, making sure the battery terminals enter the battery bay at the right side of the battery opening. Use the direction of the arrow on the battery label as a guide.

Close

Orientation: Bluetooth LED on the module is up.

Press down on the battery until it is seated in the battery bay and close the battery bay hatch cover. Slide the battery latch to the left to secure the battery in the Bluetooth Module. The Bluetooth module beeps (Short low tone beep, Long low tone beep, Long high tone beep) and it's LED flashes.

Note: Do not use a metal object, or extreme force, to remove the battery from the module.

Troubleshooting

If a ring scanner is tethered to the Bluetooth module while a battery is being hotswapped *and there is no beep or LED flash*, remove the battery, turn it over and reinsert, making sure the battery terminals enter the battery bay to the right. Slide the battery bay latch to the left to secure the battery in the Bluetooth Module. If there is sufficient power in the battery, the Bluetooth module beeps happily [1] and the LED flashes.

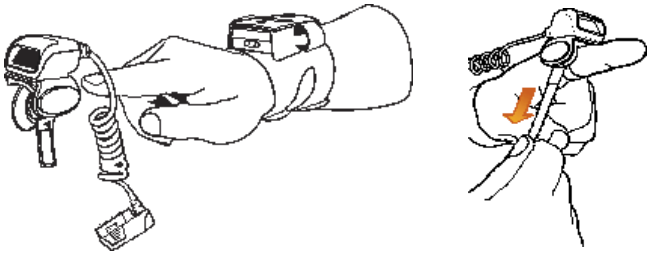
[1] Short low tone beep, Long low tone beep, Long high tone beep

Adjusting the Ring Device Strap

The ring scanner finger loop is located under the ring scanner.

Pull gently on the end of the finger loop strap to separate the hook and loop fabric.

Slide your finger into the opened loop under the ring scanner.



Grasp the end of the finger loop strap and gently pull to loosen, then tighten, the finger strap until the ring scanner is comfortably snug and the scan aperture is in the desired location. Secure the ring strap at the desired location by pressing the hook fabric (under the yellow label) to the loop fabric on the strap surrounding the finger.

The ring scanner has a built-in quick disconnect designed for occasional safety hazards. The quick disconnect is not intended for daily removal of the ring scanner.

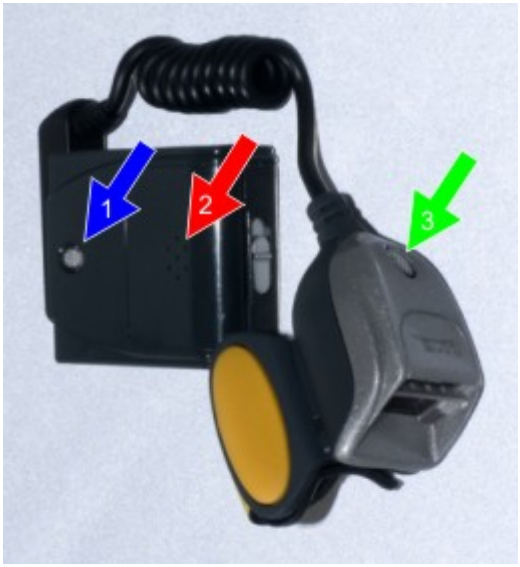
Assembled

Worn on left hand, on back of hand

Worn on right hand, on back of wrist

Bluetooth Ring Scanner Assembled

Status LED and Beep Indicators



Module LED, Beeper and Ring Scanner LED

1. Module LED (Blue arrow)
2. Module Beeper (Red arrow)
3. Ring Scanner LED (Green arrow)

The ring devices do not have the ability to emit a good decode read sound (after a barcode scan) or bad decode read sound. The Bluetooth Ring Scanner module emits the good read or bad read sounds. The module and the ring devices have an LED.

Note: Rejected barcodes generate a bad scan beep and/or an LED light sequence. In some cases, the receipt of data from the ring scanner triggers a good scan beep from the Bluetooth module, and then the rejection of scanned barcode data by the paired mobile device (e.g. MX8) processing causes a bad scan beep from the paired mobile device (MX8) on the same data.

Please see the mobile device specific guide for an explanation of the LED and beep indicators for the paired device. For example, if you have paired the Bluetooth Ring Scanner with the LXE VX3Plus so it can manipulate the scanned barcode data received from the Bluetooth Ring Scanner, refer to the VX3Plus Reference Guide for VX3Plus LED and beep explanations.

Note: LXE Bluetooth device connection (or pairing) can occur at distances up to 32.8 ft (10 meters) Line of Sight. Distances greater than the Line of Sight limit will break the connection. Arriving at the limit may cause unexpected beep and/or LED indications. When the connection is broken, the BTRS module attempts to reconnect with a previously paired device for 30 seconds. Move the Bluetooth Ring Scanner Module closer to the target and a disconnected paired device will beep on reconnect.

See "Bluetooth Module Status LED and Beep Indicators" on page 17

See "Bluetooth Ring Imager LED and Ring Scanner LED" on page 18.

Bluetooth Module Status LED and Beep Indicators

Note: LXE Bluetooth device connection (or pairing) can occur at distances up to 32.8 ft (10 meters) Line of Sight. Distances greater than the Line of Sight limit will break the connection. Arriving at the limit may cause unexpected beep and/or LED indications. When the connection is broken, the BTRS module attempts to reconnect with a previously paired device for 30 seconds. Move the Bluetooth Ring Scanner Module closer to the target and a disconnected paired device will beep on reconnect.

The Bluetooth Module blue LED and Buzzer indicate status as follows:

Blue LED	System Condition	Indication
Fast blink, 0.25 sec. duration every 1.0 sec.	Radio Failure	Short high tone beep Short high tone beep Short low tone beep Short low tone beep
Fast blink, 0.25 sec. duration every 1.0 sec.	Pairing Failed	Short low tone beep Short high tone beep Short high tone beep Short low tone beep
Slow blink, 0.25 sec. duration every 4.0 sec.	Successful Connection	Short low tone beep Short high tone beep (When “Beep on Connect” is enabled. See LXE Programming Barcodes)
Fast blink, 0.25 sec. duration every 1.0 sec.	Lost Connection	Short high tone beep Short low tone beep (When “Beep on Connect” is enabled. See LXE Programming Barcodes)
Slow blink, 0.25 sec. duration every 4.0 sec.	Connected	None
Fast blink, 0.25 seconds every 1.0 second	Not Connected	None
Off	Suspend or Off (not tethered or no battery power available in Bluetooth Module)	None
Blue	Bluetooth Module firmware is updating	None
Off	Bluetooth Module firmware update is completed	Module restarts and power-up beep occurs
Fast Blink, 0.25 sec duration every 0.5 sec.	Communication Error	None
None	Beep on <BEL> error	Three Short low tone beeps
None	Power Up	Short low tone beep Long low tone beep Long high tone beep

Bluetooth Ring Imager LED and Ring Scanner LED

Note: LXE Bluetooth device connection (or pairing) can occur at distances up to 32.8 ft (10 meters) Line of Sight. Distances greater than the Line of Sight limit will break the connection. Arriving at the limit may cause unexpected beep and/or LED indications. When the connection is broken, the BTRS module attempts to reconnect with a previously paired device for 30 seconds. Move the Bluetooth Ring Scanner Module closer to the target and a disconnected paired device will beep on reconnect.

The ring decoding devices do not have the ability to emit a good read or bad read sound.

The Ring Scanner indicates status as follows:

LED	System Condition	Bluetooth Module Beep Sequence
Green	User Good Scan	Short high beep
Green	Configuration Good Scan *Note: This means the configuration process is successful*	Three Short high beeps
Red	Scan in progress	None
Red	Configuration Bad Scan *Note: This means the configuration process has failed*	Three Short low beeps
Slow blink Amber, once every .25 sec.	Low Battery in the Bluetooth Module	Four Short high beeps
Off	Suspend or Off (not tethered or no battery power available in Bluetooth Module)	None

Bluetooth Module Reboot Sequences

Suspend

To improve battery life, the Suspend timeout can be adjusted by scanning the barcodes in the Bluetooth Module Programming Barcodes, section titled Set Suspend Timeout.

Suspend begins if the Suspend timeout occurs before the scanner trigger is pressed.

A trigger pull is required to wake the module from Suspend. The module is ready to receive barcode data.

Note: After the trigger pull (to wake the module from Suspend) another trigger pull is needed to scan a barcode.

If the module is in master mode and the Reconnect Timeout period expires, a scanner trigger press resets the Reconnect Interval timer and the Reconnect Timeout timer.

Reboot

Remove the battery. Replace the battery. Do not press the ring scanner trigger or press it for less than 30 seconds.

The previously stored configuration parameters are restored.

Reset

Remove the battery.

Replace the battery while pressing the ring scanner trigger for 30 or more seconds.

The factory default configuration is restored.

Battery Condition

The 3.7V, 750mAhH Li-Ion battery in the Bluetooth module is designed to power the Bluetooth module for 8 hours and remain in standby for approximately 24 hours.

Battery Low

When a battery low condition exists, LXE recommends the battery be hotswapped with a fully charged battery as soon as possible.

The Ring Scanner Amber LED indicates a battery low condition by blinking for .25 seconds every 5 seconds until a Battery Dead condition occurs or the battery is replaced with a fully charged battery.

The Bluetooth module beeper indicates a battery low condition by emitting 4 short high beeps until the battery is replaced or a Battery Dead condition occurs.

Battery Dead

The Bluetooth module is Off.

It reboots after a fully charged battery is inserted.

Removing / Replacing the Trigger Module

Equipment Needed:Phillips screwdriver with a blade diameter of 1/8" (.4mm). Not supplied by LXE.

Caution: Do not perform the following procedures if the ring barcode reader is tethered to a Bluetooth module containing a battery. There is a possibility the Scan button may be pressed inadvertently and the laser beam emitted.

Note: Do not touch, push on or brace your finger against the scan aperture at any time.

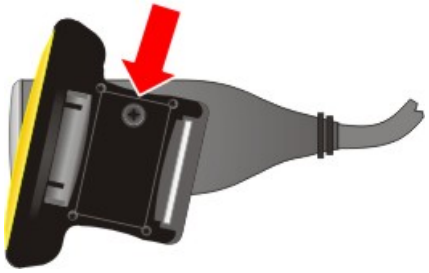
LXE recommends that installation or removal of accessories be performed on a clean, well-lit surface. When necessary, protect the work surface, the mobile device, and components from electrostatic discharge.

A 20 pak of full Trigger assemblies is available from LXE. Please contact your LXE representative for the latest updates and accessories.

Remove Finger Strap Assembly

Fold the flexible liner back until the screw hole is visible.

1. Rotate the trigger module until the black screw is visible as shown in the following figure.
2. Using a Phillips screwdriver with a blade diameter of 1/8" (.4mm) loosen the black screw counter-clockwise and set the screw aside in a safe place.
3. Remove the trigger module.

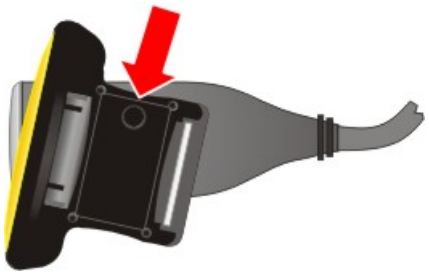


Step 1 : Rotate Trigger Module and Remove Screw

Step 2 : Rotate Trigger Module again until it pops up. Remove the trigger module.

Replace Trigger Module

1. Position the trigger module on the base of the Ring Scanner, making sure the empty screw hole is visible as shown in the following figure.
2. Find the tiny black screw that you removed previously.



Replace Trigger Module

3. Using a Phillips screwdriver with a blade diameter of 1/8” (.4mm) rotate the black screw clockwise until the trigger module is secured to the ring scanner.
4. Install the finger strap. See Removing / Replacing the Ring Finger Strap Assembly.

Removing / Replacing the Ring Finger Strap Assembly

Note: Do not pull on the finger strap or the flexible liner to remove the finger strap assembly. This quick disconnect function is designed for occasional safety hazards and is not intended for daily removal.

Using the Quick Disconnect Function, grasp the finger strap and pull the finger strap out and away from the ring scanner.

Before attaching the finger strap to the trigger module, thread the finger strap, warning label side down, first through the hinge, then under and over the pin next to the scan button.

It should slide easily.

Cleaning the Beam Aperture

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.

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.

Bluetooth Module Firmware Update

Refer to previous section titled Bluetooth Module Assembly.

Prerequisites: BlueCore Device Firmware Update program loaded on a desktop/laptop PC. Refer to section titled "BlueCore Device Firmware Update Installation Instruction" for instruction.

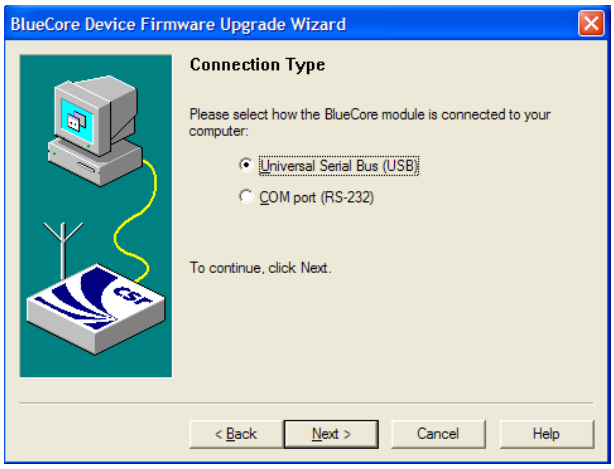
Bluetooth Module Firmware update cable (8650A051CBLBTUPDATE)

Firmware update file (contact your LXE representative to obtain the latest Bluetooth Module firmware update file).

A Bluetooth Module and a fully charged battery.

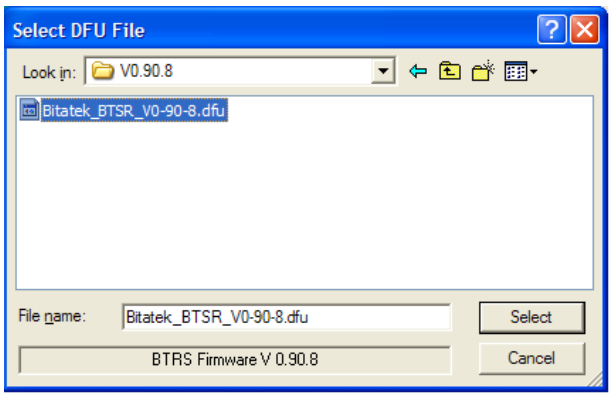
Update the Module Firmware

1. Remove the battery pack from the Bluetooth Ring Scanner module.
2. Disconnect the ring scanner cable.
3. Connect the USB end of the firmware update cable to a PC and then insert the I/O end of the firmware update cable in the I/O connector on the Bluetooth module.
4. Insert a fully charged battery pack into the Bluetooth Module. The module powers up (multiple beeps and the blue LED begins flashing).
5. Bluetooth Module Firmware Update is ready to begin
6. Click Start | All Programs and start the BlueCore Device Firmware Update Wizard application.
7. Click Next to begin the upgrade process.
8. Select how the Bluetooth module is connected to your PC by choosing the Universal Serial Bus (USB) connection type. Click Next to continue.

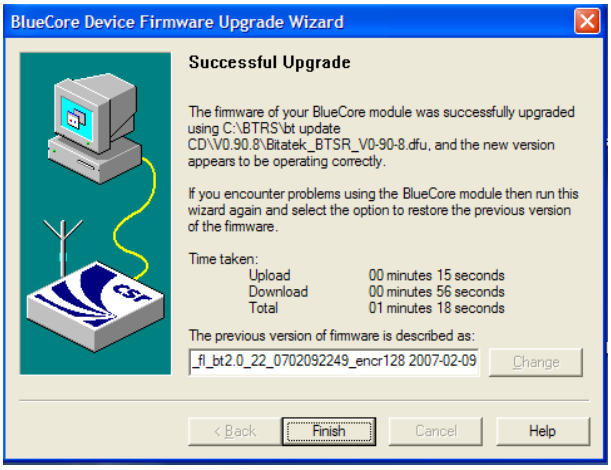


9. Select Download a new version of the firmware, saving a copy of the current version first. Any previous version will be replaced upgrade action and then click Next.

10. Browse to and highlight the latest firmware upgrade file. The file has a DFU extension. Click Select to continue.



11. The upgrade process proceeds and ends with a Successful Upgrade message (see below). The Bluetooth module may emit a series of beeps or the blue LED may stop flashing and remain illuminated until the upgrade is finished.



12. Click Finish.
13. Remove the battery pack from the Bluetooth Module again.
14. Remove the firmware update cable from the I/O port.
15. At this point, the PC is ready to upgrade the next Bluetooth module, if desired.

Troubleshooting Firmware Update

If the firmware update is interrupted due to loss of power or by removing the cable before the update is complete, the original firmware will be destroyed and the Bluetooth Ring Scanner will not be able to run in normal operation mode. If this event occurs the utility on the PC indicates that the firmware upgrade was not successful.

This condition can be recovered by repeating the firmware update procedure.

Pairing Bluetooth Devices

When the Bluetooth Ring Scanner module pairs with another Bluetooth device, it means the Bluetooth Ring Scanner module can send serial data to the other Bluetooth device.

Note: Bluetooth Ring Scanner module paired data is stored in non-volatile memory in the module and data is saved over power cycles. Paired devices automatically reconnect when power is applied.

LXE Bluetooth Devices

Method 1

Using the Bluetooth Ring Scanner assembly, scan the pairing barcode (Bluetooth MAC address of the device) on the LXE Bluetooth device (e.g. handheld or vehicle mount unit).

The Bluetooth Ring Scanner module initiates the pairing process with the LXE Bluetooth device and the devices are paired. The Bluetooth Ring Scanner module's Bluetooth LED flashes every 4 seconds. This is the LXE recommended method for pairing.

Method 2

Using the ring scanner attached to the Bluetooth Ring Scanner module, and the barcodes in Chapter 2 Bluetooth Module Programming, scan the Pairing Status | Enable Slave Mode barcode.

Using the LXE Bluetooth device (e.g. handheld or vehicle mount unit) access the LXEZ Pairing control panel by tapping the Bluetooth icon on the Desktop (or the Taskbar or the Control Panel).

Open the Bluetooth Devices panel. Tap the Discover button to discover nearby Bluetooth scanners and printers. Identify the scanner you wish to pair with by matching the Friendly name (LXE Scanner – [MAC ID]) with the MAC address label on the scanner. Doubletap the Friendly Name and select Pair as Scanner from the drop-down menu. Close the LXEZ Pairing application.

Notes:

- Assumption is that the Bluetooth scanner parameters are at the factory defaults for the scanner.
- When users can use any mobile device with any scanner -- When returning from a break or at the beginning of a shift all users should pair a scanner with their mobile device using either of the methods shown above.
- When the scanner and mobile device pair successfully, the LXE Scanner Wedge automatically sets Wedge Port 1 to be used by Bluetooth. If the mobile device is equipped with other integrated or tethered scanners, they must be configured to use a Scanner Wedge Port other than Port 1 if they are to be used when a Bluetooth scanner is paired.
- When the Bluetooth Ring Scanner is paired to a device using a Bluetooth driver other than LXEZ Pairing, the Bluetooth scanner serial data should be managed in accordance with your other Bluetooth devices.

Generic Bluetooth Devices

1. Using the ring scanner attached to the Bluetooth Ring Scanner module, and the barcodes in Bluetooth Module Programming, scan the following barcodes:
    - Restore Factory Defaults
    - Pairing Status | Enable Slave Mode
2. Using the ring decoder and the barcodes in the ring decoder-engine-specific chapter (e.g. SE955 Laser Barcodes) configure the ring decoder to meet the requirements of the targeted generic Bluetooth device.
3. Using the generic Bluetooth device, and the device's Bluetooth software, perform a Discovery of nearby Bluetooth devices. The Bluetooth Ring Scanner assembly is identified by the label "LXE Scanner – (MAC ID)".
4. Using the generic device's Bluetooth software, pair the devices.When the devices are paired, the Bluetooth Ring Scanner module's Bluetooth LED flashes every 4 seconds.

The generic Bluetooth device will receive serial data sent by the Bluetooth Ring Scanner module every time a barcode is read and decoded by the attached ring decoder.

Clear Paired Status

Using the LXE Bluetooth device (e.g. handheld or vehicle mount unit) access the LXEZ Pairing control panel by tapping the Bluetooth icon on the Desktop (or the Taskbar or the Control Panel). Open the Bluetooth Devices panel. Locate the Bluetooth Ring Scanner module in the list of paired devices by comparing the MAC ID number in the list with the MAC ID barcode on the module.

Doubletap the Bluetooth Ring Scanner module icon. The right-mouse-click menu appears. Select Disconnect. When the icon is red, select Delete. All devices in the Bluetooth Devices panel can be cleared (deleted) in this manner, if necessary.

The deleted Bluetooth Ring Scanner module is excluded from the list the next time the Bluetooth Devices panel is opened.

If you cannot disconnect/delete the Bluetooth Ring Scanner module from the generic device at the end of the work day, please contact your System Administrator for assistance.

Bluetooth Module Programming Barcodes

Barcodes in this section are designed to be read by the ring scanner or ring imager connected to the Bluetooth Ring Scanner module.

Introduction

This section contains LXE programming barcodes to be used when programming the Bluetooth module only. The barcodes were created using Code 128 ASCII.

LXE scanners and imagers are setup to read Code 128 barcodes by default.

- The ring scanner, that is included in the Bluetooth Module, has an SE955 scan engine. Use **only SE955** (Ring Scanner) programming barcodes to program the ring scanner engine parameters.
- The ring imager, that is a part of the Bluetooth Module, has an SE4400 scan engine. Use **only SE4400** (Ring Imager) programming barcodes to program the ring imager scan engine parameters.

Preparation

Assemble the Bluetooth Ring Scanner components:

- Connect the Ring decoder to the Bluetooth Module before inserting a battery into the module. The Bluetooth Module performs initialization with the Ring Scanner on bootup.
- A fully charged battery must be secured in the battery well.
- Ring scanner or ring imager can be tethered to the Bluetooth module. Either ring device can be used to read the module programming barcodes in this section.

If desired, review the previous section titled Bluetooth Module Assembly before you start to program the Bluetooth Module.

When parameters are changed, and saved to memory, the Bluetooth module LED blinks. Barcodes cannot be scanned until the LED color returns to normal mode.

The scan engine manufacturer may offer more barcodes and options than are contained in this guide. Please note that the barcodes in this guide are only those supported by LXE and the imagers or scanners linked to LXE mobile devices that LXE manufactures or supports. If you need assistance when using the barcodes in this guide, please contact your LXE representative.

LXE Programming Barcodes

To change a parameter value:

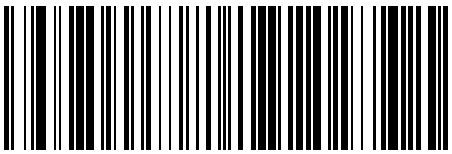
Scan the appropriate barcode in this section. The new value replaces the standard default value in memory.

Bluetooth Module Factory Default Settings	
Slave Mode	Enabled
Suspend Timeout	5 minutes
Beep on Reconnect	Enabled
Reconnect Interval Timeout	30 seconds
Reconnect Timeout	1 minute
Role Switching	Enabled
Authentication	Disabled
Encryption	Disabled
Imager White LEDs	Disabled
PIN Code	16 zeros
Friendly Name	“LXE Scanner” + Module MAC address
Ring Imager Focus Mode	Smart Focus
Volume	High

Restore Factory Defaults

Scan this barcode to restore factory defaults in the Bluetooth Ring Scanner module.

Restore Factory Defaults

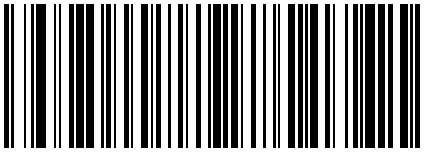


Module Firmware Version

Prerequisite:Bluetooth Ring Scanner module is fully assembled (battery, ring decoder) and connected to a device with a video display.

Scan this barcode, with either the ring scanner or the ring imager, to view the LXE firmware version of the Bluetooth Ring Scanner module on the host device display.

Module Firmware Version



Troubleshooting

If there is an issue with viewing the Bluetooth Ring Scanner module version on the connected Windows device display, open Notepad or Wordpad first, make sure the cursor is in the open file, then scan the Module Firmware Version barcode.

Pairing Status

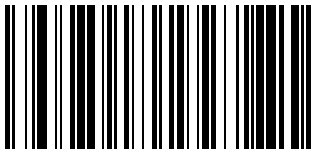
Parameter Default Value:Enable Slave Mode

Scan the barcode to enable pairing in Slave Mode for the Bluetooth module. Upon a successful scan, the Bluetooth module then disconnects from the paired device, deletes any saved or current pairing information and transitions into slave mode.

When pairing as Master device is successful, the module emits a pattern of a short low beep and a short high beep and the Blue LED blinks slowly, every 4 seconds.

When pairing as Master device is unsuccessful, the module emits a pattern of short low, short high, short high and short low beeps and the blue LED blinks fast, every 1 second.

Enable
Slave Mode



SAMPLE LnkB BARCODE – DO NOT SCAN !!

Enable/Pair as Master

Scan the LnkB barcode on the LXE Bluetooth capable mobile device (e.g. MX8) and the Bluetooth module is set to Master Mode. Slave mode is disabled.

Note: If the LnkB barcode is missing from the LXE Bluetooth capable mobile device, contact your LXE representative. Refer to the device specific reference guide (e.g. MX8 Reference Guide) for LnkB barcode instruction.

See Also: Role Switching parameter.

Troubleshooting

The LnkB barcodes on some LXE Bluetooth capable mobile devices are quite small. If you are unsuccessful using the ring imager when scanning a LnkB barcode, change the ring imager's default Smart Focus Mode to Near Focus by scanning the Enable Near Focus barcode. Ensure focus mode is changed back to the default value of Smart Focus after the LnkB barcode read is successful.

Suspend Timeout

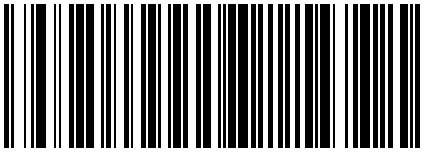
Parameter Default Value: 5 minutes

To improve battery life, the Suspend timeout can be adjusted by scanning the following barcodes.

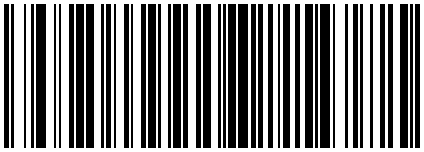
A trigger press is required to wake the module from Suspend.

Note: After the trigger press (to wake the module from Suspend) another trigger press is needed to scan a barcode.

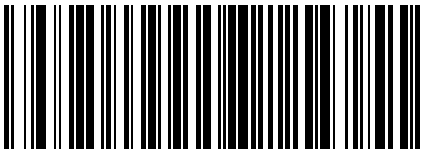
Disable Suspend Timeout



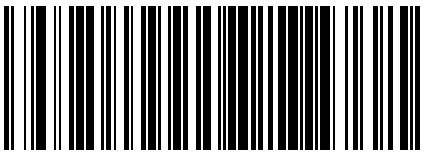
Set Suspend Timeout to 15 seconds



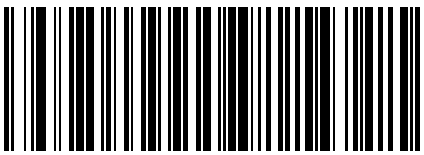
Set Suspend Timeout to 30 seconds



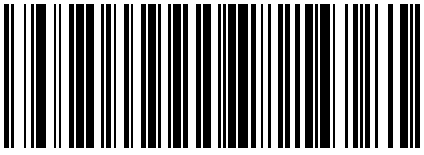
Set Suspend Timeout to 1 minute



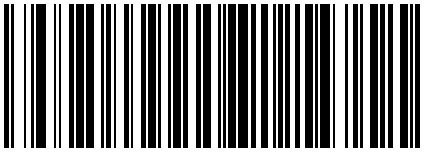
Set Suspend Timeout to 5 minutes



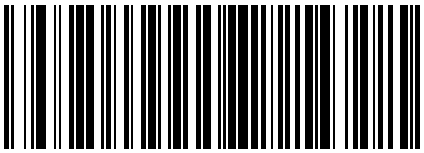
Set Suspend Timeout 15 minutes



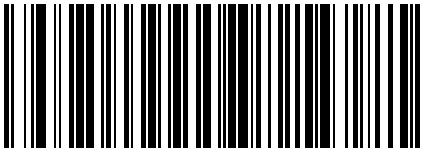
Set Suspend Timeout to 30 minutes



Set Suspend Timeout to 45 minutes



Set Suspend Timeout to 60 minutes



Beep on Reconnect

Parameter Default Value: Enable

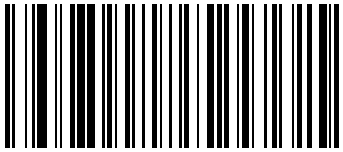
When Beep on Reconnect is enabled and reconnect is successful, the module emits a pattern of a short low beep and a short high beep and the Blue LED blinks slowly, every 4 seconds.

When Beep on Reconnect is disabled and reconnect is unsuccessful over the reconnect interval, the module emits a pattern of a short high beep and a short low beep and the blue LED blinks fast, every 1 second.

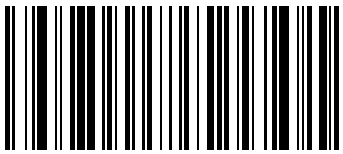
Scan the Disable Beep on Reconnect to disable audible notification for connect and disconnect.

See Also: Reconnect Interval Timeout.

Enable Beep on Reconnect



Disable Beep on Reconnect



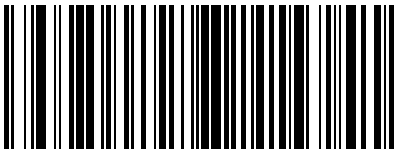
Reconnect Interval Timeout

Parameter Default Value: 30 seconds

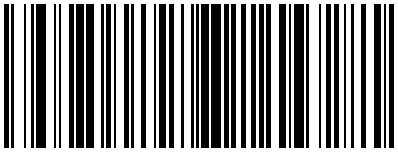
Scan one of the following barcodes to set the amount of time between attempts to reconnect with a previously connected Bluetooth enabled device.

See Also: Beep on Reconnect

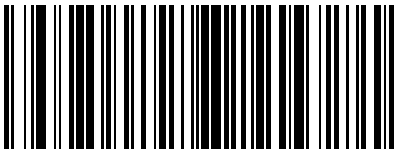
Reconnect Interval Timeout 15 seconds



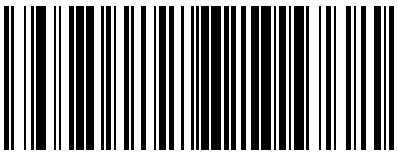
Reconnect Interval Timeout 30 seconds



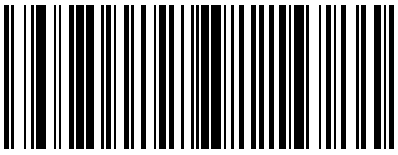
Reconnect Interval Timeout 45 seconds



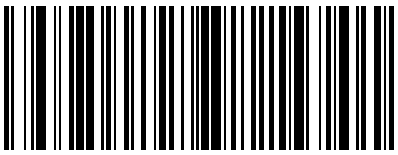
Reconnect Interval Timeout 1 minutes



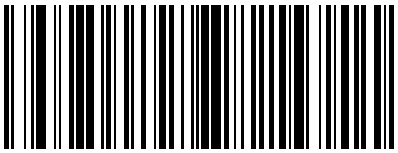
Reconnect Interval Timeout 5 minutes



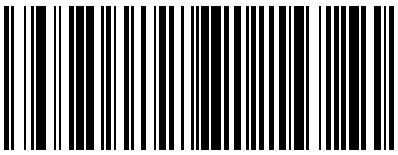
Reconnect Interval Timeout 10 minutes



Reconnect Interval Timeout 15 minutes



Reconnect Interval Timeout 30 minutes



Reconnect Timeout

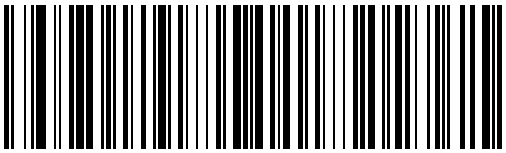
Parameter Default Value: 1 minute

Scan one of the following barcodes to set the amount of time the Master device will retry connection attempts before ceasing attempts.

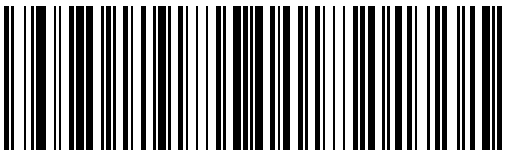
When the parameter is set to Off, reconnect attempts will continue until the battery in the Bluetooth module is depleted.

See Also: Beep on Reconnect

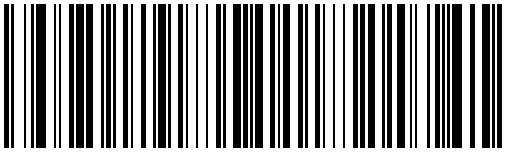
Reconnect Timeout Off



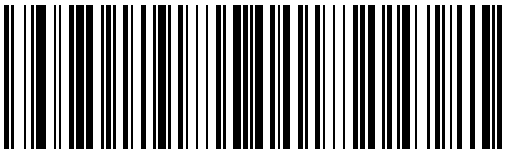
Reconnect Timeout 1 minute



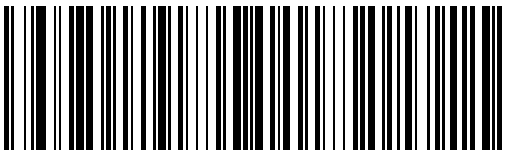
Reconnect Timeout 5 minutes



Reconnect Timeout 30 minutes



Reconnect Timeout 60 minutes



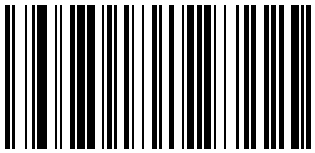
Role Switching

Parameter Default Value: Enable

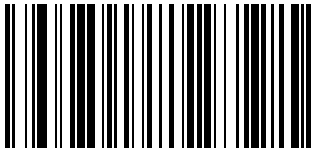
When Role Switching is enabled and the module has successfully paired with an LXE Bluetooth capable mobile device as a master, the module will perform role switching with the mobile device and become a slave device.

See Also: Enable Slave Mode

Enable Role Switching



Disable Role Switching



Authentication

Parameter Default Value: Authentication Disabled

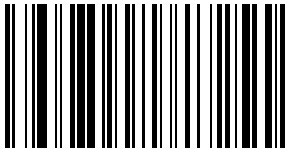
Authentication is the process of verifying the identity of a device with which a connection is to be established.

When Authentication is disabled, any device can connect to the Bluetooth Ring Scanner module.

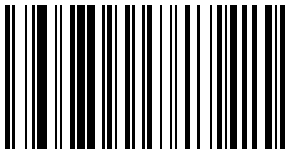
When Authentication is enabled, the connecting device is required to enter the PIN value set by the Bluetooth Ring Scanner module before successful connection can occur.

See Also: Set PIN Code and PIN Code Default

Enable Authentication



Disable Authentication

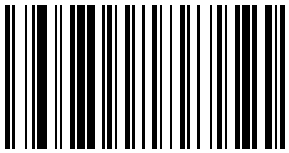


Encryption

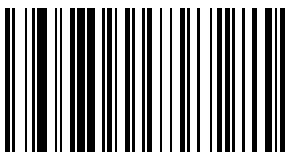
Parameter Default Value: Encryption Disabled

Encryption is the process of encoding data for transmission between devices to ensure its integrity.

Enable Encryption



Disable Encryption



Imager White LEDs

Parameter Default Value: Disable

Note: This parameter applies only to the Ring Imager. If enabled, the value is ignored by the Ring Scanner.

When Imager White LEDs is enabled, the LEDs inside the scan aperture illuminate at the same time, and for the same amount of time, as the scan beam.

This parameter setting persists over a power cycle (remove and replace the module battery).

This parameter reverts to the default setting after a module Reset (holding the imager trigger for 30 seconds after reinstalling the module battery).

It reverts to the default setting after the Factory Defaults barcode is scanned.

When this Imager White LEDs parameter is not scanned but the Decoding Illumination parameter in Chapter 4 – SE4400 Imager Barcodes is scanned, the Imager White LEDs setting reverts to Disable after a power cycle.

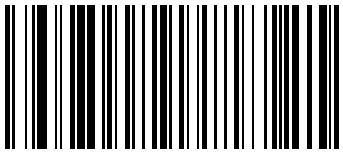
The LEDs turn off when the scan beam turns off.

Disabling this parameter does not affect the scan beam or scan beam timer.

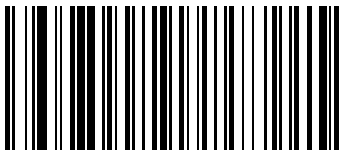
Note: Enabling Imager White LEDs may reduce module battery life.

Scan the appropriate barcode below:

Enable Imager White LEDs



Disable Imager White LEDs

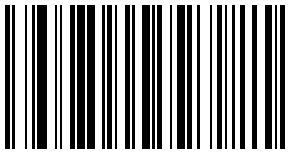


Beep Volume

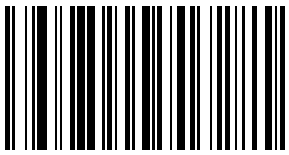
Parameter Default Value:High

The Bluetooth Module speaker volume can be reset by scanning one of the following barcodes.

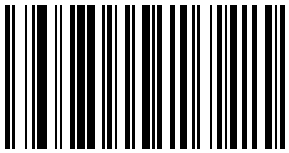
Volume Off



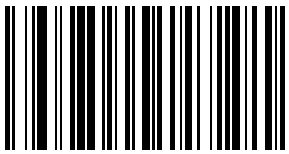
Volume Low



Volume Medium



Volume High



Ring Imager Focus Mode

Note: This parameter is to be used for the ring imager connected to the Bluetooth Ring Scanner module only. The ring scanner will ignore this parameter if it scans it in error.

Parameter Default Value: Smart 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 emitted from the module as Smart Focus toggles after every frame.

Refer to the SE4400 Scan Engine Technical Specifications for typical working ranges for the Ring Imager decoder.

The focus mode persists over a power cycle (remove and replace the module battery).

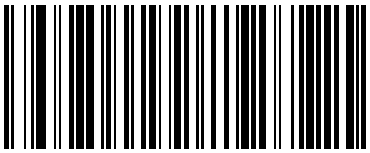
This parameter reverts to the default setting after a module Reset (holding the imager trigger for 30 seconds after reinstalling the module battery).

It reverts to the default setting after the Factory Defaults barcode is scanned.

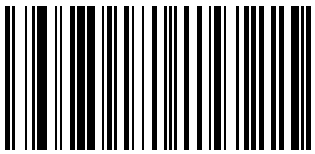
When the following Ring Imager Focus Mode parameter **is not** scanned but the Focus Mode parameter in SE4400 Imager Barcodes **is** scanned, the Ring Imager Focus Mode setting reverts to Smart Focus Mode after a power cycle.

Scan the appropriate barcode below:

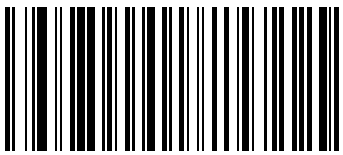
Ring Imager Smart Focus Mode



Ring Imager Far Focus Mode



Ring Imager Near Focus Mode



Enter Friendly Name or PIN Code

PIN Code

Scan the Set PIN Code barcode, then scan up to 16 alphanumeric characters to set the Bluetooth module PIN Code.

Scan the numbers, lowercase alpha and uppercase alpha barcodes here.

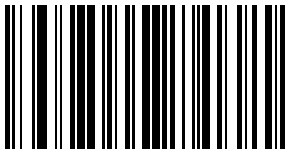
When finished entering all characters, scan the Stop PIN Code setup barcode.

Scan the Stop PIN Code setup barcode to end PIN Code data entry.

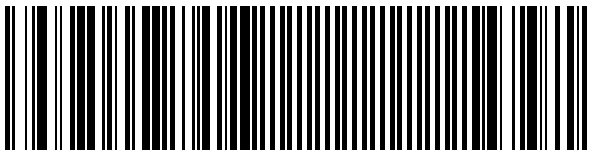
The PIN Code default value is 16 zeros.

To reset the Pin Code back to the default, scan the Set Pin Code barcode and the Pin Code Default barcode only.

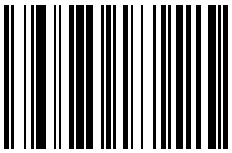
Set PIN Code



Pin Code Default



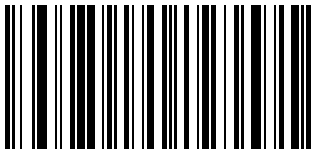
Stop PIN Code setup



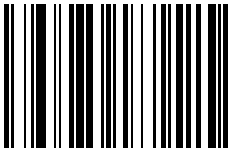
Friendly Name

Scan the Set Friendly Name barcode, then scan up to 32 alphanumeric characters to set the Bluetooth module Friendly Name.
Scan the numbers, lowercase alpha and uppercase alpha barcodes here.
When finished entering all characters, scan the Stop Friendly Name setup barcode to end Friendly Name data entry.
The Friendly Name default value is “LXE Scanner” + MAC address in Hexadecimal.
The Friendly Name can be viewed using LXEZ Pairing on the paired LXE mobile device.

Set Friendly Name

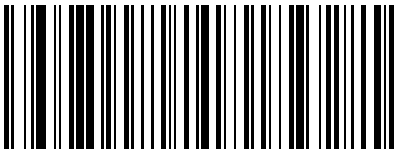


Stop Friendly Name setup

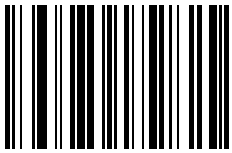


Numbers

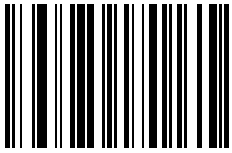
Cancel current programming function



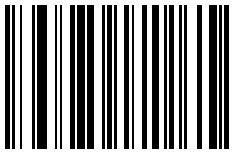
0



1



2



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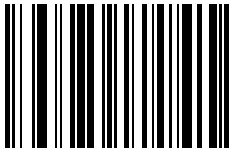

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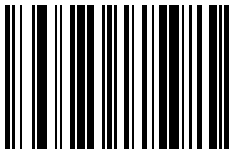

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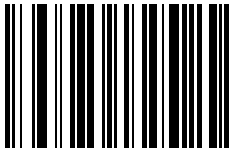

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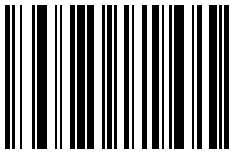

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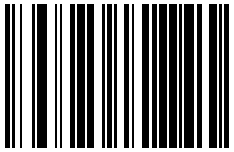

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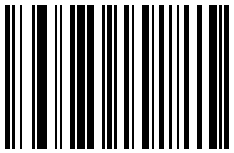

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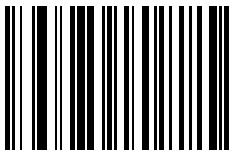
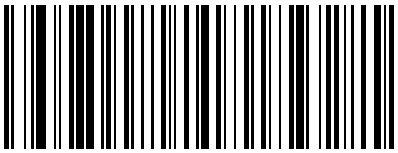


Lowercase Letters

Cancel current programming function



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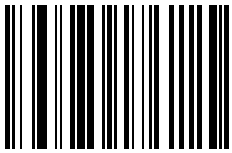

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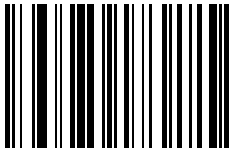

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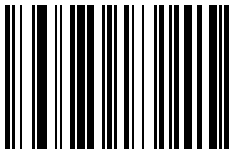

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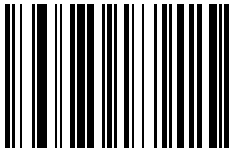

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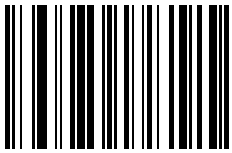

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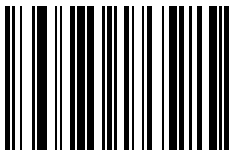

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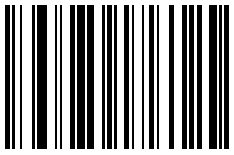

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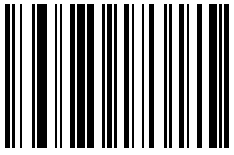

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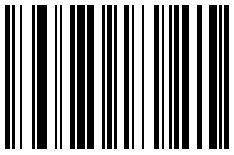

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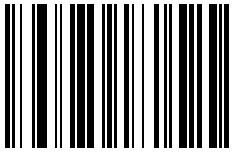

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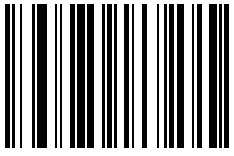

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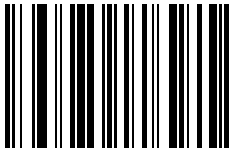

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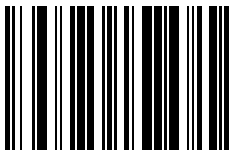

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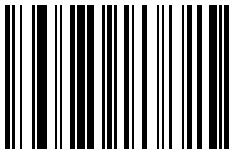

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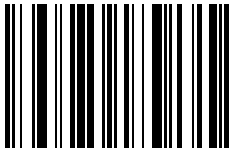

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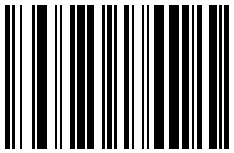

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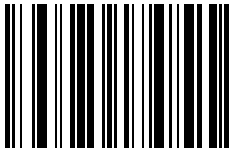

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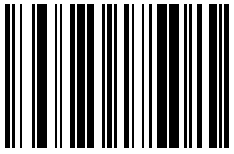

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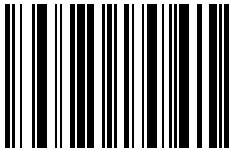

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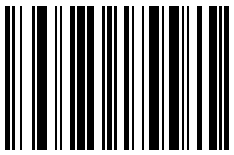

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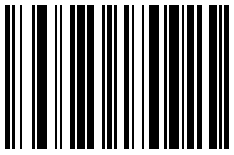

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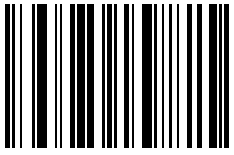

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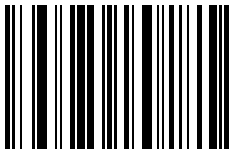

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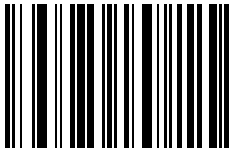

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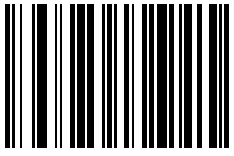

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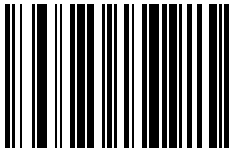
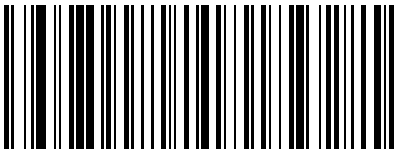


Uppercase Letters

Cancel current programming function



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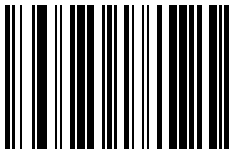

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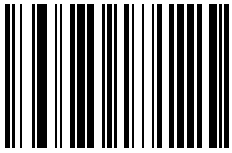

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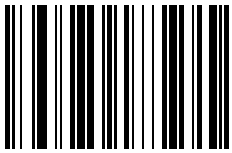

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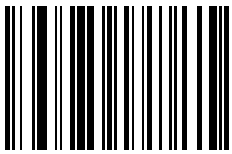

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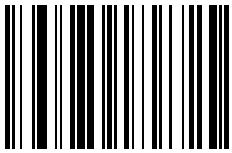

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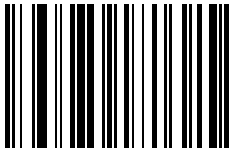

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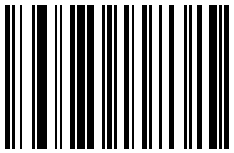

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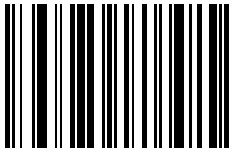

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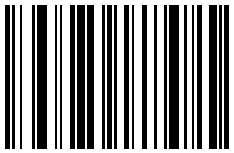

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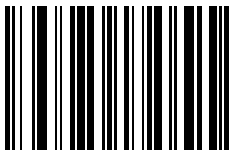

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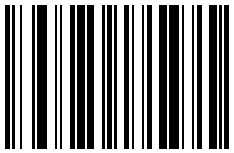

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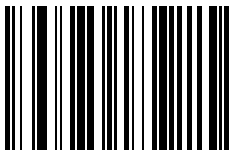

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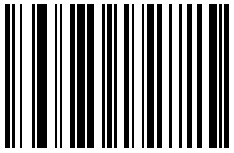

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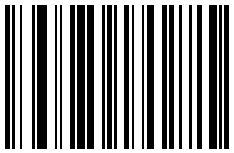

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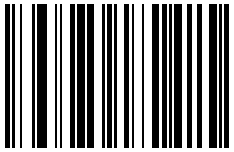

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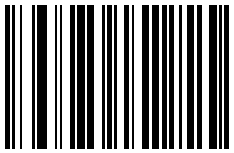

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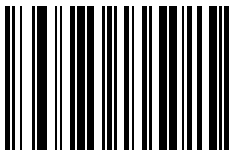

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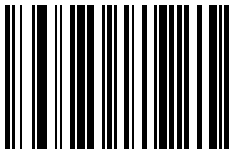

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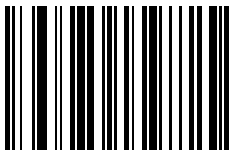
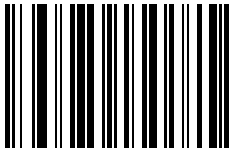
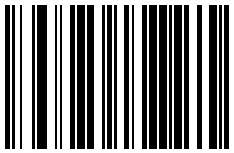


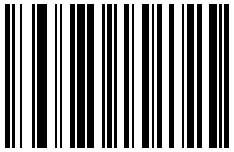
T



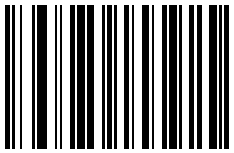
U



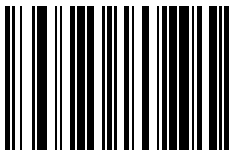
V



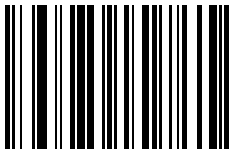
W



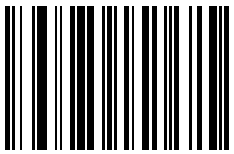
X



Y



Z



Symbol Laser Scanner Programming Barcodes

These barcodes, explanations and instructions are for programming the Symbol laser scanner engine in your ring scanner. Please do not scan the barcodes in this section with any other imager or laser engine.

Introduction

Note: A ring scanner does not have beep / audio capability.

Assumption: The user is familiar with Windows CE 5 on-screen functions.

Scan engine manufacturers may offer more barcodes and options than are contained in this chapter. Please note that the barcodes in this chapter are only those supported by LXE and the mobile devices it manufactures or supports. If you need assistance when using the barcodes in this WebHelp , please contact your LXE representative .

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

The following barcode symbologies are supported on the Bluetooth Ring Scanner:

Symbology
Chinese 2 of 5
Codabar
Code 11
Code 128
Code 39
Code 93
Discrete 2 of 5
Interleaved 2 of 5
MSI Plessey
GS1 DataBar (RSS)
GS1 Databar (RSS) and Composite Codes
UPC/EAN UPC-A UPC-E UPC-E1 EAN-8 EAN-13

Aiming Modes

There are many aiming “modes” for laser barcode scanners – 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 barcode laser scanner user.

Note: Decoding algorithms released by the barcode 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. LXE supports the programming barcodes for the specific engines in this guide only.

SE955 Ring Scanner

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

- Use Laser On Time
- Aim Duration, and
- Scan Angle

Aiming Dot Troubleshooting -- 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 barcode is read.

Prefix / Suffix

Ring decoder engine prefix and suffix parameters should not be set, changed, or reset using the Prefix and Suffix barcodes shown in this section. When the Bluetooth Ring Scanner Module is reset to defaults, the prefix and suffix settings revert to their default values and need to be scanned again. Use the Scanner Control Panel in the host computer to store prefix and suffix values.

Refer to the host reference guide (e.g. MX7) for information and instruction on setting up the following scanner 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

Ring Scanner Parameter, 955	Default
Set Default Parameter	All Defaults
Scanning Options	
Aim Duration	0.0 sec
Aiming Mode	Not Supported
Beeper Volume	Not Supported
Bi-directional Redundancy	Disable
Laser On Time	3.0 sec.
Linear Code Type Security Levels	1
Parameter Scanning	Enable
Power Mode	Low Power
Raster Expansion Rate	Not Supported
Raster Height	Not Supported
Scan Angle	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
Transmit “No Read” Message	Disable
Trigger Mode	Host
UPC/EAN	
UPC-A	Enable
UPC-E	Enable
UPC-E1	Disable
EAN-8	Enable
EAN-13	Enable
Bookland EAN	Disable
Decode UPC/EAN Supplementals	Ignore
Decode UPC/EAN Supplemental Redundancy	7
Transmit UPC-A Check Digit	Enable
Transmit UPC-E Check Digit	Enable
Transmit UPC-E1 Check Digit	Enable
UPC-A Preamble	System Character

Ring Scanner Parameter, 955	Default
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
Code 128	
Code 128	Enable
UCC/EAN-128	Enable
ISBT 128	Enable
Code 128 Decode Performance	Not Supported
Code 128 Decode Performance Level	Not Supported
Code 39	
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
Code 93	
Code 93	Disable
Set Length(s) for Code 93	Length within Range: 04 – 55
Code 11	
Code 11	Disable
Set Lengths for Code 11	Length within Range: 04 – 55

Ring Scanner Parameter, 955	Default
Code 11 Check Digit Verification	Disable
Transmit Code 11 Check Digit(s)	Disable
Interleaved 2 of 5	
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
Discrete 2 of 5	
Discrete 2 of 5	Disable
Set Length(s) for D 2 of 5	12
Chinese 2 of 5	
Chinese 2 of 5	Disable
Codabar	
CLSI Editing	Disable
Codabar	Disable
NOTIS Editing	Disable
Set Lengths for Codabar	Length within Range: 05-55
MSI Plessey	
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
PDF417/MicroPDF417	
PDF417	Not Supported
MicroPDF417	Not Supported
Decode Linked Symbol	Not Supported
Code 128 Emulation	Not Supported
GS1 DataBar (RSS)	
GS1 DataBar Omnidirectional (RSS-14)	Disable
GS1 DataBar Limited (RSS Limited)	Disable
GS1 DataBar Expanded (RSS Expanded)	Disable
Convert GS1 DataBar (RSS) to UPC/EAN	Disable

Ring Scanner Parameter, 955	Default
Composite	
CC-C	Not Supported
CC-AB	Not Supported
TLC-39	Not Supported
Data Options	
Transmit Code ID Character	None
Prefix/Suffix Values Prefix Suffix 1 Suffix 2	 NULL LF CR
Scan Data Transmission Format	Data as is
Decode Buffering	Not Supported
Simple Serial Interface (SSI) Options	
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
Macro PDF	
Macro PDF Transmit/Decode Mode	Not Supported
Transmit Each Symbol in Codeword Format	Not Supported
Transmit Unknown Codewords	Not Supported
Escape Character	Not Supported
ECI	
Delete Character Set ECIs	Not Supported
ECI Decoder	Not Supported
Transmit Macro PDF User-Selected Field	
Transmit File Name	Not Supported
Transmit Block Count	Not Supported
Transmit Time Stamp	Not Supported
Transmit Sender	Not Supported

Ring Scanner Parameter, 955	Default
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

Restore Defaults

If custom defaults were set by scanning Write Custom Defaults, scan Restore Defaults to retrieve and restore the scanner's custom default settings. If no custom defaults were set, scan Restore Defaults to restore the factory default values.

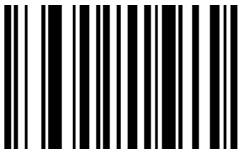
Set Factory Defaults

Restore the factory default values. If custom defaults were set, they are eliminated.

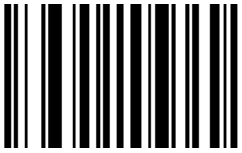
Write Custom Defaults

Store the current scanner settings as custom defaults. Once custom default settings are stored, they can be recovered at any time by scanning the Restore Defaults barcode.

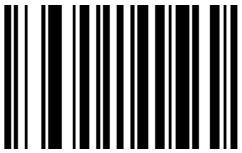
Restore Defaults



Set Factory Defaults



Write Custom Defaults



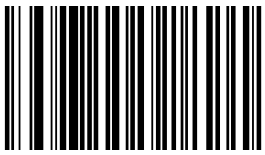
Scanner Parameters – General

Aim Duration

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

When a scanner 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 barcode below:



Next scan two numeric barcodes 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 barcode above, then scan the "0" and "5" barcodes on the Keypad Number Symbols page. If you make an error, or wish to change your selection, scan the Cancel barcode.

Bi-Directional Redundancy

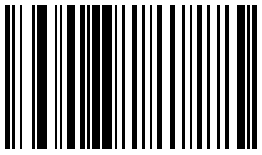
Parameter Default Value: Disable

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

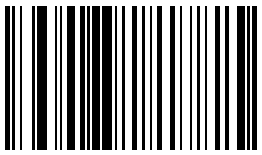
Note: This parameter is only valid when a Linear Code Type Security Level has been enabled. The default for Security Level parameter is Level 1.

Select an option by scanning either of the barcodes shown below.

Enable Bi-Directional Redundancy



Disable Bi-Directional Redundancy



Data Options

Note: SE955 ring scanner engine prefix and suffix parameters cannot be set, changed, or reset using the barcodes in this chapter. See previous section titled Prefix / Suffix.

Prefix and Suffix

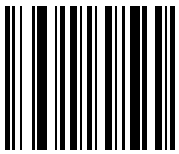
Ring decoder engine prefix and suffix parameters should not be set, changed, or reset using the Prefix and Suffix barcodes shown in this section. When the Bluetooth Ring Scanner Module is reset to defaults, the prefix and suffix settings revert to their default values and need to be scanned again. Use the Scanner Control Panel in the host computer to store prefix and suffix values.

Parameter Default Value:	
Prefix (P)	Null
Suffix1 (S1)	LF
Suffix2 (S2)	CR

Note: Parameter "Scan Data Transmission Format" must be set before selecting Prefix/Suffix values.

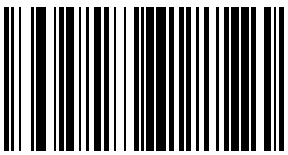
A prefix and/or one or two suffixes may be appended to scan data for use in data editing. These values are set by scanning four barcodes (resulting in a four digit number) that correspond to key codes for various mobile devices. See the table titled "ASCII Character Equivalents".

If you wish to change your selection, scan this **Data Format Cancel** barcode:



Prefix

To begin setting **Prefix** values, scan this barcode:

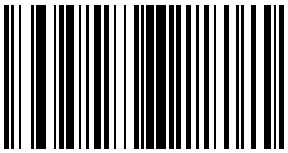


Next, scan four numeric barcodes that correspond to the computer keycode using the "Keypad Number Symbols".

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

Suffix 1

To begin setting **Suffix 1** value, scan this barcode:

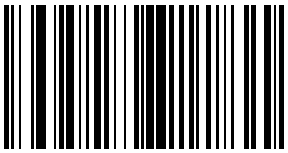


Next, scan four numeric barcodes that correspond to the computer keycode using the "Keypad Number Symbols".

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

Suffix 2

To begin setting **Suffix 2** value, scan this barcode:



Next, scan four numeric barcodes that correspond to the computer keycode using the "Keypad Number Symbols".

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

Scan Data Transmission Format

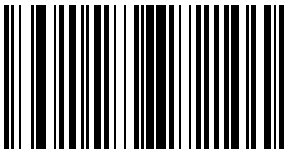
Parameter Default Value: Data As Is

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

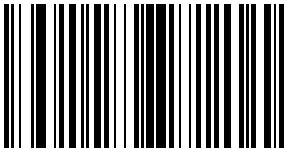
Use this option when you want to append a prefix and suffix to the decode data.

Set this parameter by scanning one of the following barcodes.

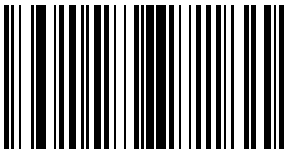
Data As Is



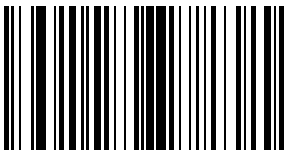
[Data] [Suffix 1]



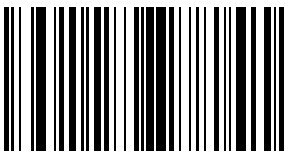
[Data] [Suffix 2]



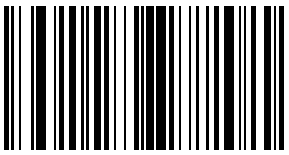
[Data] [Suffix 1] [Suffix 2]



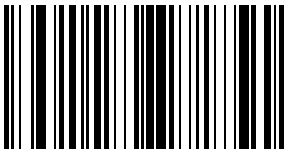
[Prefix] [Data]



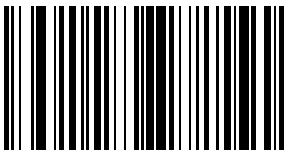
[Prefix] [Data] [Suffix 1]



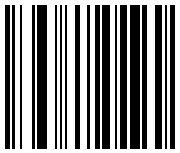
[Prefix] [Data] [Suffix 2]



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



Cancel



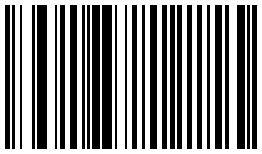
Transmit Code ID Character

Parameter Default Value: None

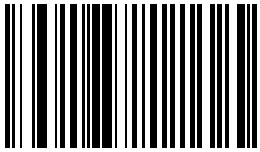
A code ID character identifies the code type of a scanned barcode. This may be useful when the scanner is decoding more than one code type. In addition to any single character prefix already selected, the code ID character is inserted between the prefix and the decoded symbol.

Scan one of the following barcodes to select either no code ID character, a Symbol Code ID character or an AIM Code ID character.

Transmit No Code ID Character

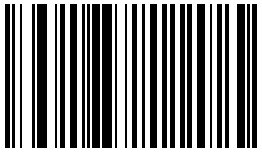


Transmit Symbol Code ID Character



A	UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13
B	Code 39, Code 32
C	Codabar
D	Code 128, ISBT 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 Omnidirectional (RSS-14), GS1 Limited (RSS-Limited), 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
Code 39		
	0	No Check character or Full ASCII processing.
	1	Reader has checked one check character.
	3	Reader has checked and stripped check character.
	4	Reader has performed Full ASCII character conversion.
	5	Reader has performed Full ASCII character conversion and checked one check character.
	7	Reader has performed Full ASCII character conversion and checked and stripped check character.
		Example:A Full ASCII barcode with check character W,A+I+MI+DW, is transmitted as]A7AimId where 7 = (3+4).
Trioptic Code 39		

Code Type	Option Value	Option
	0	No option specified at this time. Always transmit 0.
		Example:A Trioptic barcode 412356 is transmitted as]X0412356
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 barcode with Function 1 character in the first position, ^{FNC1} Aim Id is transmitted as]CIAimId
Interleaved 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 barcode without check digit, 4123, is transmitted as]I04123
Codabar		
	0	No check digit processing.
	1	Reader has checked check digit.
	3	Reader has stripped check digit before transmission.
		Example: A Codabar barcode without check digit, 4123, is transmitted as]F04123
Code 93		
	0	No options specified at this time. Always transmit 0.
		Example: A Code 93 barcode 012345678905 is transmitted as]G0012345678905
MSI (Plessey)		
	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 barcode 4123, with a single check digit checked, is transmitted as]M04123
Discrete 2 of 5		
	0	No options specified at this time. Always transmit 0.
		Example: A D 2 of 5 barcode 4123, is transmitted as]S04123
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
	4	EAN-8 data packet.
		Example: A UPC-A barcode 012345678905 is transmitted as]E00012345678905
Bookland EAN		
	0	No options specified at this time. Always transmit 0.
		Example: A Bookland EAN barcode 123456789X is transmitted as]X0123456789X

According to AIM standards, a UPC with supplemental barcode 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.

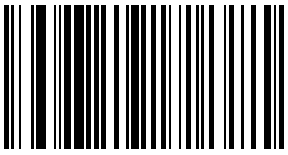
Laser On Time

Note: For correct operation, reboot the Bluetooth Ring Scanner after changing this value.

Parameter Default Value: 3.0 seconds

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 barcode:



Next, scan two numeric barcodes that correspond to the desired on time using the "Keypad Number Symbols" at the end of this chapter. Times less than 1.0 second must have a leading zero.

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

Linear Code Type Security Level (Redundancy Level)

Parameter Default Value: Level 1

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

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

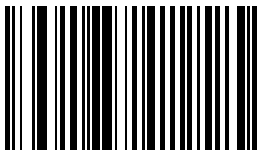
Select an option by scanning one of the barcodes shown below. If you wish to change your selection, scan Cancel.

Linear Security	
Level 1	The following code types must be successfully read twice before being decoded: Codabar : All lengths MSI Plessey : Length of 4 characters or less D 2 of 5 : Length of 8 characters or less 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: MSI Plessey : Length of 4 characters or less D 2 of 5 : Length of 8 characters or less I 2 of 5 : Length of 8 characters or less
Level 4	All code types must be successfully read three times before being decoded.

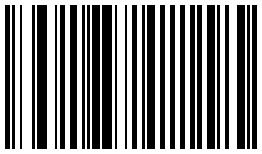
Note: Linear Code Type Security does not apply to Code 128.

Linear Security

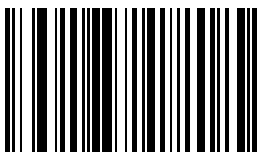
Level 1



Level 2



Level 3



Level 4

Parameter Scanning

Parameter Default Value: Enable

Use this parameter to decide whether scanner parameters can be set using the barcodes in this section.

Note: When this parameter is disabled, scan the Set Defaults parameter barcode to enable parameter scanning.

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

When enabled, scanners can be configured using the barcodes in this section.

Select a mode by scanning either of the barcodes shown below.

Enable Parameter Scanning

Disable Parameter Scanning

Power Mode

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

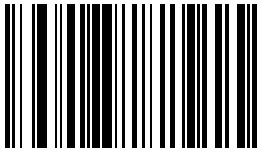
Parameter Default Value: Low Power

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

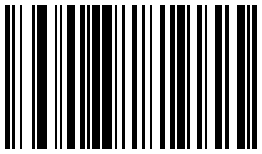
A parameter setting of Low Power means the laser scanner will enter low power mode after one second of waiting for a Scan button press. Pressing the Scan button will begin the decode sequence.

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

Continuous On



Low Power



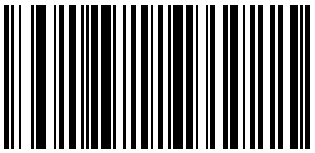
Scan Angle

Parameter Default Value: Wide Scan Angle

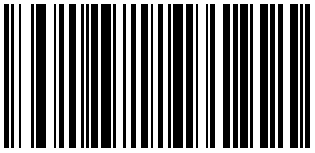
Choose one of the options below to set the scan angle to narrow or wide. The scan angle can be selected through scanning a parameter barcode. Once the parameter barcode is scanned, the Scan Angle setting is persistently stored.

Select an option by scanning one of the barcodes shown below.

Narrow Angle (35°)



Wide Angle



Simple Serial Interface (SSI) Options

The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

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

SSI Default Values

The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

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

Baud Rate

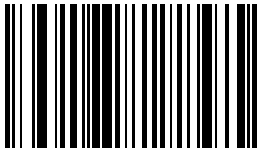
Baud Rate Parameter Default Value: 9600

Baud rate is the number of bits of data transmitted per second. The scanners 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.

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 barcode or reset the mobile device to factory default (or last saved good default) values.

Set this parameter by scanning this barcode.

9600 bps



The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

Decode Data Packet Format

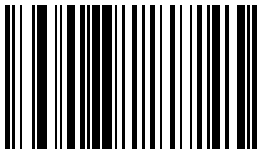
Decode Data Packet Parameter Default Value: Unpacketed

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

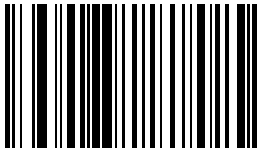
If the raw format is chosen, ACK/NAK handshaking is automatically disabled for decode data.

Set this parameter by scanning either of the following barcodes.

Send Raw Decode Data



Send Packeted Decode Data



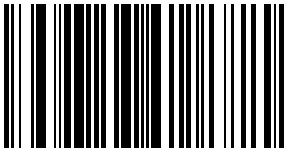
The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

Host Character Time-out

Host Character Time-out Parameter Default Value: 200 msec

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 barcode below, scan two numerical barcodes to set the desired time-out.

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



Next, scan two numeric barcodes that correspond to the desired value using the “Keypad Number Symbols” at the end of this chapter. 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 barcodes. A value of 30 msec is selected by scanning the “0” and the “3” barcodes.

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

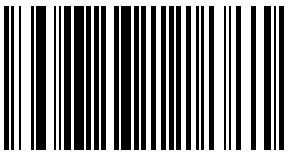
The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

Host Serial Response Time-out

Host Serial Response Time-out Parameter Default Value: 2 sec

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 barcode below, scan two numerical barcodes to set the delay.

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



Next, scan two numeric barcodes that correspond to the desired value using the "Keypad Number Symbols" at the end of this chapter. 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 barcodes. A value of 0.3 seconds is selected by scanning the "0" and the "3" barcodes.

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

The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

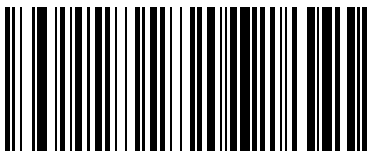
Intercharacter Delay

Intercharacter Delay Parameter Default Value: 0 msec

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 barcode below, scan two numerical barcodes to set the delay.

To begin setting the **delay value,** scan this barcode:



Next, scan two numeric barcodes that correspond to the desired value using the "Keypad Number Symbols" at the end of this chapter. 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 barcodes. A value of 6 msec is selected by scanning the "0" and the "6" barcodes.

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

The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

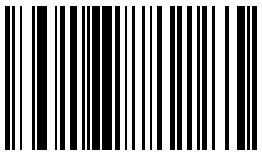
Parity

Parity Parameter Default Value: None

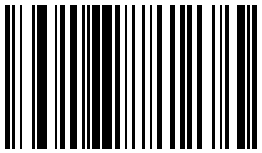
A parity check bit is the most significant bit of each ASCII coded character. Select the parity type according to host device requirements.

Set this parameter by scanning one of the following barcodes.

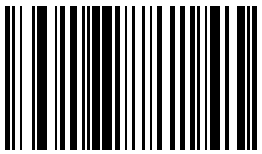
Odd Parity
The Odd parity bit has a value 0 or 1, based on data, to ensure that an odd number of 1 bits is contained in the coded character.



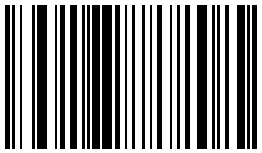
Even Parity
The Even parity bit has a value 0 or 1, based on data, to ensure that an even number of 1 bits is contained in the coded character.



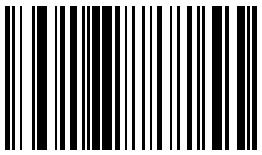
Mark Parity
The parity bit is always 1.



Space Parity
The parity bit is always 0.



No Parity
No parity is required.



The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

Software Handshaking

The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

Default Value: Enable

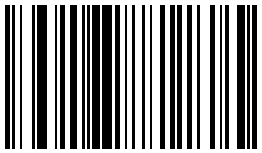
This parameter offers control of the data transmission process in addition to that offered by hardware handshaking.

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

Scan one of the following barcodes to set software handshaking.

Disable ACK/NAK Handshaking

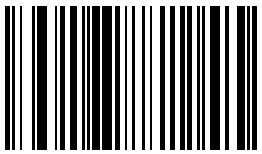
When this option is selected, the decoder will neither generate nor expect ACK/NAK handshaking packets.



Enable ACK/NAK Handshaking

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

The scanner waits up to the programmable Host Serial Response Time-out to receive an ACK or NAK. If the scanner 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

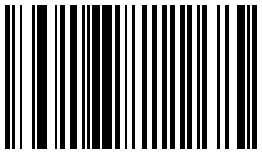
Parity Parameter Default Value: 1

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.

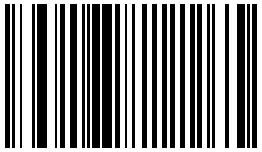
The number of stop bits selected (one or two) depends on the number the receiving computer is programmed to accommodate. Set the number of stop bits to match host device requirements.

Set this parameter by scanning one of the following barcodes.

One Stop Bit



Two Stop Bits



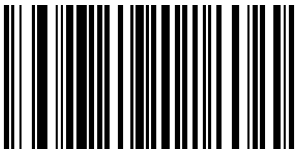
The SSI Options barcodes are directed toward the host programmer when writing host/scanner interface programs for different hosts. Contact LXE Customer Service for further assistance.

Time-out Between Decodes, Same Symbol

Parameter Default Value: 1.0 second

Use this parameter to prevent the beeper from continuously beeping when a symbol is left in the scanner's field of view.

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



Using the "Keypad Number Symbols" section at the end of this chapter, scan two numeric barcodes 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 barcode, then scan the number 0 and 5 barcodes.

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

Transmit “No Read / Decode” Message

Parameter Default Value: Disable

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

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

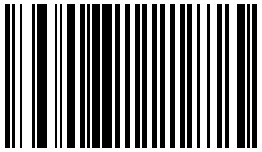
- A trigger pull activates the laser and decode processing, the processing continues until a trigger release, or
- The laser decode processing continues until the Laser On Timeout is reached.

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

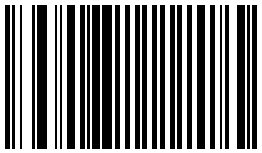
When disabled, and a symbol does not decode, no message is sent to the host.

Select an option by scanning either of the barcodes shown below.

Enable No Read



Disable No Read



Trigger Mode

Note: The LXE Bluetooth Ring Scanner Module with a linked scanner is designed to be operated in Host Trigger Mode. LXE recommends leaving the Trigger Mode default value unchanged for these devices.

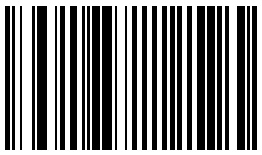
Parameter Default Value: Host

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.

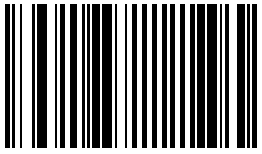
Trigger Mode	
Level	A trigger pull or Scan button press activates the laser and decode processing. The laser remains on and decode processing continues until a trigger release, a valid decode or the Laser On Time-out is reached.
Pulse	A trigger pull or Scan button press activates the laser and decode 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. See Also Time-out Between Same Symbol
Blinking	This trigger mode is used for triggerless scanning operations. Scanning range is reduced in this mode. This mode cannot be used with scanners that support an aim mode.
Host (default)	Triggering signal comes from a host command. Any actual trigger pull or Scan button press will be interpreted by the scanner engine as a Level triggering option.

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

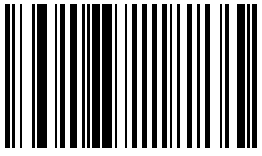
Level



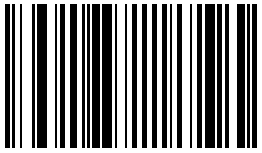
Pulse



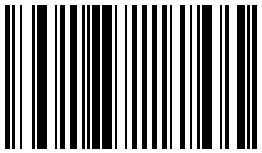
Continuous



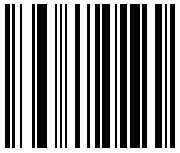
Blinking



Host



Cancel



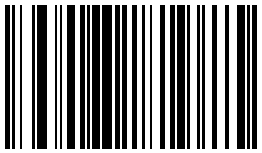
Scanner Parameters – Barcode Type Specific

Chinese 2 of 5

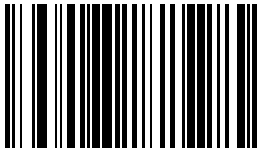
Parameter Default Value: Disable

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

Enable Chinese 2 of 5



Disable Chinese 2 of 5

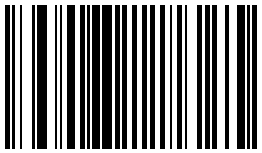


Codabar

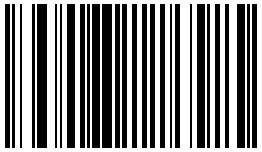
Parameter Default Value: Disable

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

Enable Codabar



Disable Codabar



CLSI Editing

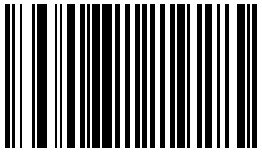
Parameter Default Value: Disable

When enabled, the start and stop characters are stripped from the barcode and a space is inserted after the 1st, 5th, and 10th characters of a 14 character Codabar symbol.

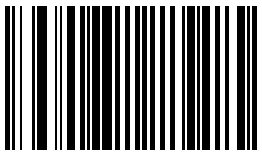
Set this parameter by scanning either of the barcodes shown below.

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

Enable CLSI Editing



Disable CLSI Editing

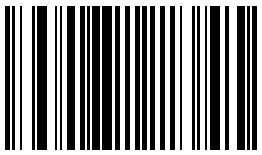


NOTIS Editing

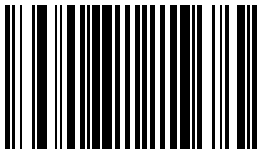
Parameter	Default Value:	Disable

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

Enable NOTIS Editing



Disable NOTIS Editing



Set Lengths for Codabar

L1 Parameter Default Value: 5

L2 Parameter Default Value: 55

Lengths for Codabar may be set for:

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

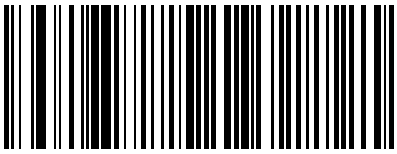
The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

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" barcode and then "1" and "4" barcodes using the "Keypad Number Symbols".

To begin setting **one discrete length**, scan this barcode:

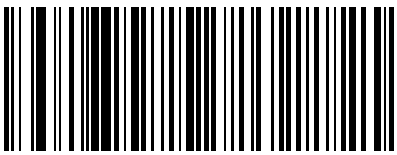


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

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" barcode and then "0", "2", "1" and "4" barcodes using the "Keypad Number Symbols" at the end of this chapter.

To begin setting **two discrete lengths**, scan this barcode:

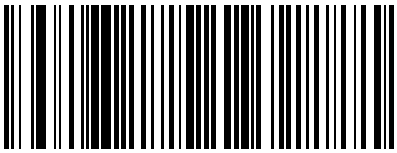


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

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” barcode and then “0”, “4”, “1” and “2” barcodes.

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

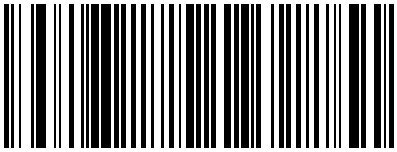


Next, scan numeric barcodes that correspond to the desired value using the “Keypad Number Symbols”. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

Any Length

This option decodes Codabar barcodes containing any number of characters.

To set **any length**, scan this barcode:



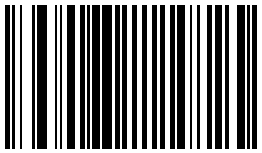
Code 11

Parameter Default Value: Disable

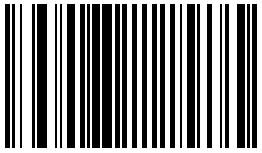
When enabled, Code 11 symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 11



Disable Code 11



Set Lengths for Code 11

L1 Parameter Default Value: 4

L2 Parameter Default Value: 55

Lengths for Code 11 may be set for:

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

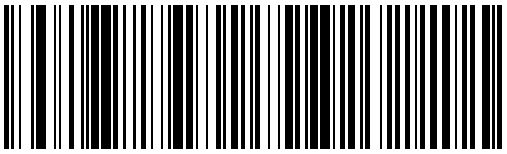
The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

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” barcode and then “1” and “4” barcodes using the “Keypad Number Symbols”.

To begin setting **one discrete length**, scan this barcode:

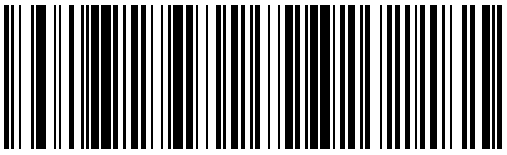


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “2”, “1” and “4” barcodes using the “Keypad Number Symbols” at the end of this chapter.

To begin setting **two discrete lengths**, scan this barcode:

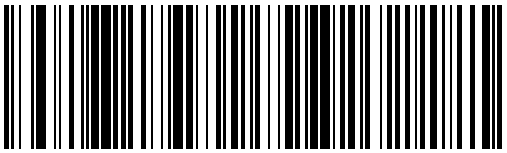


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes.

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

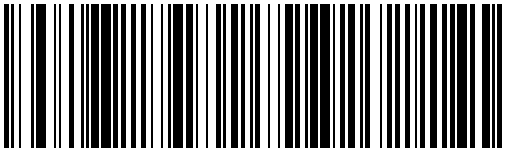


Next, scan numeric barcodes that correspond to the desired value using the “Keypad Number Symbols”. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

Any Length

This option decodes Code 11 barcodes containing any number of characters.

To set **any length,** scan this barcode:



Code 11 Check Digit Verification

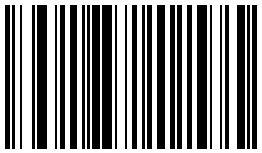
Parameter Default Value: Disable

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

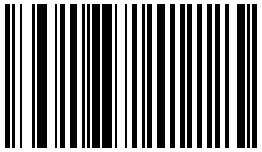
Note: Enable "Code 11 Check Digit Verification" when "Transmit Code 11 Check Digits" is enabled.

Set this parameter by scanning one of the barcodes shown below.

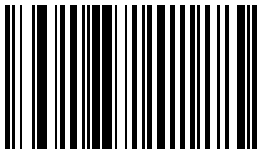
Disable this feature



One Check Digit



Two Check Digits

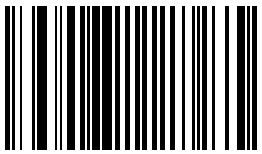


Transmit Code 11 Check Digits

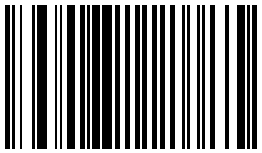
Parameter Default Value: Do Not Transmit (Disable)

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

Transmit (Enable)



Do Not Transmit (Disable)

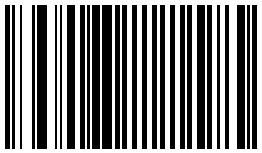


Code 128

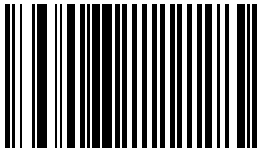
Parameter Default Value: Enable

Set this parameter by scanning either of the barcodes shown below.

Enable Code 128



Disable Code 128

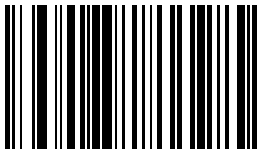


UCC/EAN-128

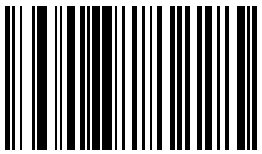
Parameter Default Value: Enable

Set this parameter by scanning either of the barcodes shown below.

Enable UCC/EAN-128



Disable UCC/EAN-128



UCC/EAN-128 is a convention for printing data fields with standard Code 128 barcode symbols. UCC/EAN-128 symbols are distinguished by a leading Function Code 1 (FNC1) character as the first or second character in the symbol. Other FNC1 characters are used to delineate fields.

When EAN-128 symbols are read, they are transmitted after special formatting strips off the leading FNC1 character, and replaces other FNC1 characters with the ASCII 29 GS control character.

When AIM symbology identifiers are transmitted, the modifier character indicates the position of the leading FNC1 character according to AIM guidelines. For example,]cI indicates a UCC/EAN-128 symbol with a leading FNC1 character.

Standard Code 128 barcodes which do not have a leading FNC1 may still be used, but are not encoded according to the EAN-128 convention. Standard Code 128 and UCC/EAN-128 may be mixed in an application. The scanner autodiscriminates between these symbols, and can enable or disable one or both code types via barcode menus. The following table indicates the behavior of the scanner in each of the four possible parameter settings.

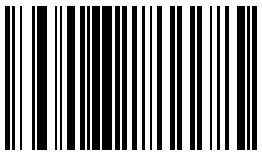
Standard Code 128	UCC/EAN 128	Effect and Example
Disable	Disable	**No Code 128 symbols can be read.**
Disable	Enable	**Read only symbols with leading FNC1.**
		Examples:
		^{FNC1}ABCD^{FNC1}E are read as ABCD^{29}E
		A^{FNC1}BCD^{FNC1}E are read as ABCD^{29}E
		^{FNC1FNC1}ABCD^{FNC1}E are read as ABCD^{29}E
		ABCD^{FNC1}E cannot be read
		ABCDE cannot be read
Enable	Disable	**Read only symbols without leading FNC1.**
		Examples:
		^{FNC1}ABCD^{FNC1}E cannot be read
		A^{FNC1}BCD^{FNC1}E cannot be read
		^{FNC1FNC1}ABCD^{FNC1}E cannot be read
		ABCD^{FNC1}E is read as ABCD^{29}E
		ABCDE is read as ABCDE
Enable	Enable	**Read both types of symbols.**
		Examples:
		^{FNC1}ABCD^{FNC1}E are read as ABCD^{29}E
		A^{FNC1}BCD^{FNC1}E are read as ABCD^{29}E
		^{FNC1FNC1}ABCD^{FNC1}E are read as ABCD^{29}E
		ABCD^{FNC1}E is read as ABCD^{29}E
		ABCDE is read as ABCDE

ISBT-128

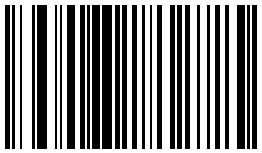
Parameter Default Value: Enable

Set this parameter by scanning either of the barcodes shown below.

Enable ISBT-128



Disable ISBT-128



Lengths for Code 128

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

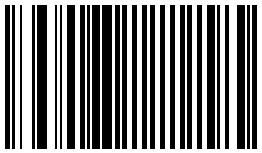
Code 39

Parameter Default Value: Enable

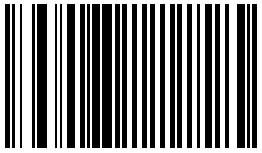
Note: This parameter must be enabled when "Convert Code 39 to Code 32" is to be enabled.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 39



Disable Code 39



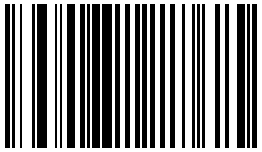
Code 39 Check Digit Verification

Parameter Default Value: Disable

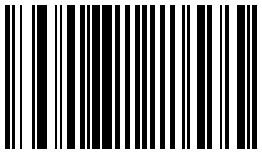
When enabled, this parameter checks the integrity of a Code 39 symbol to ensure it complies with specified algorithms. Only those Code 39 symbols which include a modulo 43 check digit are decoded when this parameter is enabled.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 39 Check Digit Verification



Disable Code 39 Check Digit Verification



Code 32 Prefix

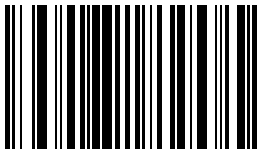
Parameter Default Value: Disable

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

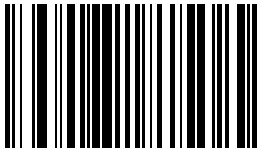
Note: When enabled, "Convert Code 39 to Code 32" parameter must also be enabled.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 32 Prefix



Disable Code 32 Prefix



Convert Code 39 to Code 32

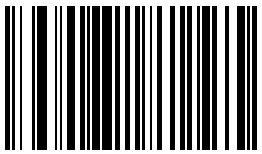
Note: Code 39 must be enabled in order for this parameter to function.

Parameter Default Value: Disable

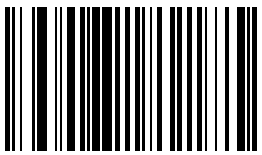
Note: When parameter "Code 32 Prefix" is to be enabled, this Convert Code 39 to Code 32 (Italian Pharma Code) parameter must also be enabled.

Set this parameter by scanning either of the barcodes shown below.

Enable Convert Code 39 to Code 32



Disable Convert Code 39 to Code 32



Code 39 Full ASCII Conversion

Parameter Default Value: Disable

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.

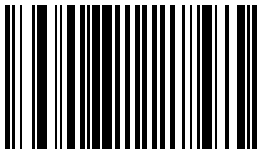
The first 32 codes are non-printable and are assigned to keyboard control characters such as [Backspace] and [Return or Enter]. The other 96 are called printable codes because all but [Space] and [Delete] produce visible characters.

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

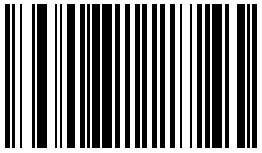
See the table titled "ASCII Character Equivalents".

Set this parameter by scanning either of the barcodes shown below.

Enable Code 39 Full ASCII Conversion



Disable Code 39 Full ASCII Conversion



Set Lengths for Code 39

L1 Parameter Default Value: 2

L2 Parameter Default Value: 55

Lengths for Code 39 may be set for:

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

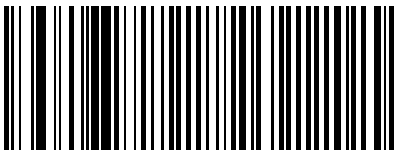
The length of a code refers to the number of characters, including check digits, the code contains. If "Code 39 Full ASCII" is enabled, "Length Within a Range" or "Any Length" are the preferred options.

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" barcode and then "1" and "4" barcodes using the "Keypad Number Symbols" at the end of this chapter.

To begin setting **one discrete length**, scan this barcode:

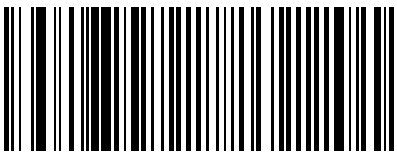


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

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" barcode and then "0", "2", "1" and "4" barcodes using the "Keypad Number Symbols" at the end of this chapter.

To begin setting **two discrete lengths**, scan this barcode:

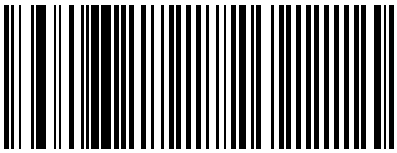


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Keypad Number Symbols”.

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

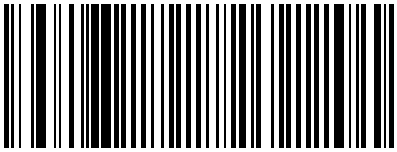


Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

Code 39 Any Length

This option decodes Code 39 barcodes containing any number of characters.

To set **any length,** scan this barcode:



Transmit Code 39 Check Digit

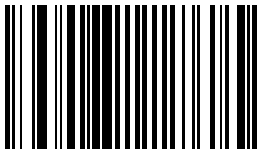
Parameter Default Value: Disable

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

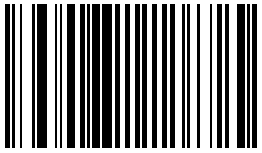
Parameter setting for “Code 39 Check Digit Verification” has no effect on this parameter value.

Set this parameter by scanning either of the barcodes shown below.

Enable Transmit Code 39 Check Digit



Disable Transmit



Trioptic Code 39

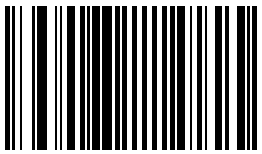
Parameter Default Value: Disable

Trioptic Code 39 symbols always contain six characters.

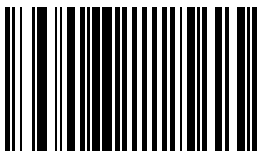
Note: When Trioptic Code 39 is enabled, set the “Code 39 Full ASCII” parameter to disabled. Both parameters should not be enabled simultaneously.

Set this parameter by scanning either of the barcodes shown below.

Enable Trioptic Code 39



Disable Trioptic Code 39

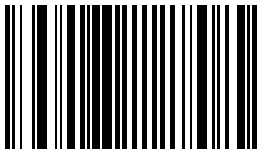


Code 93

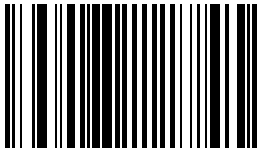
Parameter Default Value: Disable

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

Enable Code 93



Disable Code 93



Set Lengths for Code 93

L1 Parameter Default Value: 4

L2 Parameter Default Value: 55

Lengths for Code 93 may be set for:

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

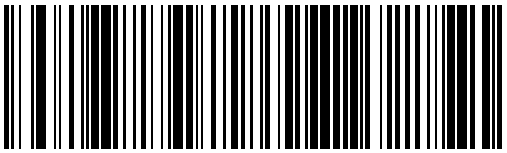
The length of a code refers to the number of characters, including check digits, the code contains.

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” barcode and then “1” and “4” barcodes using the barcodes on the “Keypad Number Symbols” page.

To begin setting **one discrete length**, scan this barcode:

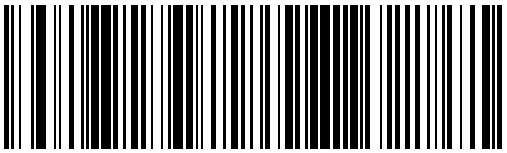


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “2”, “1” and “4” barcodes using the “Keypad Number Symbols” at the end of this chapter.

To begin setting **two discrete lengths**, scan this barcode:

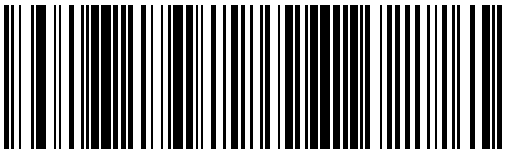


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Keypad Number Symbols” at the end of this chapter.

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

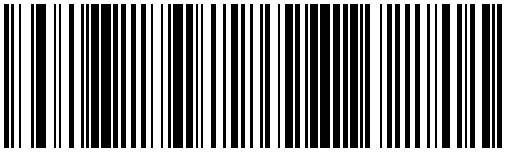


Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

Any Length

This option decodes Code 93 barcodes containing any number of characters.

To set **any length**, scan this barcode:

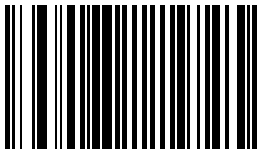


Discrete 2 of 5

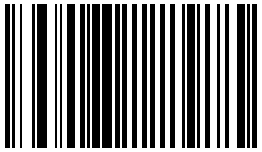
Parameter Default Value: Disable

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 barcodes shown below.

Enable Discrete 2 of 5



Disable Discrete 2 of 5



Set Lengths for Discrete 2 of 5

L1 Parameter Default Value:1 Discrete Length: 12

L2 Parameter Default Value: 12

Lengths for D 2 of 5 may be set for:

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

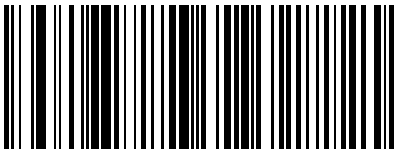
The length of a code refers to the number of characters, including check digits, the code contains.

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” barcode and then “1” and “4” barcodes using the barcodes on the “Keypad Number Symbols” page.

To begin setting **one discrete length**, scan this barcode:

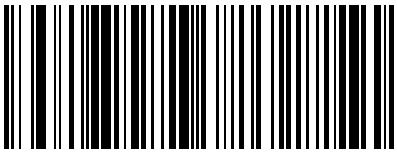


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “2”, “1” and “4” barcodes using the “Keypad Number Symbols” .

To begin setting **two discrete lengths**, scan this barcode:

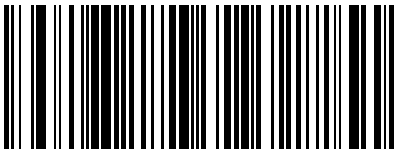


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Keypad Number Symbols”.

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



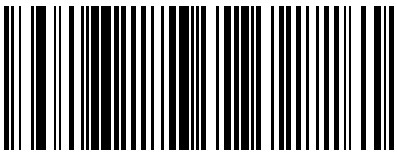
Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

Any Length

This option decodes D 2 of 5 barcodes 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 barcode:



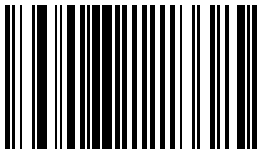
Interleaved 2 of 5

Parameter Default Value: Enable

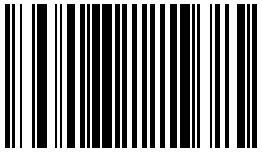
When enabled, Interleaved 2 of 5 (I 2 of 5) symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable Interleaved 2 of 5



Disable Interleaved 2 of 5



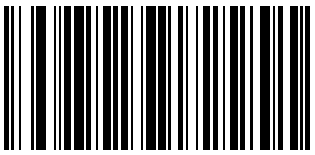
I 2 of 5 Digit Verification

Parameter Default Value: Disable

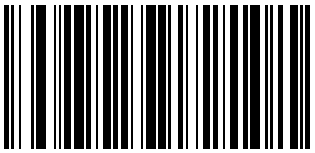
When enabled, this parameter checks the integrity of an I 2 of 5 symbol to ensure it complies with a specified algorithm, either USS (Uniform Symbology Specification) or OPCC (Optical Product Code Council).

Set this parameter by scanning one of the barcodes shown below.

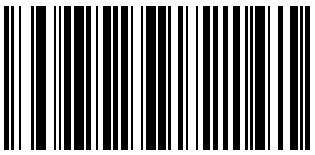
Disable I 2 of 5 Check Digit Verification



USS Check Digit



OPCC Check Digit



Convert I 2 of 5 to EAN-13

Parameter Default Value: Disable

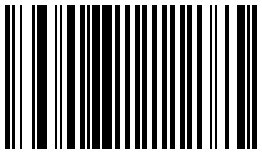
A successful barcode conversion requires the following to be true:

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

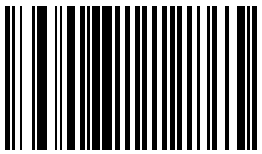
When enabled, the parameter converts a 14 character Interleaved 2 of 5 barcode into EAN-13 and transmits it to the host as EAN-13.

Set this parameter by scanning either of the barcodes 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

L1 Parameter Default Value: 14

L2 Parameter Default Value: 14

Lengths for I 2 of 5 may be set for:

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

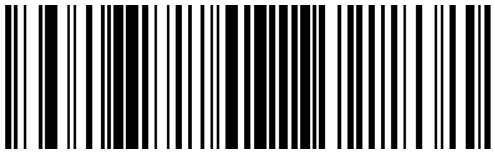
The length of a code refers to the number of characters, including check digits, the code contains.

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" barcode and then the "1" and "4" barcodes using the "Keypad Number Symbols".

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

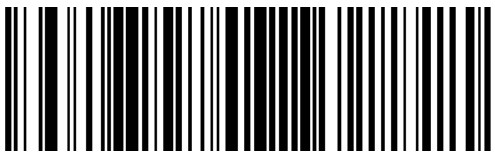


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

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" barcode and then "0", "2", "1" and "4" barcodes using the "Keypad Number Symbols" at the end of this chapter.

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

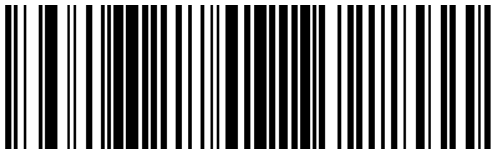


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the "Keypad Number Symbols" page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Keypad Number Symbols” at the end of this chapter.

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



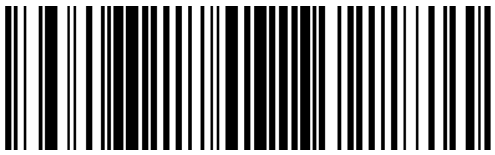
Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

Any Length

This option decodes I 2 of 5 barcodes 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” barcode:



Transmit I 2 of 5 Check Digit

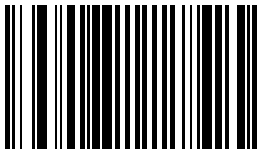
Parameter Default Value: Disable

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

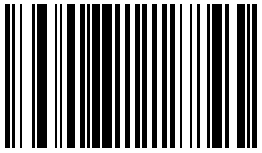
Parameter setting for "I 2 of 5 Check Digit Verification" has no effect on this parameter value.

Set this parameter by scanning either of the barcodes shown below.

Enable Transmit I 2 of 5 Check Digit



Disable Transmit I 2 of 5 Check Digit



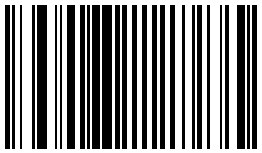
MSI Plessey

Parameter Default Value: Disable

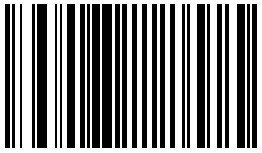
When enabled, MSI Plessey symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable MSI



Disable MSI



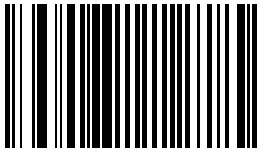
MSI Plessey Check Digit Algorithm

Parameter Default Value: Mod10/Mod10

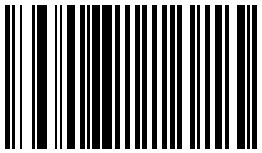
When the "Two MSI Plessey Check Digits" option is selected, an additional verification is required to ensure integrity. Either of the two following algorithms may be selected.

Set this parameter by scanning either of the algorithm barcodes shown below.

Mod 10/Mod 11



Mod 10/Mod 10



MSI Plessey Check Digits

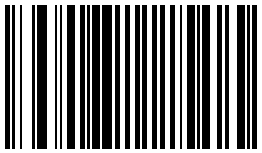
Parameter Default Value: One

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

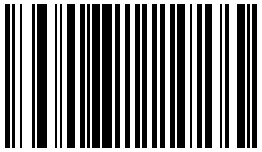
Note: When Two Check Digits is selected, an "MSI Plessey Check Digit Algorithm" must also be selected.

Set the number of check digits to be included with the barcode by scanning either of the barcodes shown below.

One MSI Plessey check digit



Two MSI Plessey check digits



Set Lengths for MSI Plessey

L1 Parameter Default Value: 06

L2 Parameter Default Value: 55

Lengths for MSI Plessey may be set for:

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

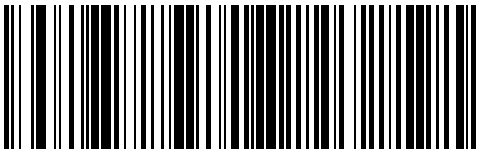
The length of a code refers to the number of characters, including check digits, the code contains.

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” barcode and then “1” and “4” barcodes using the “Keypad Number Symbols”.

To begin setting **one discrete length**, scan this barcode:

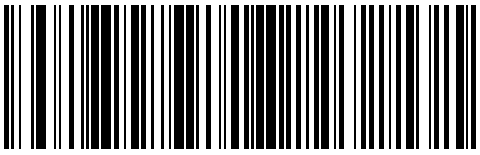


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “2”, “1” and “4” barcodes using the “Keypad Number Symbols” .

To begin setting **two discrete lengths**, scan this barcode:

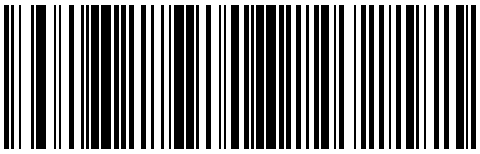


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Keypad Number Symbols”.

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



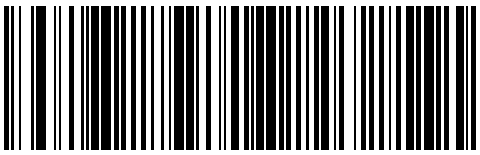
Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. If you wish to change your number selection, scan Cancel on the “Keypad Number Symbols” page.

Any Length

This option decodes MSI Plessey barcodes containing any number of characters.

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

To set **any length,** scan this barcode:



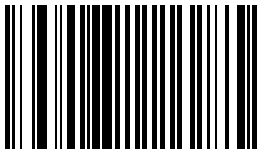
Transmit MSI Plessey Check Digit

Parameter Default Value: Disable

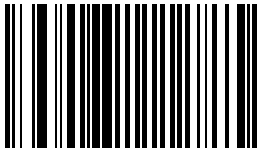
When enabled, the check digit is transmitted with the data.

Set this parameter by scanning either of the barcodes shown below.

Enable Transmit MSI Plessey Check Digit



Disable Transmit MSI Plessey Check Digit



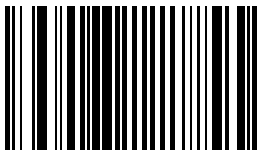
UPC/EAN

UPC-A

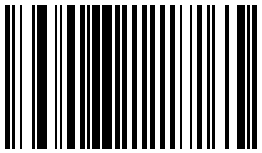
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable UPC-A



Disable UPC-A

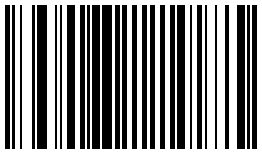


UPC-E

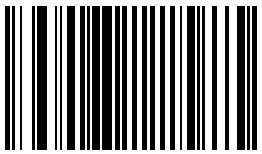
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable



Disable

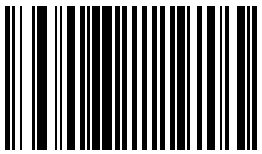


UPC-E1

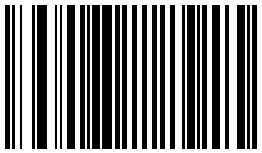
Parameter Default Value: Disable

Select an option by scanning either of the barcodes shown below.

Enable UPC-E1



Disable UPC-E1

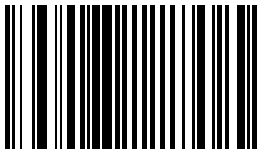


EAN-8

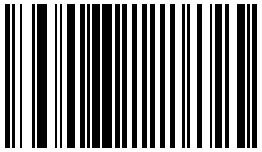
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable EAN-8



Disable EAN-8

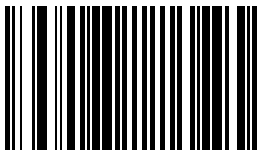


EAN-13

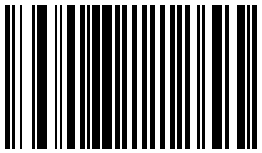
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable EAN-13



Disable EAN-13

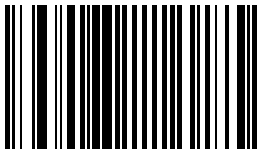


Bookland EAN

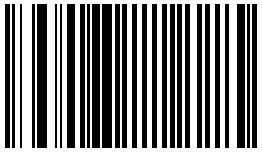
Parameter Default Value: Disable

Select an option by scanning either of the barcodes shown below.

Enable Bookland EAN



Disable Bookland EAN



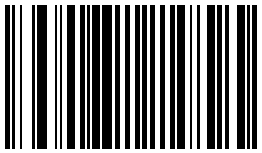
Check Digits

Transmit UPC-A Check Digit

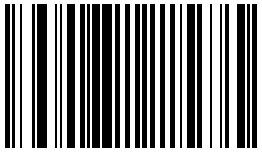
Parameter Default Value: Enable

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 barcodes shown below.

Enable Transmit UPC-A Check Digit



Disable Transmit UPC-A Check Digit

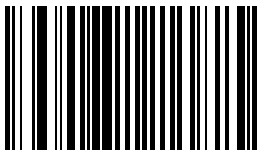


Transmit UPC-E Check Digit

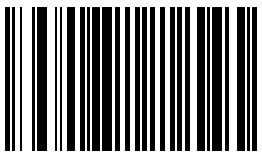
Parameter Default Value: Enable

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 barcodes shown below.

Enable Transmit UPC-E Check Digit



Disable Transmit UPC-E Check Digit



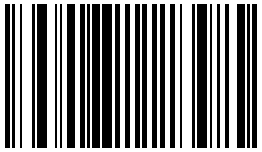
Transmit UPC-E1 Check Digit

Parameter Default Value: Enable

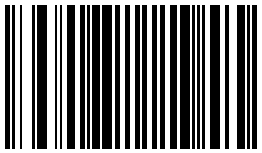
This parameter determines whether the symbol will be transmitted with or without the UPC-E1 check digit.

Select an option by scanning either of the barcodes shown below.

Enable Transmit UPC-E1 Check Digit



Disable Transmit UPC-E1 Check Digit



Conversions

Convert UPC-E to UPC-A

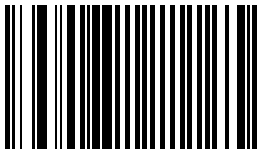
Parameter Default Value: Disable

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.).

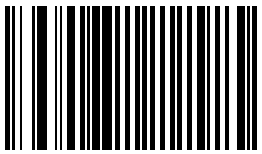
When disabled, UPC-E (zero suppressed) decoded data is transmitted without conversion.

Select an option by scanning either of the barcodes shown below.

Enable UPC-E to UPC-A conversion



Disable UPC-E to UPC-A conversion



Convert UPC-E1 to UPC-A

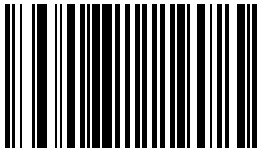
Parameter Default Value: Disable

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.).

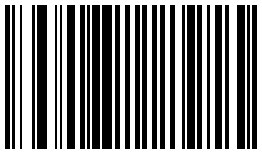
When disabled, UPC-E1 (zero suppressed) decoded data is transmitted without conversion.

Select an option by scanning either of the barcodes shown below.

Enable UPC-E1 to UPC-A conversion



Disable UPC-E1 to UPC-A conversion



Convert EAN-8 to EAN-13 Type

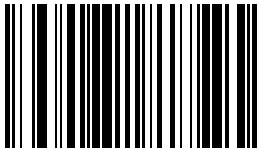
Parameter Default Value: Type is EAN-13

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

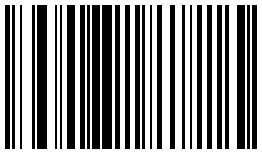
When “EAN-8 Zero Extend” is disabled, this parameter’s conversion setting is ignored.

Select an option by scanning either of the barcodes shown below.

Type is EAN-13



Type is EAN-8



Preambles

UPC-A Preamble

Parameter Default Value: System Character

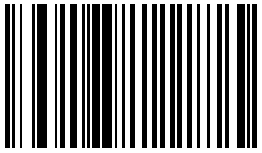
A preamble is a lead-in character for UPC-A symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

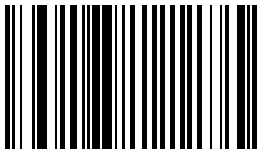
No Preamble	[data]
System Character	[schar] [data]
System Character and Country Code	[country code] [schar] [data]

Select an option by scanning one of the barcodes shown below.

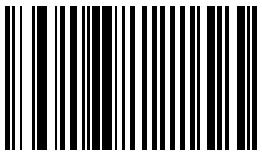
No UPC-A Preamble
<DATA>



System Character
<SYSTEM CHARACTER><DATA>



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



UPC-E Preamble

Parameter Default Value: System Character

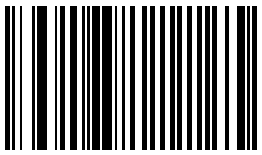
A preamble is a lead-in character for UPC-E symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

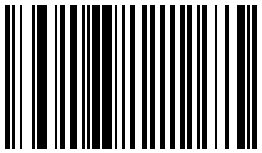
No Preamble	[data]
System Character	[schar] [data]
System Character and Country Code	[country code] [schar] [data]

Select an option by scanning one of the barcodes shown below.

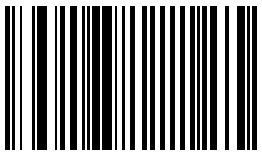
No UPC-E Preamble
<DATA>



System Character
<SYSTEM CHARACTER><DATA>



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



UPC-E1 Preamble

Parameter Default Value: System Character

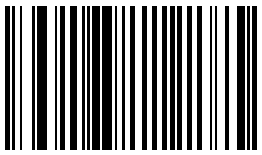
A preamble is a lead-in character for UPC-E1 symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

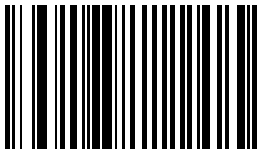
No Preamble	[data]
System Character	[schar] [data]
System Character and Country Code	[country code] [schar] [data]

Select an option by scanning one of the barcodes shown below.

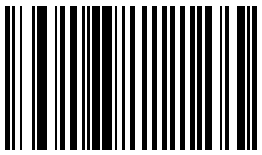
No UPC-E1 Preamble
<DATA>



System Character
<SYSTEM CHARACTER><DATA>



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



Supplementals

Decode UPC/EAN Supplementals

Parameter Default Value: Ignore

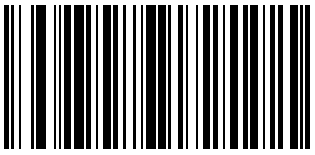
Note: In order to minimize the risk of invalid data transmission, LXE recommends that you select whether to read or ignore supplemental characters.

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

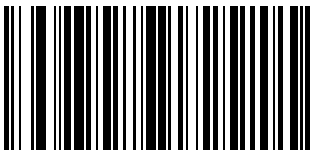
Decode UPC/EAN with Supplementals	UPC/EAN symbols without supplemental characters are not decoded.
Ignore UPC/EAN with Supplementals	When a UPC/EAN plus supplemental symbol is scanned, the UPC/EAN is decoded and the supplemental characters ignored.
Autodiscriminate UPC/EAN Supplementals	When this option 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 scanner will identify supplementals for EAN-13 barcodes that start with a 378 or 379 prefix only. All other UPC/EAN codes are decoded immediately and the supplemental characters ignored.
Enable 978 Supplemental Mode	The scanner will identify supplementals for EAN-13 barcodes that start with a 978 prefix only. All other UPC/EAN codes are decoded immediately and the supplemental characters ignored.
Enable Smart Supplemental Mode	The scanner will identify supplementals for EAN-13 barcodes that start with a 378, 379 or 978 prefix only. All other UPC/EAN codes are decoded immediately and the supplemental characters ignored.

Select an option by scanning one of the barcodes shown below.

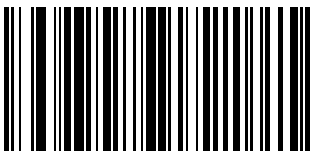
Decode UPC/EAN with Supplementals



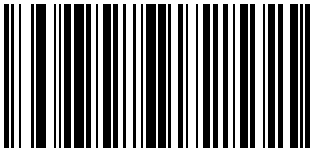
Ignore UPC/EAN with Supplementals



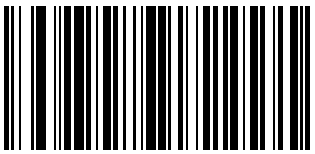
Autodiscriminate UPC/EAN Supplementals



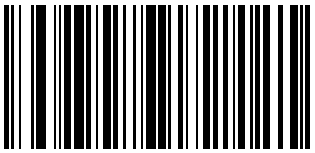
Enable 378/379 Supplemental Mode



Enable 978 Supplemental Mode



Enable Smart Supplemental Mode

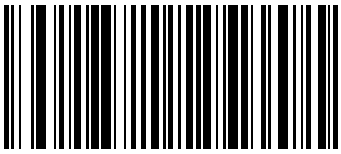


Decode UPC/EAN Supplemental Redundancy

Parameter Default Value: 7 Times

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.

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



Next, scan two numeric barcodes 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

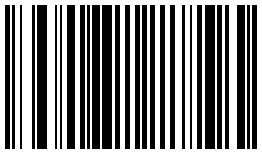
Parameter Default Value: Disable

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.

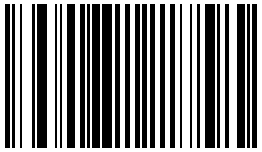
When disabled, EAN-8 symbols are transmitted as is and parameter "Convert EAN-8 to EAN-13 Type" setting is ignored.

Select an option by scanning either of the barcodes shown below.

Enable EAN-8 Zero Extend



Disable EAN-8 Zero Extend



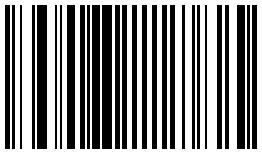
UCC Coupon Extended Code

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

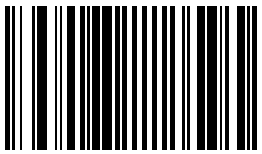
Parameter Default Value: Disable

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

Enable UCC Coupon Extended Code



Disable UCC Coupon Extended Code



UPC/EAN Security Level

Parameter Default Value: Level 0

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

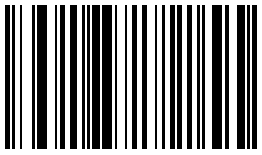
There are four decode security levels. Higher security levels are selected for decreasing levels of barcode quality. As security levels increase, the scanners aggressiveness decreases.

UPC / EAN Security Level	
Level 0	The default setting. Allows the scanner to operate in its most aggressive state, while providing sufficient security in decoding "in-spec" UPC/EAN barcodes.
Level 1	Misdecode 1,2,7,8 As barcode 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.
Level 2	Misdecodes not 1,2,7,8 Select this security level upon experiencing misdecodes of poorly printed barcodes and the misdecodes are not limited to characters 1,2,7 and 8.
Level 3	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 barcodes. This level significantly impairs the decoding ability of the scanner. If this level of security is necessary, you should try to improve the quality of your barcodes.

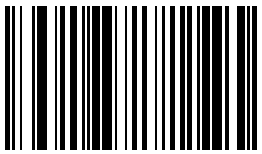
Select an option by scanning one of the barcodes shown below. If you wish to change your selection, scan Cancel.

UPC/EAN Security Level

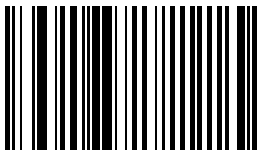
Level 0



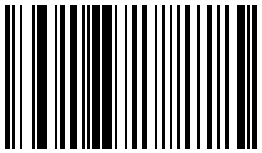
Level 1



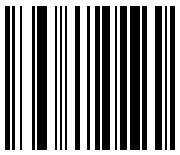
Level 2



Level 3



Cancel

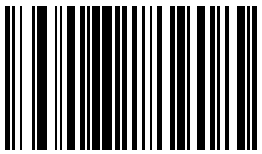


GS1 DataBar (RSS) Codes

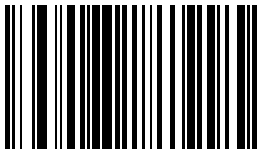
Parameter Default Value: All Parameters : Disable

GS1 DataBar Omnidirectional (RSS-14)

Enable GS1 DataBar Omnidirectional (RSS-14)

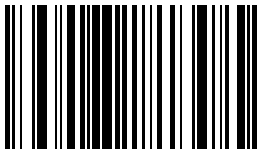


Disable GS1 DataBar Omnidirectional (RSS-14)

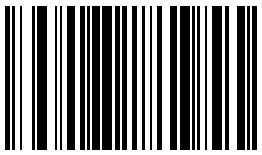


GS1 DataBar Limited (RSS-Limited)

Enable GS1 DataBar Limited (RSS-Limited)

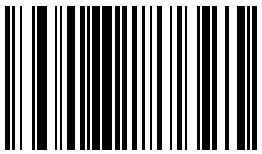


Disable GS1 DataBar Limited (RSS-Limited)

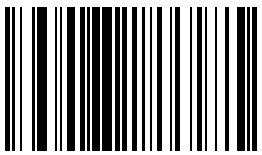


GS1 DataBar Expanded (RSS-Expanded)

Enable GS1 DataBar Expanded (RSS-Expanded)



Disable GS1 DataBar Expanded (RSS-Expanded)



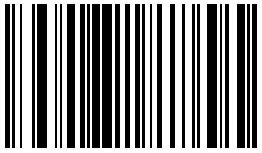
Convert GS1 DataBar (RSS) to UPC/EAN

Parameter Default Value: Disable

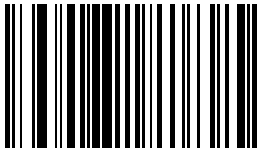
This parameter only applies to GS1 DataBar Omnidirectional (RSS-14) and GS1 DataBar Limited (RSS Limited) symbols. When this conversion is enabled, GS1 DataBar Omnidirectional (RSS-14) and GS1 DataBar Limited (RSS Limited) symbols encoding a single zero as the first digit have the leading '010' stripped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

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

Enable Convert GS1 DataBar (RSS) to UPC/EAN



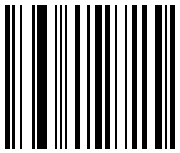
Disable Convert GS1 DataBar (RSS) to UPC/EAN



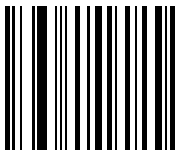
Keypad Number Symbols

The barcode 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.

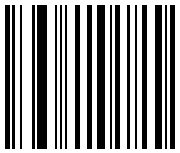
0



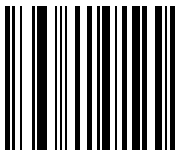
1



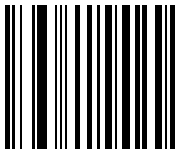
2



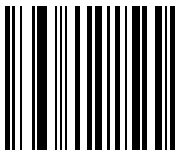
3



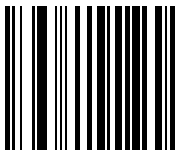
4



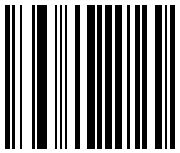
5



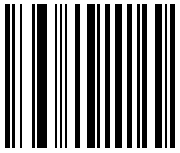
6



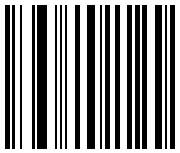
7



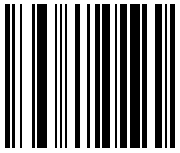
8



9



Cancel



Symbol Laser Imager Programming Barcodes

These barcodes, explanations and instructions are for programming the Symbol laser imager engine in your ring imager. Please do not scan the barcodes in this section with any other imager or laser engine.

Introduction

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

Assumption: The user is familiar with Windows CE 5 on-screen functions.

Scan engine manufacturers may offer more barcodes and options than are contained in this chapter. Please note that the barcodes in this chapter are only those supported by LXE and the mobile devices it manufactures or supports. If you need assistance when using the barcodes in this chapter, please contact your LXE representative.

To change a parameter value: Scan the appropriate barcode in this chapter. 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 barcode 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
Discrete 2 of 5	MicroQR
Interleaved 2 of 5	QR Code / QR Inverse
MSI Plessey	GS1 DataBar (RSS)
UPC / EAN	Postal Codes

Note: The default value for all Postal Code symbologies is "Enabled." For best performance when reading a specific postal symbology, all other postal symbologies should be disabled.

Prefix / Suffix

Ring decoder engine prefix and suffix parameters should not be set, changed, or reset using the Prefix and Suffix barcodes shown in this section. When the Bluetooth Ring Scanner Module is reset to defaults, the prefix and suffix settings revert to their default values and need to be scanned again. Use the Scanner Control Panel in the host computer to store prefix and suffix values.

Refer to “Scanner” in the host Reference Guide (e.g. HX2, HX3) 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

Ring Imager, SE4400 Parameter	Default
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 (no barcode 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	Not Supported
Prefix / Suffix Values	Not Supported
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*
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

Ring Imager, SE4400 Parameter	Default
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
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

Ring Imager, SE4400 Parameter	Default
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
Japan Postal	Enable
Australian Postal	Enable
Dutch Postal	Enable
Transmit US Postal Check Digit	Enable
RSS (Reduced Space Symbology)	
RSS 14	Enable
RSS Limited	Enable
RSS Expanded	Enable
Convert RSS 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 Symbologies	
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*

Ring Imager, SE4400 Parameter	Default
Escape Characters	*Not Supported*
Flush Macro PDF Buffer	*Not Supported*
Abort Macro PDF Entry	*Not Supported*

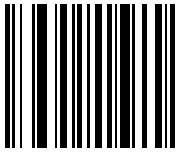
Set All Defaults/Cancel Barcodes

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

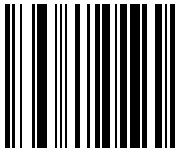
Note: When the Parameter Scanning parameter is disabled, the scan engine can still scan the Set All Defaults barcode. Default value of Parameter Scanning is Enable.

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

Set All Defaults



Cancel



See Pre-Configured Default Values for an alphabetical listing of all default values.

Enable / Disable Parameter Scanning

Parameter Default Value: Enable

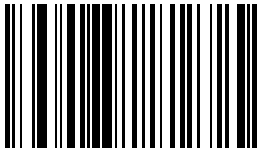
Use this parameter to decide whether scanner parameters can be set using the barcodes in this chapter.

Note: When this parameter is disabled, scan the Set All Defaults parameter barcode to enable parameter scanning.

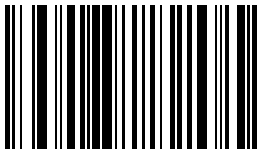
When disabled, either scan the Enable Parameter Scans barcode or the Set All Defaults barcode to reset the parameter. When enabled, scanners can be configured using the barcodes in this chapter.

Select a mode by scanning either of the barcodes 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 barcode wedge panel (Control Panel Scanner or Data Collection wedge panel) resident on the host mobile device. Barcode manipulation parameters assigned using the Barcode Wedge panels are applied to the data resulting from successful barcode scans.

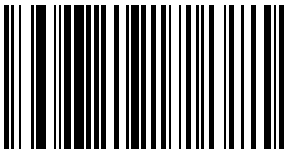
See also: *[your device specific]* Reference Guide

Decode Session Timeout

Parameter Default Value: 9.9 Seconds

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.

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



Next, scan two numeric barcodes 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.

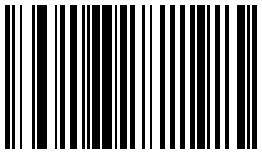
Decode Aiming Pattern

Note: This parameter only applies when in Decode Mode. See Operational Mode.

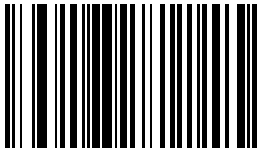
Parameter Default Value: Enable

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

Enable Decode Aiming Pattern



Disable Decode Aiming Pattern



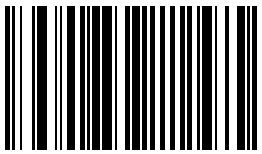
Decoding Autoexposure

Parameter Default Value: Enable

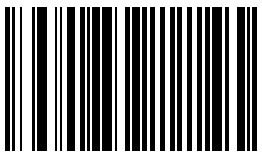
Select Enable Autoexposure to allow the imager to control gain settings and exposure (integration) time to best capture an image for the selected operation mode.

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.

Parameter Default Value: Enable Decoding Illumination

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

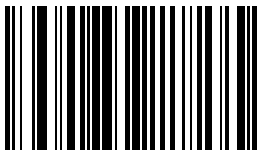
Enable this parameter for LED illumination upon every decode. The effectiveness of the illumination decreases as the distance to the target increases.

Disable this parameter to prevent LED illumination.

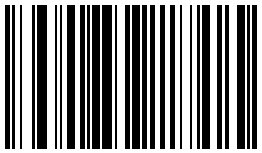
See LED Illumination.

Select a setting by scanning one of the barcodes shown below.

Enable Illumination



Disable Illumination



Focus Mode

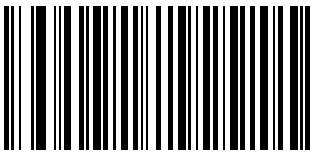
Parameter Default Value: Far Focus

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

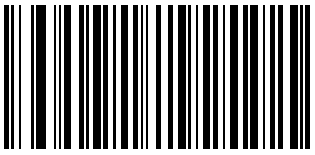
- When Far Focus is selected, the imager is optimized to read at its far position.
- With Near Focus, the imager is optimized to read at its near position.
- Smart Focus toggles the focus position after every frame. There may be audible signals from the ring imager as Smart Focus toggles after every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

Scan the appropriate barcode below.

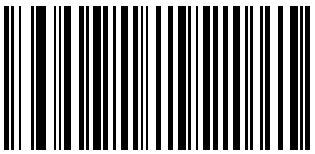
Far Focus



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.

Parameter Default Value: 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.

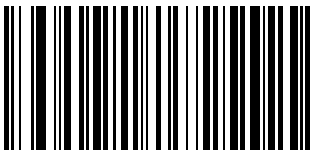
External illumination setting turns the LEDs off during scan mode.

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

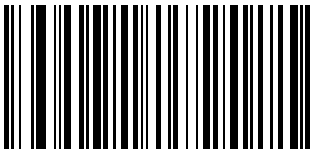
See Decoding Illumination.

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

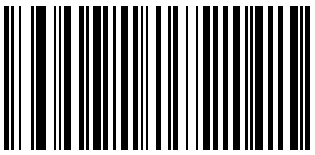
Internal Illumination



External Illumination



Internal and External Illumination



Operational Mode

Parameter Default Value: Decode Mode

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

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

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.

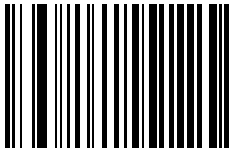
To disable the laser aiming pattern during Snapshot Mode, see Snapshot Aiming Pattern (not supported in this version).

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.

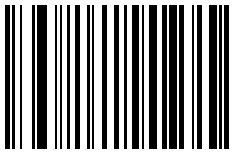
In Video mode the decoder behaves as a video camera as long as the trigger is active. When the trigger is released the imager returns to Decode Mode.

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

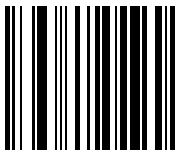
Snapshot Mode



Video Mode



Cancel



Power Mode

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

Parameter Default Value: PL4407: Low Power MS4407: Continuous On

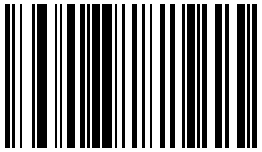
A parameter setting of Continuous On means the laser will not power down until the mobile device is powered off.

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.

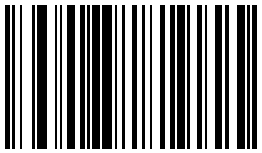
See Time Delay to Low Power Mode.

Select a Power Mode by scanning either of the barcodes 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 barcode that enters its field of view, determine a good read/bad read, then scan again.

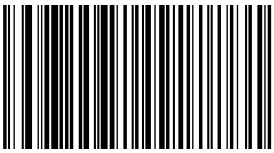
This parameter determines how long the ring decoder will attempt to decode a barcode before determining if it is a good read or a bad read.

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

See also Trigger Modes.

Parameter Default Value: 2 Seconds

To set the duration of the attempt to decode a barcode detected in presentation mode, scan the **Presentation Mode Session Timeout** barcode below.



Next scan three numeric barcodes 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 barcode, then scan the 0, 0, 5 barcodes from the section titled Imager Keypad Number Symbols. To correct an error or change the selection, scan the Cancel barcode and try again.

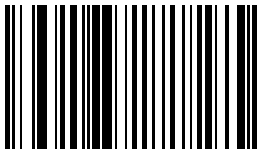
Time Delay to Low Power Mode

Parameter Default Value: 1 Second

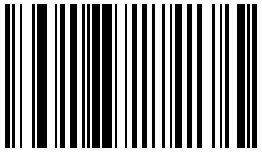
This parameter sets the time the decoder remains active after decoding. The decoder wakes upon a Scan button press or when the host attempts to communicate with the decoder.

This parameter only applies when Power Mode is set to Low Power.

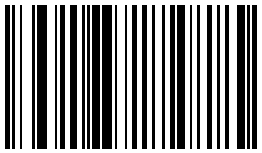
1 Second Delay



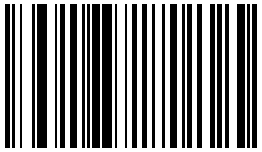
5 Second Delay



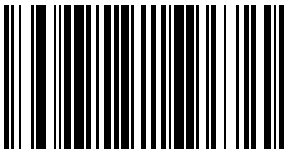
1 Minute Delay



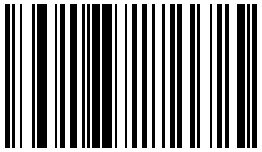
5 Minute Delay



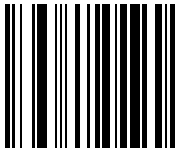
15 Minute Delay



60 Minute Delay



Cancel

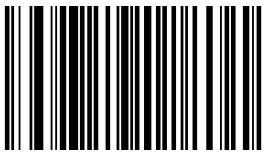


Time-out between Decodes, Same Symbol

Parameter Default Value: 0.6 Seconds

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 barcode 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 barcode, then scan two numeric barcodes from the Imager Keypad Number Symbols at the end of this chapter that correspond to the desired interval, in 0.1 second increments.



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: LXE mobile devices with ring decoders are designed to be operated in Level Trigger Mode. LXE recommends leaving the Trigger Mode default value unchanged.

Parameter Default Value: 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.

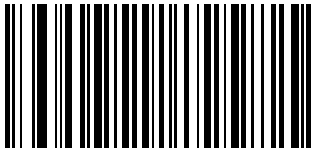
Select a trigger mode by scanning one of the barcodes that follow. If you wish to change your selection, scan Cancel.

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.

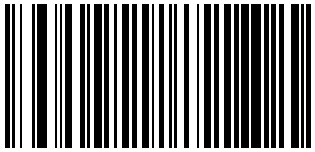
Presentation Trigger Mode - When the ring scanner detects an object in its field of view it scans and attempts to decode. The range of object detection does not vary under normal lighting conditions. This applies to decode mode only. In Presentation Mode the unit does not enter its sleep state.

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

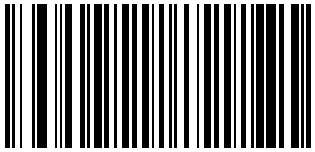
Level Trigger Mode



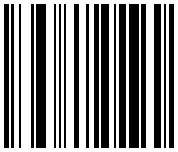
Presentation Trigger Mode



Host Trigger Mode



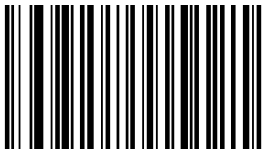
Cancel



See also Presentation Mode Session Timeout.

Report Version

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



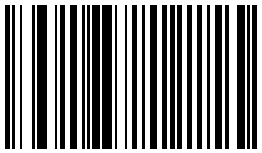
Transmit Code ID Character

Parameter Default Value: None

A code ID character identifies the code type of a scanned barcode. 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.

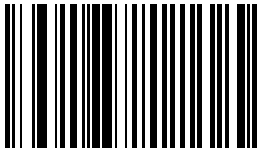
Scan one of the following barcodes to select either no code ID character, a Symbol Code ID character or an AIM Code ID character.

Transmit No Code ID Character



Transmit No Code ID Character

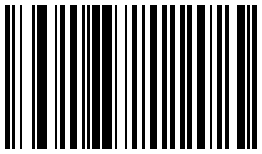
Transmit Symbol Code ID Character



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	RSS-14, RSS-Limited, RSS-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



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, Code 39 Full ASCII, Code 32
C	Code 128, Coupon (Code 128 portion)
d	Data Matrix
E	UPC/EAN, Coupon (UPC portion)
e	RSS 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 barcode with check character W,A+I+MI+DW, is transmitted as]A7AimId where 7 = (3+4).

Code Type	Option Value	Option
Trioptic Code 39		
	0	No option specified at this time. Always transmit 0.
		Example:A Trioptic barcode 412356 is transmitted as]X0412356
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 barcode with Function 1 character in the first position, ^{FNC1} Aim Id is transmitted as]CIAimId
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 barcode without check digit, 4123, is transmitted as]I04123
Codabar		
	0	No check digit processing.
	1	Reader has checked check digit.
	3	Reader has stripped check digit before transmission.
		Example:A Codabar barcode without check digit, 4123, is transmitted as]F04123
Code 93		
	0	No options specified at this time. Always transmit 0.
		Example:A Code 93 barcode 012345678905 is transmitted as]G0012345678905
MSI Plessey		
	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 barcode 4123, with a single check digit checked, is transmitted as]M04123
D 2 of 5		
	0	No options specified at this time. Always transmit 0.
		Example:A D 2 of 5 barcode 4123, is transmitted as]S04123
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).
	1	Two digit supplement data only
	2	Five digit supplement data only
	4	EAN-8 data packet.
		Example:A UPC-A barcode 012345678905 is transmitted as]E00012345678905
Bookland EAN		
	0	No options specified at this time. Always transmit 0.
		Example:A Bookland EAN barcode 123456789X is transmitted as]X0123456789X
Code 11		
	0	Single check digit.

Code Type	Option Value	Option
	1	Two check digits.
	3	Check characters validated but not transmitted.
RSS Family		
		No option specified at this time. Always transmit 0. RSS-14 and RSS-Limited transmit with an Application Identifier “01”. Note: In UCC/EAN-128 emulation mode, RSS is transmitted using Code 128 rules (i.e.,]C1).
		Example: An RSS-14 barcode 100123456788902 is transmitted as]e001100123456788902.
EAN.UCC Composites (RSS, 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 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]JC1).
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 barcode contains a UCC/EAN-128 symbol, and the first codeword is 903-907, 912, 914, 915.
	4	The barcode contains a UCC/EAN-128 symbol, and the first codeword is in the range 908-909.
	5	The barcode contains a UCC/EAN-128 symbol, and the first codeword is in the range 910-911.
		Example: A PDF417 barcode ABCD, with no transmission protocol enabled, is transmitted as]L2ABCD.
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 barcode 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

Ring decoder engine prefix and suffix parameters should not be set, changed, or reset using the Prefix and Suffix barcodes shown in this section. When the Bluetooth Ring Scanner Module is reset to defaults, the prefix and suffix settings revert to their default values and need to be scanned again. Use the Scanner Control Panel in the host computer to store prefix and suffix values.

See previous section titled Prefix / Suffix for an explanation.

Prefix (P) Parameter Default Value: Null

Suffix1 (S1) Parameter Default Value: LF

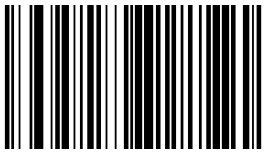
Suffix2 (S2) Parameter Default Value: CR

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 barcodes (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** barcode:

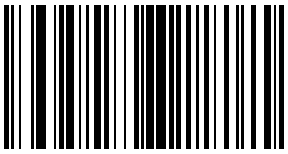


Next, scan four numeric barcodes that correspond to the computer key code using the Imager Keypad Number Symbols at the end of this chapter.

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

Suffix 1

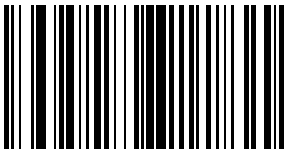
To begin setting Suffix 1 value, scan this **Scan Suffix 1** barcode:



Next, scan four numeric barcodes 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** barcode:



Next, scan four numeric barcodes 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

Parameter Default Value: Data As Is

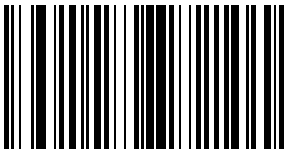
Note: Parameter Prefix/Suffix Values for SSI hosts should be set after setting this parameter.

Ring decoder engine prefix and suffix parameters should not be set, changed, or reset using the Prefix and Suffix barcodes shown in this section. When the Bluetooth Ring Scanner Module is reset to defaults, the prefix and suffix settings revert to their default values and need to be scanned again. Use the Scanner Control Panel in the host computer to store prefix and suffix values.

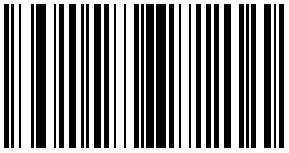
Use this option when you want to append a prefix and suffix to the SSI host decode data. If you wish to change your selection, scan the Cancel barcode and scan again.

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

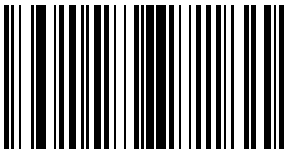
Data As Is



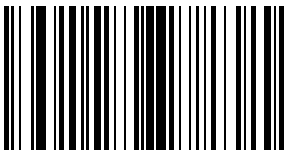
[Data] [Suffix 1]



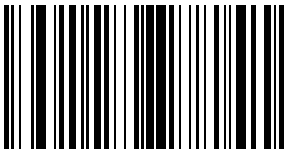
[Data] [Suffix 2]



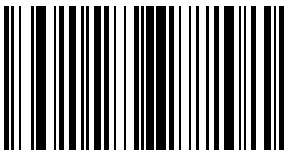
[Data] [Suffix 1] [Suffix 2]



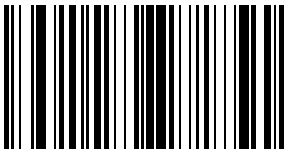
[Prefix] [Data]



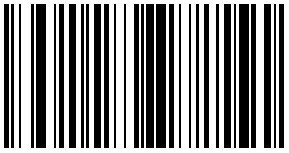
[Prefix] [Data] [Suffix 1]



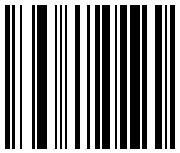
[Prefix] [Data] [Suffix 2]



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



Cancel



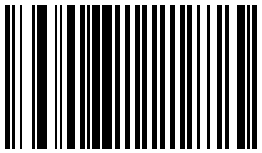
Transmit “No Read” Message

Parameter Default Value: Disable

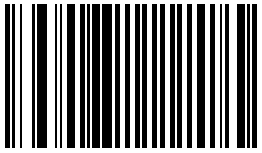
Scan a barcode below to select whether or not to transmit a No Read message.

When enabled, the characters NR are transmitted when a barcode 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



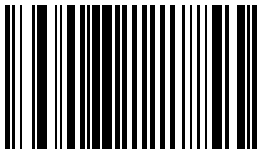
UPC/EAN

UPC-A

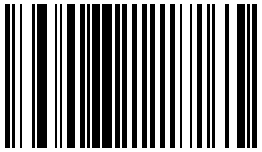
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable UPC-A



Disable UPC-A

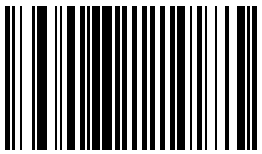


UPC-E

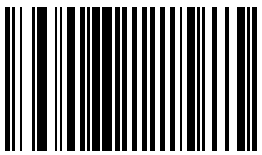
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable UPC-E



Disable UPC-E

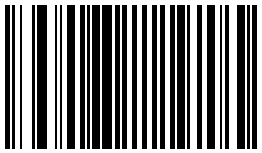


UPC-E1

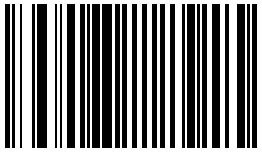
Parameter Default Value: Disable

Select an option by scanning either of the barcodes shown below.

Enable UPC-E1



Disable UPC-E1



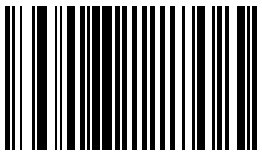
Note: UPC-E1 is not a UCC (Uniform Code Council) approved symbology.

EAN-8/JAN-8

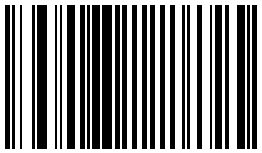
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable EAN-8/JAN-8



Disable EAN-8/JAN-8

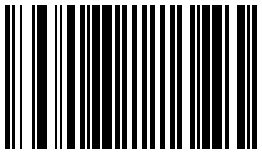


EAN-13/JAN-13

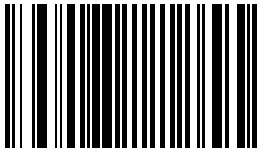
Parameter Default Value: Enable

Select an option by scanning either of the barcodes shown below.

Enable EAN-13/JAN-13



Disable EAN-13/JAN-13

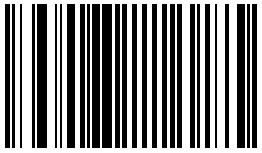


Bookland EAN

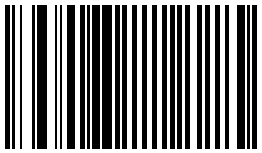
Parameter Default Value: Disable

Select an option by scanning either of the barcodes shown below.

Enable Bookland EAN



Disable Bookland EAN

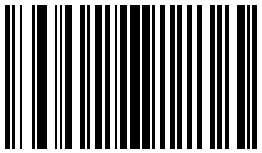


Bookland Format

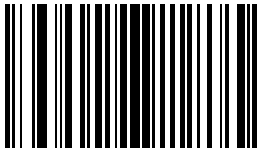
Parameter Default Value: Bookland 10

This parameter is used to control the Bookland Format. Select an option by scanning either of the barcodes shown below.

Bookland 10



Bookland 13



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

Parameter Default Value: Ignore

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

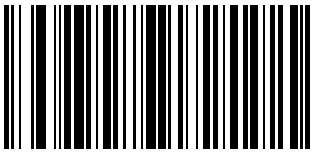
Selecting:

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 barcode 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 scanner will identify supplementals for EAN-13/JAN-13 barcodes 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 scanner will identify supplementals for EAN-13/JAN-13 barcodes 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 scanner will identify supplementals for EAN-13/JAN-13 barcodes that start with a 378, 379 or 978 prefix only. All other UPC/EAN/JAN barcodes are decoded immediately and the supplemental characters ignored.

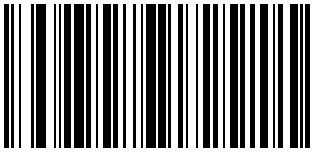
Note: In order to minimize the risk of invalid data transmission, LXE recommends selecting whether to read or ignore supplemental characters.

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

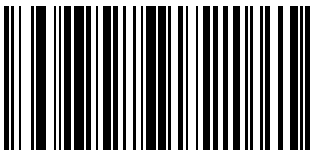
Decode UPC/EAN/JAN only with Supplementals



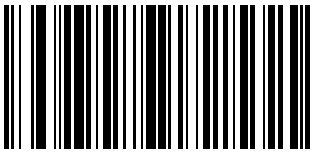
Ignore Supplementals



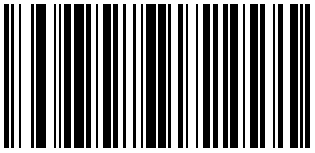
Autodiscriminate UPC/EAN/JAN Supplementals



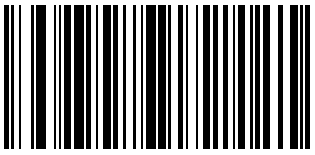
Enable 378/379 Supplemental Mode



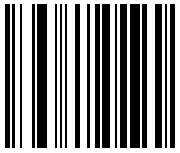
Enable 978 Supplemental Mode



Enable Smart Supplemental Mode



Cancel

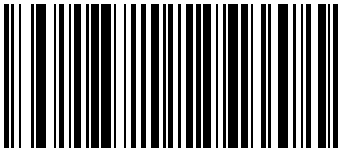


UPC/EAN/JAN Supplemental Redundancy

Parameter Default Value: 10 Times

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.

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



Next, scan two numeric barcodes 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.

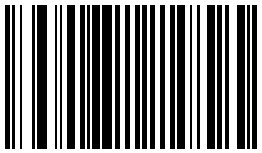
Transmit UPC-A Check Digit

Parameter Default Value: Enable

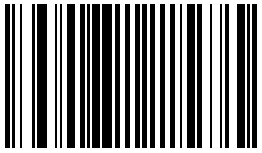
This parameter determines whether the symbol will be transmitted with or without the UPC-A check digit.

Select an option by scanning either of the barcodes shown below.

Enable Transmit UPC-A Check Digit



Disable Transmit UPC-A Check Digit



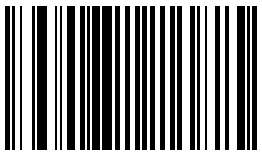
Transmit UPC-E Check Digit

Parameter Default Value: Enable

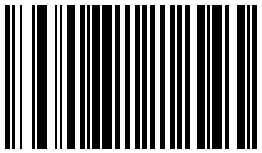
This parameter determines whether the symbol will be transmitted with or without the UPC-E check digit.

Select an option by scanning either of the barcodes shown below.

Enable Transmit UPC-E Check Digit



Disable Transmit UPC-E Check Digit



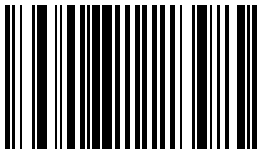
Transmit UPC-E1 Check Digit

Parameter Default Value: Enable

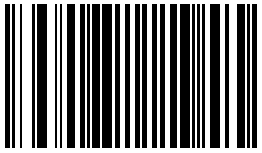
This parameter determines whether the symbol will be transmitted with or without the UPC-E1 check digit.

Select an option by scanning either of the barcodes shown below.

Enable Transmit UPC-E1 Check Digit



Disable Transmit UPC-E1 Check Digit



UPC-A Preamble

Parameter Default Value: System Character

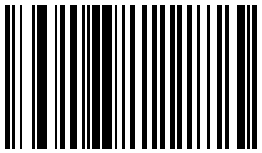
A preamble is a lead-in character for UPC-A symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

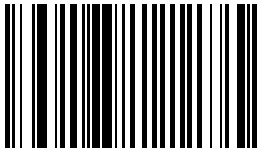
No Preamble	[data]
System Character	[schar] [data]
System Character and Country Code	[country code] [schar] [data]

Select an option by scanning one of the barcodes shown below.

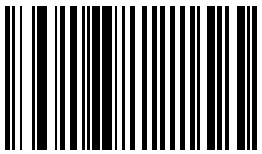
No Preamble



System Character



System Character and Country Code (“0” for USA)



UPC-E Preamble

Parameter Default Value: System Character

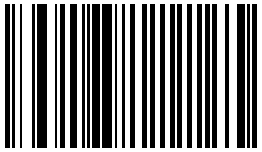
A preamble is a lead-in character for UPC-E symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

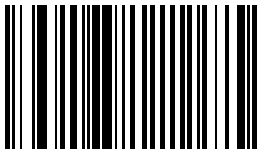
No Preamble	[data]
System Character	[schar] [data]
System Character and Country Code	[country code] [schar] [data]

Select an option by scanning one of the barcodes shown below.

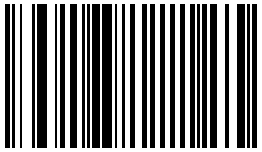
No Preamble



System Character



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



UPC-E1 Preamble

Parameter Default Value: System Character

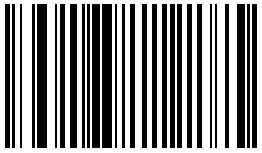
A preamble is a lead-in character for UPC-E1 symbols transmitted to the host device. The lead-in characters are considered part of the symbol.

Data is sent to the host in the following format:

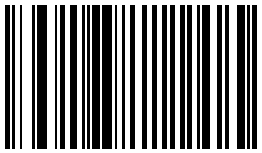
No Preamble	[data]
System Character	[schar] [data]
System Character and Country Code	[country code] [schar] [data]

Select an option by scanning one of the barcodes shown below.

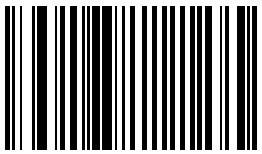
No Preamble



System Character



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



Convert UPC-E to UPC-A

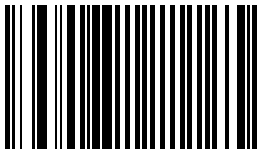
Parameter Default Value: Disable

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.).

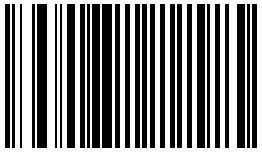
When disabled, UPC-E (zero suppressed) decoded data is transmitted without conversion.

Select an option by scanning either of the barcodes shown below.

Enable UPC-E to UPC-A



Disable UPC-E to UPC-A



Convert UPC-E1 to UPC-A

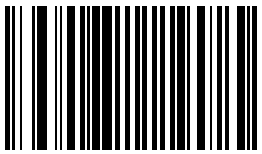
Parameter Default Value: Disable

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.).

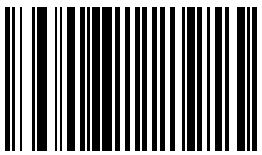
When disabled, UPC-E1 (zero suppressed) decoded data is transmitted without conversion.

Select an option by scanning either of the barcodes shown below.

Enable Convert UPC-E1 to UPC-A



Disable Convert UPC-E1 to UPC-A



EAN-8/JAN-8 Extend

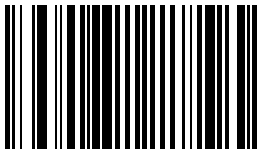
Parameter Default Value: Disable

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.

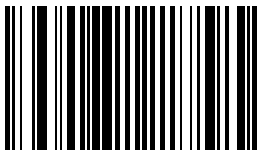
When disabled, EAN-8 symbols are transmitted as is and parameter “Convert EAN-8 to EAN-13 Type” setting is ignored.

Select an option by scanning either of the barcodes 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.

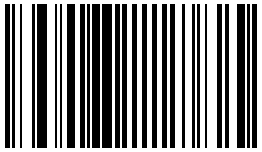
Parameter Default Value: Disable

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

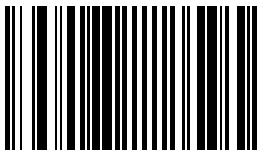
When enabled, this parameter decodes UPC-A barcodes starting with digit “5”, EAN-13 barcodes starting with digit “99” and UPC-A/EAN-128 Coupon Codes.

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



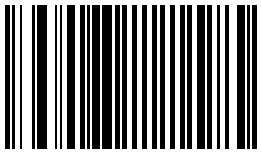
Note: Use the Decode UPC/EAN Supplemental Redundancy parameter to control autodiscrimination of the EAN128 (right half) of a coupon code.

Code 128

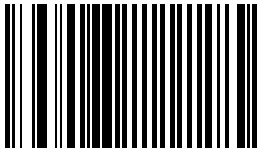
Parameter Default Value: Enable

Set this parameter by scanning either of the barcodes shown below.

Enable Code 128



Disable Code 128

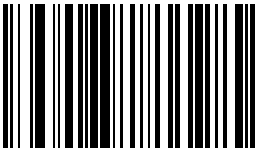


UCC/EAN-128

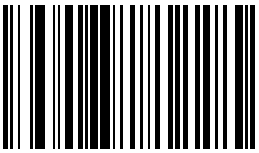
Parameter Default Value: Enable

Set this parameter by scanning either of the barcodes shown below.

Enable UCC/EAN-128



Disable UCC/EAN-128



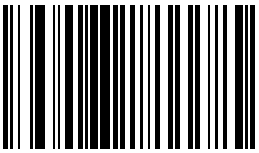
ISBT-128

Parameter Default Value: Enable

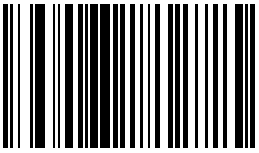
ISBT-128 is a variant of Code 128 used in the blood bank industry. If necessary, the host must perform concatenation of the ISBT data.

Set this parameter by scanning either of the barcodes shown below.

Enable ISBT-128



Disable ISBT-128



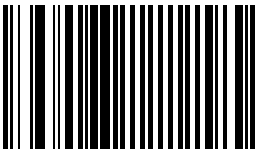
Code 39

Parameter Default Value: Enable

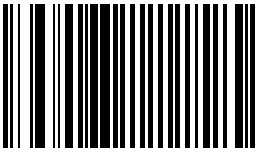
Note: This parameter must be enabled when "Convert Code 39 to Code 32" is to be enabled.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 39



Disable Code 39



Trioptic Code 39

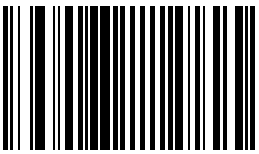
Parameter Default Value: Disable

Trioptic Code 39 symbols always contain six characters.

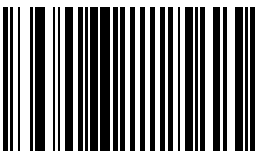
When Trioptic Code 39 is enabled, set the Code 39 Full ASCII parameter to disabled. Both parameters should not be enabled simultaneously.

Set this parameter by scanning either of the barcodes shown below.

Enable Trioptic Code 39



Disable Trioptic Code 39



Convert Code 39 to Code 32

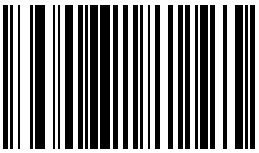
Note: Code 39 must be enabled in order for this parameter to function.

Parameter Default Value: Disable

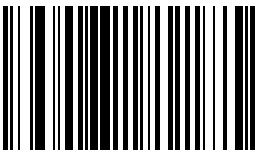
Note: When parameter Code 32 Prefix is to be enabled, this Convert Code 39 to Code 32 (Italian Pharmacy Code) parameter must also be enabled.

Set this parameter by scanning either of the barcodes shown below.

Enable Convert Code 39 to Code 32



Disable Convert Code 39 to Code 32



Code 32 Prefix

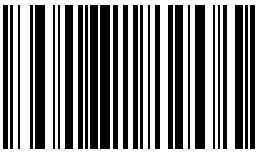
Parameter Default Value: Disable

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

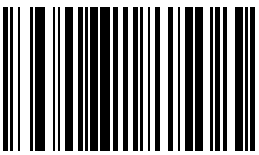
Note: When enabled, "Convert Code 39 to Code 32" parameter must also be enabled.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 32 Prefix



Disable Code 32 Prefix



Set Length(s) for Code 39

L1 Parameter Default Value: 2

L2 Parameter Default Value: 55

Lengths for Code 39 may be set for:

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

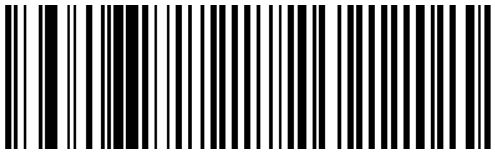
The length of a code refers to the number of characters, including check digits, the code contains. If Code 39 Full ASCII is enabled, Length Within a Range or Any Length are the preferred options.

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 barcode and then “1” and “4” barcodes using the Imager Keypad Number Symbols. Single digits must be preceded by a zero.

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

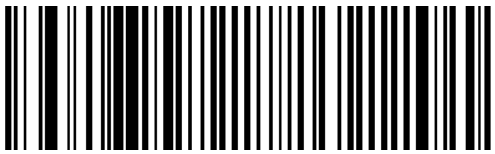


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

Two Discrete Lengths (Parameter L2)

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

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

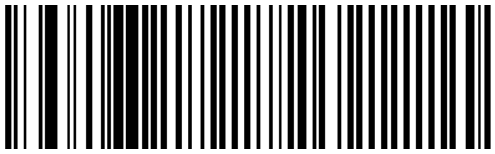


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the Imager Keypad Number Symbols.

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

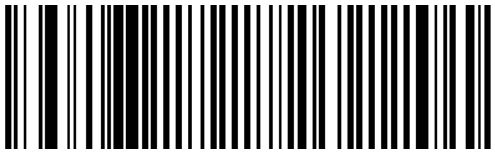


Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

Any Length

This option decodes Code 39 barcodes containing any number of characters.

To set any length, scan this **Any Length** barcode:



Code 39 Check Digit Verification

Parameter Default Value: Disable

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

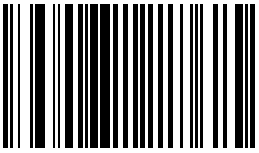
Only Code 39 symbols which include a Modulo 43 check digit are decoded when this parameter is enabled.

Note: When Transmit Code 39 Check Digit is enabled, this parameter must be enabled too.

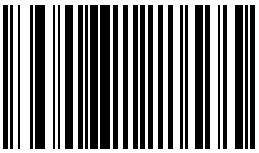
Enable this feature if the code 39 barcodes contain a Modulo 43 check digit.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 39 Check Digit Verification



Disable Code 39 Check Digit Verification



Transmit Code 39 Check Digit

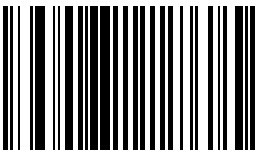
Parameter Default Value: Disable

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

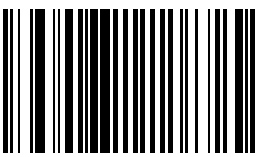
Note: Code 39 Check Digit Verification must be enabled for this parameter to function.

Set this parameter by scanning either of the barcodes shown below.

Enable Transmit Code 39 Check Digit



Disable Transmit Code 39 Check Digit



Code 39 Full ASCII Conversion

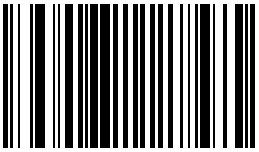
Parameter Default Value: Disable

Note: Code 39 Full ASCII and Trioptic Code 39 should not be enabled simultaneously.

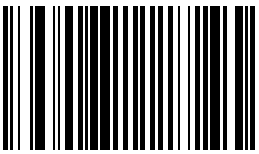
Code 39 Full ASCII is a variant of Code 39 which pairs characters to encode the full ASCII character set.

Set this parameter by scanning either of the barcodes 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 barcode 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

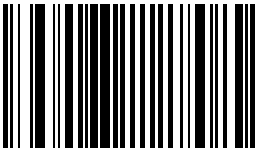
Parameter Default Value:

- Disable Code 93
- L1 Parameter Default Value : 4
- L2 Parameter Default Value: 55

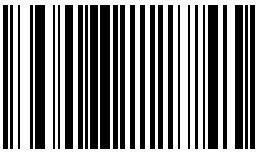
When enabled, Code 93 symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 93



Disable Code 93



Set Lengths for Code 93

L1 Parameter Default Value: 4 L2 Parameter Default Value: 55

Lengths for Code 93 may be set for:

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

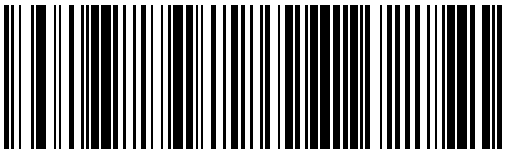
The length of a code refers to the number of characters, including check digits, the code contains.

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” barcode and then “1” and “4” barcodes using the “Imager Keypad Number Symbols”.

To begin setting one discrete length, scan this **Code 93 One Discrete Length** barcode:

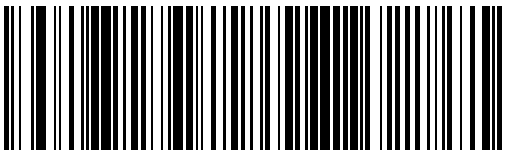


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

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” barcode and then “0”, “2”, “1” and “4” barcodes using the “Imager Keypad Number Symbols”.

To begin setting two discrete lengths, scan this **Code 93 Two Discrete Lengths** barcode:

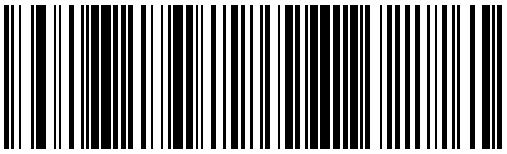


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Imager Keypad Number Symbols”.

To begin setting lengths within a range, scan this **Code 93 Length Within Range** barcode:

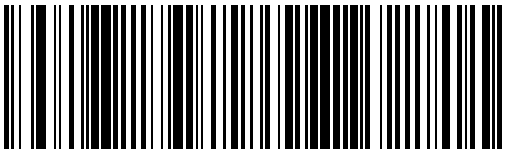


Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

Any Length

This option decodes Code 93 barcodes containing any number of characters.

To set any length, scan this **Code 93 Any Length** barcode:



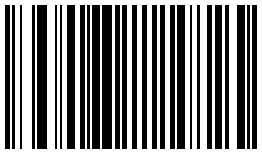
Code 11

Parameter Default Value: Disable

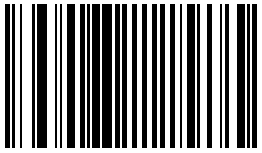
When enabled, Code 11 symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable Code 11



Disable Code 11



Set Lengths for Code 11

L1 Parameter Default Value: 4 L2 Parameter Default Value: 55

Lengths for Code 11 may be set for:

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

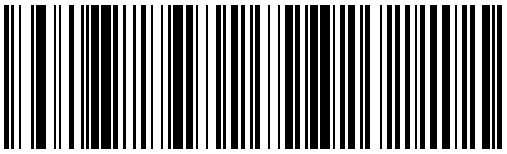
The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

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” barcode and then “1” and “4” barcodes using the Imager Keypad Number Symbols.

To begin setting one discrete length, scan this **Code 11 One Discrete Length** barcode:

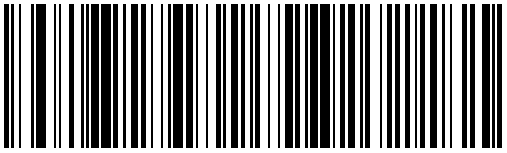


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

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 barcode and then “0”, “2”, “1” and “4” barcodes using the Imager Keypad Number Symbols.

To begin setting two discrete lengths, scan this **Code 11 Two Discrete Lengths** barcode:

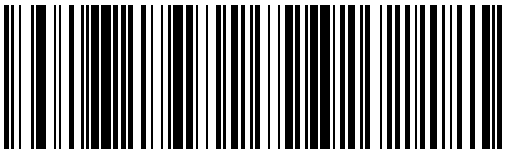


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes.

To begin setting lengths within a range, scan this **Code 11 Length Within Range** barcode:

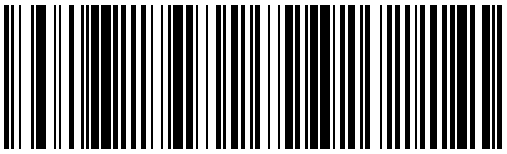


Next, scan numeric barcodes that correspond to the desired value using the Imager Keypad Number Symbols. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

Any Length

This option decodes Code 11 barcodes containing any number of characters.

To set any length, scan this **Code 11 Any Length** barcode:



Code 11 Check Digit Verification

Parameter Default Value: Disable

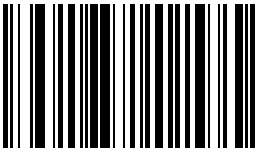
Enable this parameter by scanning either One Check Digit barcode or Two Check Digits barcode.

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

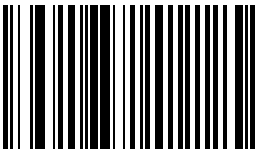
Note: Enable Code 11 Check Digit Verification when Transmit Code 11 Check Digits is enabled.

Set this parameter by scanning one of the barcodes shown below.

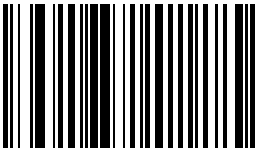
Disable Code 11 Check Digit Verification



One Check Digit



Two Check Digits

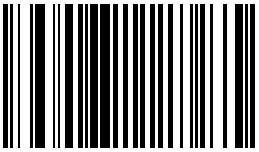


Transmit Code 11 Check Digits

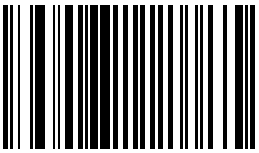
Parameter Default Value: Do Not Transmit (Disable)

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



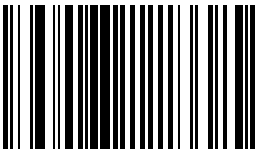
Interleaved 2 of 5 (ITF)

Parameter Default Value: Enable

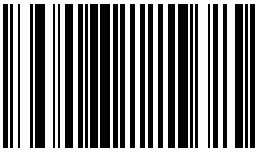
When enabled, Interleaved 2 of 5 (I 2 of 5) symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable Interleaved 2 of 5



Disable Interleaved 2 of 5



Set Lengths for I 2 of 5

L1 Parameter Default Value: 14

L2 Parameter Default Value: 14

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.

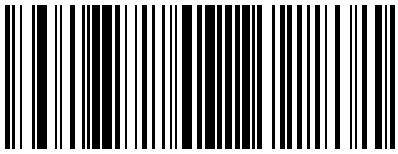
See the table titled "ASCII Character Equivalents".

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 barcode. 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 I 2 of 5 symbols containing 14 characters, scan the “I 2 of 5 One Discrete Length” barcode and then “1” and “4” barcodes using the “Imager Keypad Number Symbols”.

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

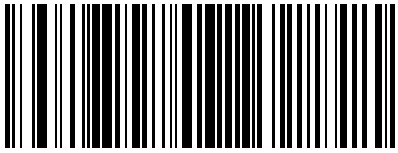


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only I 2 of 5 symbols containing 2 or 14 characters, scan the “I 2 of 5 Two Discrete Lengths” barcode and then “0”, “2”, “1” and “4” barcodes using the “Imager Keypad Number Symbols”.

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

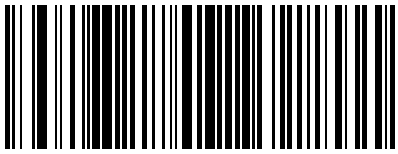


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Imager Keypad Number Symbols”.

To begin setting lengths within a range, scan this **I 2 of 5 Length within Range** barcode:



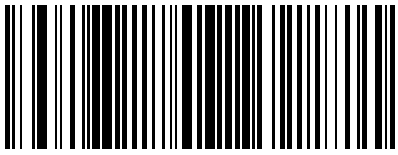
Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

Any Length

This option decodes I 2 of 5 barcodes 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** barcode:



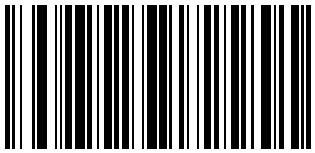
I 2 of 5 Check Digit Verification

Parameter Default Value: Disable

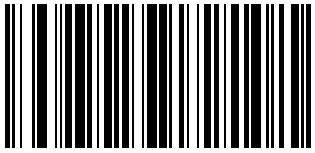
When enabled, this parameter checks the integrity of an I 2 of 5 symbol to ensure it complies with a specified algorithm, either USS (Uniform Symbology Specification) or OPCC (Optical Product Code Council).

Set this parameter by scanning one of the barcodes shown below.

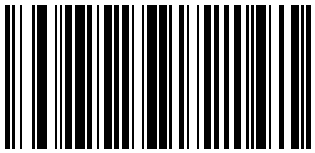
Disable I 2 of 5 Check Digit Verification



USS (Uniform Symbology Specification)



OPCC (Optical Product Code Council)



Transmit I 2 of 5 Check Digit

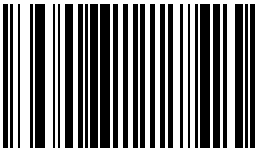
Parameter Default Value: Disable

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

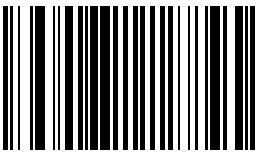
Parameter setting for “I 2 of 5 Check Digit Verification” has no effect on this parameter value.

Set this parameter by scanning either of the barcodes 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

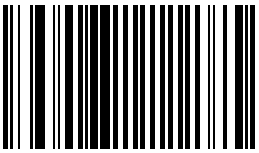
Parameter Default Value: Disable

A successful barcode conversion requires the following to be true:

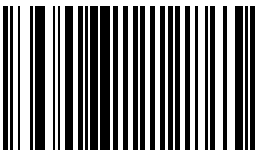
- Interleaved 2 of 5 scanning is enabled.
- One of the I 2 of 5 lengths is set to 14.
- The barcode has a leading zero.
- The barcode has a valid EAN-13 check digit.

When enabled, the parameter converts a 14 character I 2 of 5 barcode into EAN-13 and transmits it to the host as EAN-13. Set this parameter by scanning either of the barcodes shown below.

Enable Convert I 2 of 5 to EAN-13



Disable Convert I 2 of 5 to EAN-13



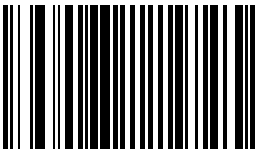
Discrete 2 of 5 (DTF)

Parameter Default Value: Disable

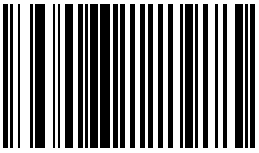
When enabled, Discrete 2 of 5 (D 2 of 5) symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable Discrete 2 of 5



Disable Discrete 2 of 5



Set Lengths for Discrete 2 of 5

L1 Parameter Default Value: 1 Discrete Length: 12

L2 Parameter Default Value: 12

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.

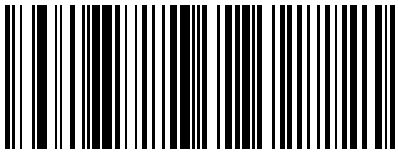
Note: Due to the construction of the D2 of 5 symbology, it is possible for a scan line covering only a portion of the code to be interpreted as a complete scan, yielding less data than is encoded in the barcode. To prevent this, select specific lengths (using D2 of 5 – One Discrete Length and D 2 of 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. 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” barcode and then “1” and “4” barcodes using the Imager Keypad Number Symbols.

To begin setting one discrete length, scan this **D 2 of 5 One Discrete Length** barcode:

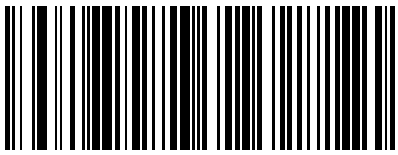


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

Two Discrete Lengths (Parameter L2)

This option decodes only those codes containing two selected lengths. For example, when you want to scan only D 2 of 5 symbols containing 2 or 14 characters, scan the “D 2 of 5 Two Discrete Lengths” barcode and then “0”, “2”, “1” and “4” barcodes using the Imager Keypad Number Symbols.

To begin setting two discrete lengths, scan this **D 2 of 5 Two Discrete Lengths** barcode:

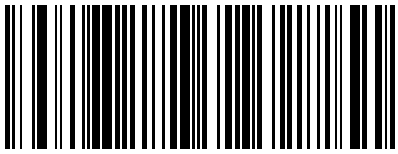


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the Imager Keypad Number Symbols.

To begin setting lengths within a range, scan this **D 2 of 5 Length Within Range** barcode:



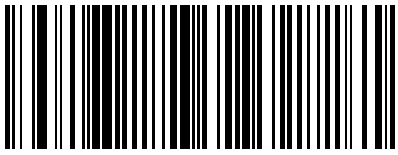
Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

Any Length

This option decodes D 2 of 5 barcodes 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** barcode:



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 barcode. 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.

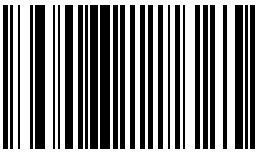
Codabar

Parameter Default Value: Disable

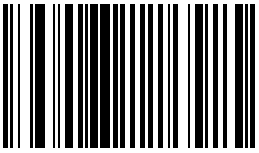
When enabled, Codabar symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable Codabar



Disable Codabar



CLSI Editing

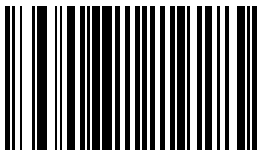
Parameter Default Value: Disable

When enabled, the start and stop characters are stripped from the barcode and a space is inserted after the 1st, 5th, and 10th characters of a 14 character Codabar symbol.

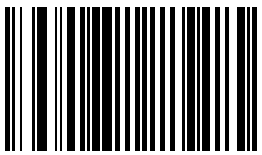
Set this parameter by scanning either of the barcodes shown below.

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

Enable CLSI Editing



Disable CLSI Editing



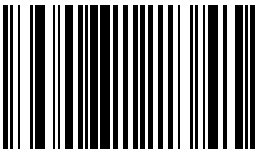
NOTIS Editing

Parameter Default Value: Disable

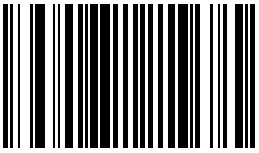
When enabled, the start and stop characters are stripped from a decoded Codabar symbol.

Set this parameter by scanning either of the barcodes shown below.

Enable NOTIS Editing



Disable NOTIS Editing



Set Lengths for Codabar

L1 Parameter Default Value: 5

L2 Parameter Default Value: 55

Lengths for Codabar may be set for:

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

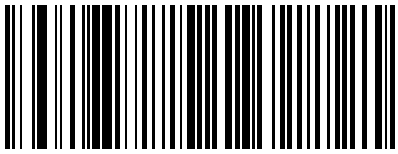
The length of a code refers to the number of characters, including check digits, the code contains. It also includes any start or stop characters.

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 barcode and then “1” and “4” barcodes using the Imager Keypad Number Symbols .

To begin setting one discrete length, scan this **Codabar One Discrete Length** barcode:



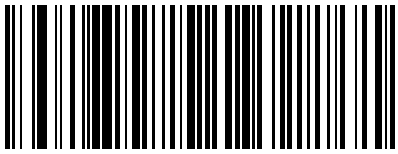
Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

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 barcode and then “0”, “2”, “1” and “4” barcodes using the Imager Keypad Number Symbols.

To begin setting two discrete lengths, scan this **Codabar Two Discrete Lengths** barcode:

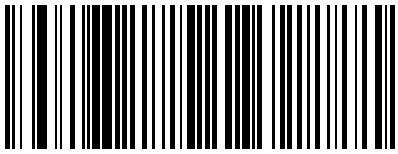


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

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 barcode and then “0”, “4”, “1” and “2” barcodes using the Imager Keypad Number Symbols .

To begin setting lengths within a range, scan this **Codabar Length Within Range** barcode:

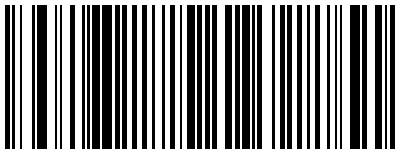


Next, scan numeric barcodes that correspond to the desired value using the Imager Keypad Number Symbols. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the Imager Keypad Number Symbols page.

Any Length

This option decodes Codabar barcodes containing any number of characters.

To set any length, scan this **Codabar Any Length** barcode:



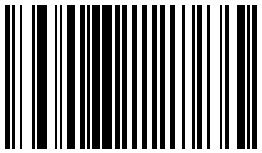
MSI

Parameter Default Value: Disable

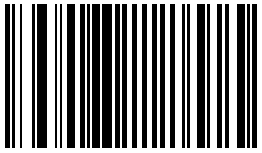
When enabled, MSI symbols will be scanned, decoded and transmitted.

Set this parameter by scanning either of the barcodes shown below.

Enable MSI



Disable MSI



Set Length(s) for MSI

Length Within Range
L1 Parameter Default Value: 04
L2 Parameter Default Value: 55

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.

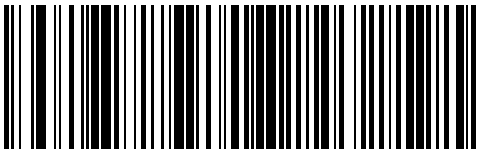
Note: Due to the construction of the MSI symbology, it is possible for a scan line covering only a portion of the code to be interpreted as a complete scan, yielding less data than is encoded in the barcode. To prevent this, select specific lengths (using MSI One Discrete Length and MSI Two Discrete 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” barcode and then “1” and “4” barcodes using the “Imager Keypad Number Symbols”.

To begin setting one discrete length, scan this **MSI One Discrete Length** barcode:

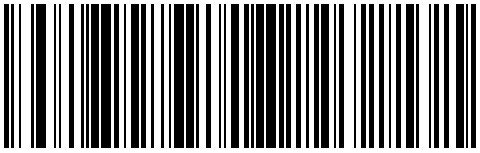


Next, scan two numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

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” barcode and then “0”, “2”, “1” and “4” barcodes using the “Imager Keypad Number Symbols”.

To begin setting two discrete lengths, scan this **MSI Two Discrete Lengths** barcode:

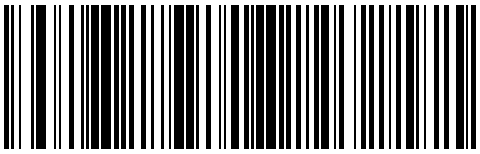


Next, scan four numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

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” barcode and then “0”, “4”, “1” and “2” barcodes using the “Imager Keypad Number Symbols”.

To begin setting lengths within a range, scan this **MSI Length Within Range** barcode:



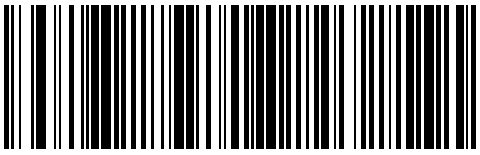
Next, scan numeric barcodes that correspond to the desired value. Single digit numbers must have a leading zero. To correct an error or to change a selection, scan Cancel on the “Imager Keypad Number Symbols” page.

Any Length

This option decodes MSI barcodes 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** barcode:



Note: 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 barcode. To prevent this, select specific lengths (using MSI One Discrete Length and MSI Two Discrete Lengths) for MSI applications.

MSI Check Digits

Parameter Default Value: One

With MSI symbols, one check digit is mandatory and always verified by the reader. The second check digit is optional.

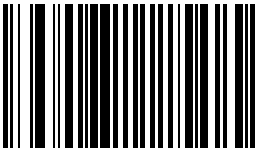
If the MSI codes include two check digits, scan the Two MSI Check Digits barcode to enable verification of the second check digit.

Check digits are not automatically transmitted with the data.

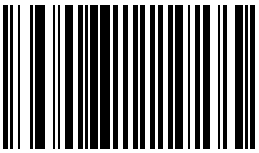
Note: When Two MSI Check Digits is selected, an MSI Check Digit Algorithm must also be selected.

Set the number of check digits to be included with the barcode by scanning either of the barcodes shown below.

One MSI check digit



Two MSI check digits



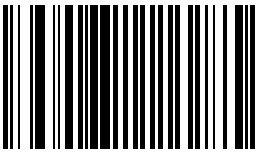
Transmit MSI Check Digit

Parameter Default Value: Disable

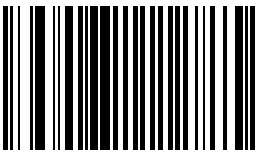
When enabled, the check digit is transmitted with the data.

Set this parameter by scanning either of the barcodes shown below.

Enable Transmit MSI Check Digit



Disable Transmit MSI Check Digit



MSI Check Digit Algorithm

Parameter Default Value: Mod10/Mod10

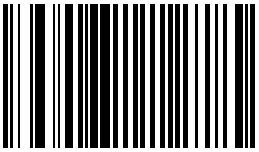
With MSI symbols, one check digit is mandatory and always verified by the reader. The second check digit is optional.

If the MSI codes include two check digits, scan the *Two MSI Check Digits* barcode to enable verification of the second check digit.

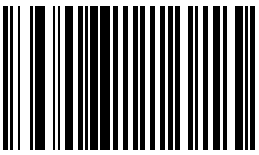
When the “Two MSI Check Digits” option is selected, an additional verification is required to ensure integrity. Either of the two following algorithms may be selected.

Set this parameter by scanning either of the barcodes shown below.

Mod 10/Mod 11
MSI Check Digit Algorithm



Mod 10/Mod 10
MSI Check Digit Algorithm



Postal Codes

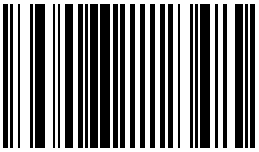
Note: The default value for all Postal Code symbologies is "Enabled." For best performance when reading a specific postal symbology, all other postal symbologies should be disabled.

US Postnet

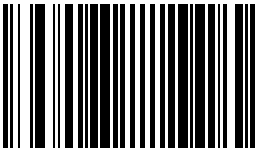
Parameter Default Value: Enable

To enable or disable US Postnet, scan the appropriate barcode:

Enable US Postnet



Disable US Postnet

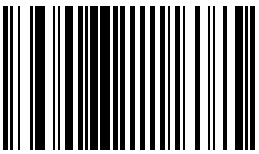


US Planet

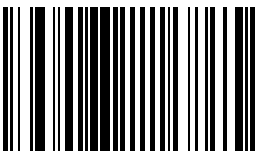
Parameter Default Value: Enable

To enable or disable US Planet, scan the appropriate barcode:

Enable US Planet



Disable US Planet

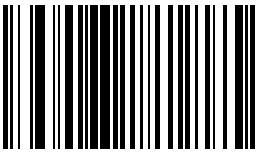


UK Postal

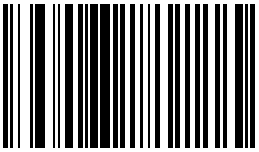
Parameter Default Value: Enable

To enable or disable UK Postal, scan the appropriate barcode:

Enable UK Postal



Disable UK Postal

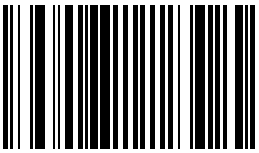


Transmit UK Postal Check Digit

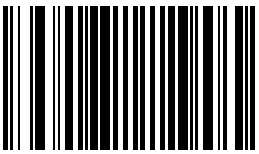
Parameter Default Value: Transmit

Select whether to transmit UK Postal data with or without the check digit:

Transmit UK Postal Check Digit



Do Not Transmit UK Postal Check Digit

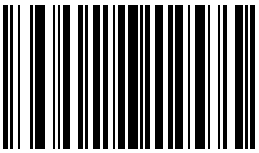


Japan Postal

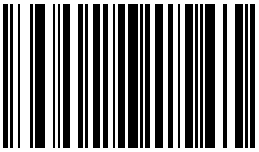
Parameter Default Value: Enable

To enable or disable Japan Postal, scan the appropriate barcode:

Enable Japan Postal



Disable Japan Postal

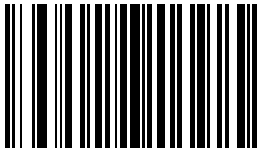


Australian Postal

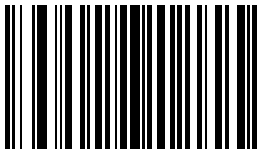
Parameter Default Value: Enable

To enable or disable Australian Postal, scan the appropriate barcode:

Enable Australian Postal



Disable Australian Postal

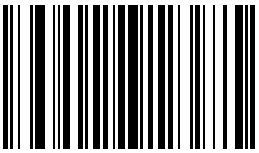


Dutch Postal

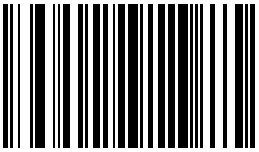
Parameter Default Value: Enable

To enable or disable Dutch Postal, scan the appropriate barcode:

Enable Dutch Postal



Disable Dutch Postal

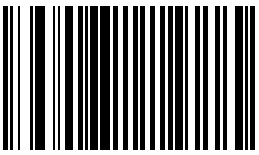


Transmit US Postal Check Digit

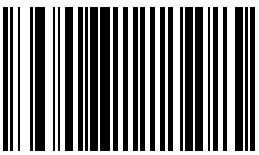
Parameter Default Value: Transmit

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

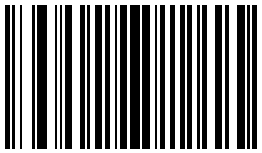


4 State Postal

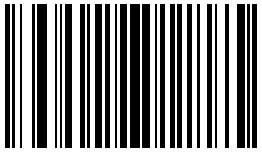
Parameter Default Value: Disable

To enable or disable 4 State Postal, scan the appropriate barcode:

Enable 4 State Postal



Disable 4 State Postal



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.

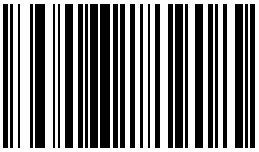
Scan the appropriate barcodes that follow to enable or disable each variant of GS1 DataBar (RSS).

GS1 DataBar Omnidirectional (RSS-14)

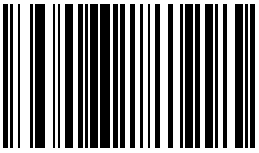
Parameter Default Value: Enable

To enable or disable GS1 DataBar Omnidirectional (RSS-14), scan the appropriate barcode:

Enable GS1 DataBar Omnidirectional (RSS-14)



Disable GS1 DataBar Omnidirectional (RSS-14)



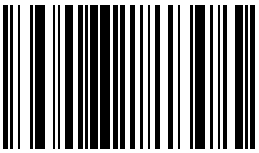
See Also: Convert GS1 DataBar (RSS) to UPC/EAN

GS1 DataBar Limited (RSS Limited)

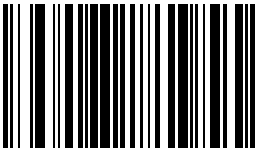
Parameter Default Value: Enable

To enable or disable GS1 DataBar Limited (RSS Limited), scan the appropriate barcode:

Enable GS1 DataBar Limited (RSS Limited)



Disable GS1 DataBar Limited (RSS Limited)



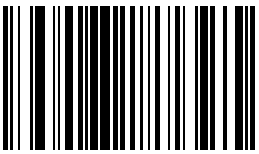
See "Convert GS1 DataBar (RSS) to UPC/EAN" on page 228

GS1 DataBar Expanded (RSS Expanded)

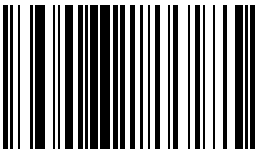
Parameter Default Value: Enable

To enable or disable GS1 DataBar Expanded (RSS Expanded), scan the appropriate barcode:

Enable GS1 DataBar Expanded (RSS Expanded)



Disable GS1 DataBar Expanded (RSS Expanded)



Convert GS1 DataBar (RSS) to UPC/EAN

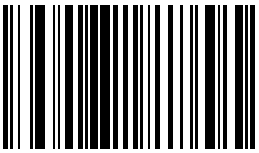
Parameter Default Value: Enable

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.

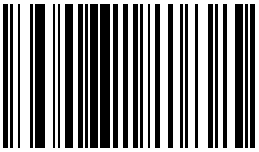
Enable this parameter to strip the leading “010” from GS1 DataBar Omnidirectional (RSS-14) and GS1 DataBar Limited (RSS Limited) symbols, encoding a single zero as the first digit, and report the barcode as EAN-13.

For barcodes beginning with two or more zeros but not six zeros this parameter strips the leading “0100” and reports the barcode as UPC-A. The UPC-A Preamble parameter that transmits the system character and country code applies to converted barcodes. 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



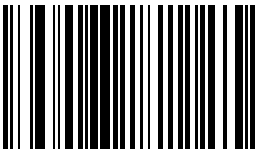
Composite

Composite CC-C

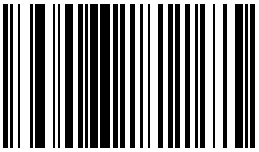
Parameter Default Value: Disable

Scan one of the following barcodes to enable or disable Composite barcodes of type CC-C.

Enable Composite CC-C



Disable Composite CC-C

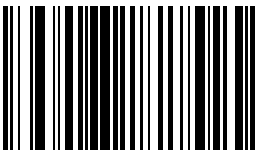


Composite CC-A/B

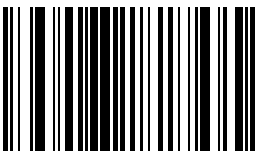
Parameter Default Value: Disable

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

Enable Composite CC-A/B



Disable Composite CC-A/B

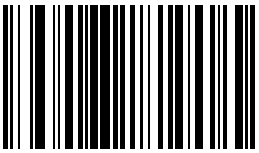


Composite TLC-39

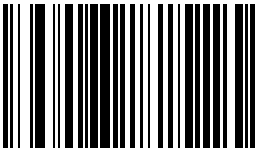
Parameter Default Value: Disable

Scan one of the following barcodes to enable or disable Composite barcodes of type TLC-39.

Enable Composite TLC-39



Disable Composite TLC-39



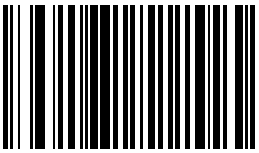
UPC Composite Mode

Parameter Default Value: UPC Always Linked

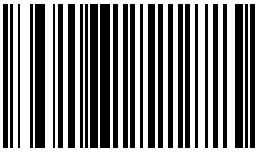
UPC symbols can be linked with a 2D symbol during transmission as if they were one symbol. There are three options for these symbols:

UPC Never Linked	Transmit UPC barcodes regardless of whether a 2D symbol is detected.
UPC Always Linked	Transmit UPC barcodes and the 2D portion. If 2D is not present, the UPC barcode 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.

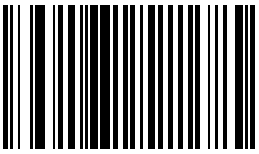
UPC Never Linked



UPC Always Linked



Autodiscriminate UPC Composites

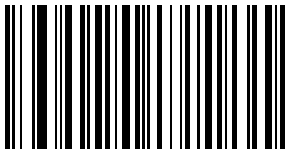


UCC/EAN Code 128 Emulation Mode

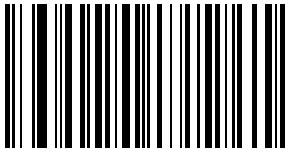
Select whether to enable or disable UCC/EAN Code 128 Emulation Mode for UCC/EAN Composite Codes.

Parameter Default Value: Disable

Enable UCC/EAN Code 128 Emulation Mode for UCC/EAN Composite Codes



Disable UCC/EAN Code 128 Emulation Mode for UCC/EAN Composite Codes



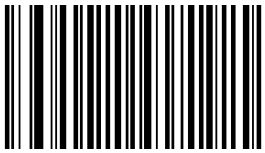
2D Symbologies

Aztec

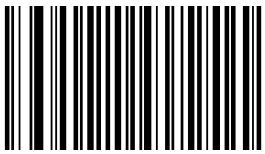
Parameter Default Value: Enable

To enable or disable Aztec, scan the appropriate barcode below.

Enable Aztec



Disable Aztec

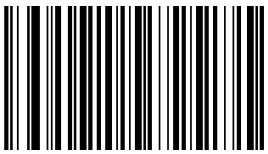


Aztec Inverse

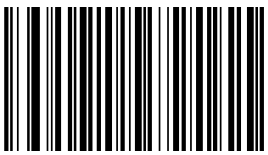
Parameter Default Value: Regular Only

This parameter controls the setting of the Aztec Inverse decoder. Scan the appropriate barcode below.

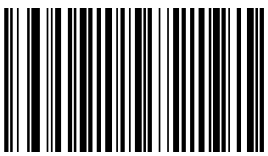
Regular Only



Inverse Only



Inverse Auto Detect

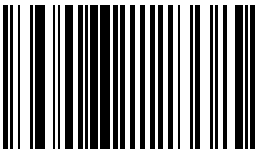


PDF417

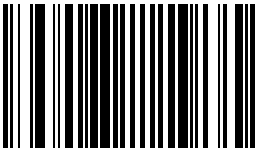
Parameter Default Value: Enable

To enable or disable PDF417, scan the appropriate barcode below.

Enable PDF417



Disable PDF417

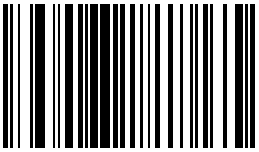


MicroPDF417

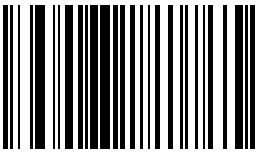
Parameter Default Value: Disable

To enable or disable MicroPDF417, scan the appropriate barcode below.

Enable MicroPDF417



Disable MicroPDF417

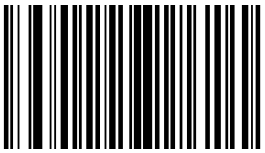


Code 128 Emulation

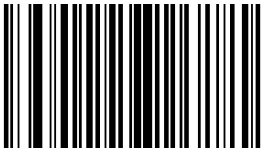
Parameter Default Value: Disable

To enable or disable Code 128 Emulation, scan the appropriate barcode below.

Enable Code 128 Emulation



Disable Code 128 Emulation



When this parameter is enabled, the scanner 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:

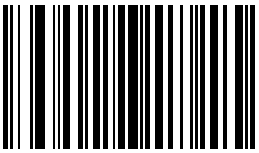
-]L3 if the first codeword is 903-907, 912, 914, 915
-]L4 if the first codeword is 908 or 909
-]L5 if the first codeword is 910 or 911

Data Matrix

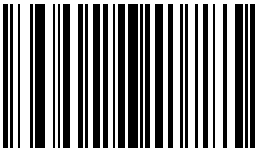
Parameter Default Value: Enable

To enable or disable Data Matrix, scan the appropriate barcode below.

Enable Data Matrix



Disable Data Matrix

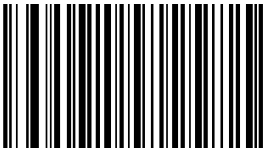


Data Matrix Inverse

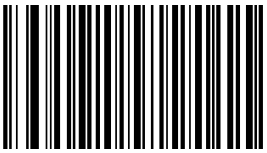
Parameter Default Value: Regular Only

This parameter controls the setting of the Data Matrix inverse decoder. Scan the appropriate barcode below.

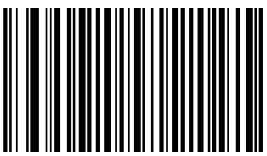
Regular Only



Inverse Only



Inverse Auto Detect

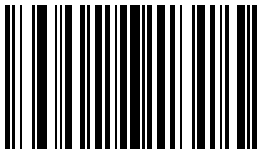


Maxicode

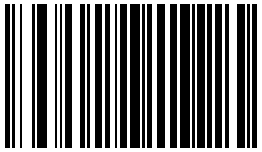
Parameter Default Value: Enable

To enable or disable Maxicode scan the appropriate barcode below.

Enable Maxicode



Disable Maxicode

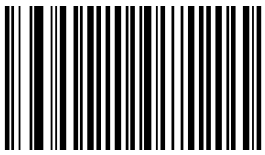


MicroQR

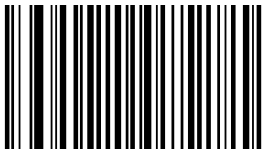
Parameter Default Value: Enable

To enable or disable MicroQR, scan the appropriate barcode below.

Enable MicroQR



Disable MicroQR

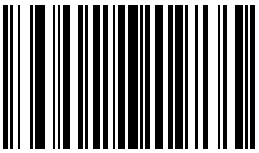


QR Code

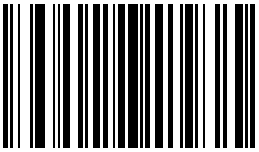
Parameter Default Value: Enable

To enable or disable QR Code scan the appropriate barcode below.

Enable QR Code



Disable QR Code

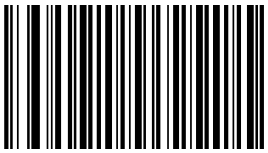


QR Inverse

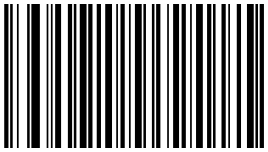
Parameter Default Value: Regular Only

This parameter controls the setting of the QR Inverse decoder. Scan the appropriate barcode below.

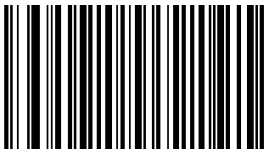
Regular Only



Inverse Only



Inverse Auto Detect



Redundancy Level

Parameter Default Value: Redundancy Level 1

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

Select the redundancy level appropriate for the barcode quality and then scan the appropriate Redundancy Level barcode 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:

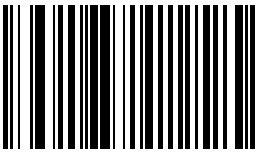
Code Type	Code Length
MSI Plessey	4 characters or less
D 2 of 5	8 characters or less
I 2 of 5	8 characters or less
Codabar	8 characters or less

Redundancy Level 4

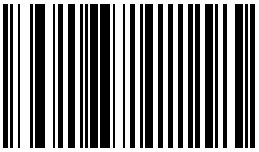
The following code types must be successfully read three times before being decoded:

Code Type	Code Length
All	All

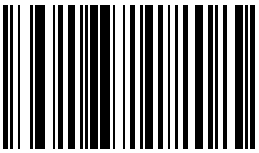
Redundancy Level 1



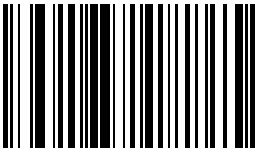
Redundancy Level 2



Redundancy Level 3



Redundancy Level 4



Security Level

Parameter Default Value: Security Level 1

The decoder offers four levels of decode security for delta barcodes, which include the Code 128 family, UPC/EAN, and Code 93.

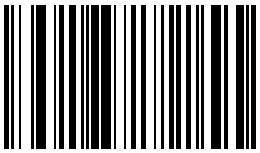
Select increasing levels of security for decreasing levels of barcode quality.

There is an inverse relationship between security and decoder aggressiveness, so choose only that level of security necessary for any given application.

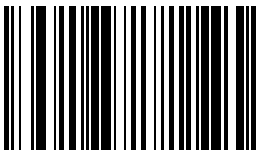
Security Level 0	This setting allows the decoder to operate in its most aggressive state, while providing sufficient security in decoding most ?in-spec? barcodes.
Security Level 1	Select this option if misdecodes occur. This default setting should eliminate most misdecodes.
Security Level 2	Select this 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 barcodes. 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 barcodes.

Select the security level appropriate for the barcode quality and then scan the appropriate Security Level barcode:

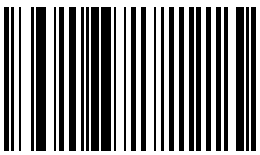
Security Level 0



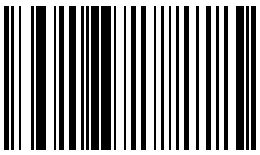
Security Level 1



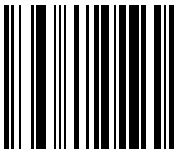
Security Level 2



Security Level 3



Cancel



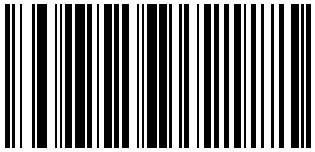
Intercharacter Gap Size

Parameter Default Value: Normal

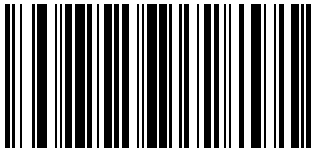
The Code 39 and Codabar symbologies have an intercharacter gap that is typically quite small. Due to various barcode-printing technologies, this gap can grow larger than the maximum size allowed, preventing the decoder from decoding the symbol.

If this problem occurs, scan the *Large Intercharacter Gaps* parameter to tolerate these out-of-specification barcodes.

Normal Intercharacter Gaps



Large Intercharacter Gaps



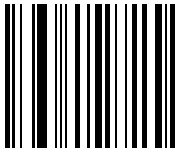
Imager Keypad Number Symbols

The barcode labels shown below represent a numeric keypad, with decimal values 0 through 9. Each label should be scanned individually.

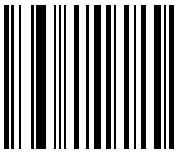
Use these numeric value symbols to enter numeric input in the course of performing an imager engine system configuration.

To correct an error or change a selection, scan Cancel then scan a desired barcode.

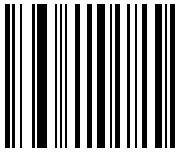
0



1



2



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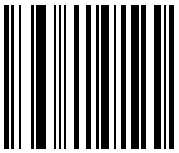

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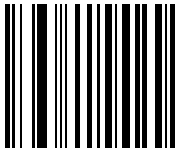
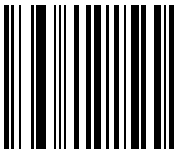
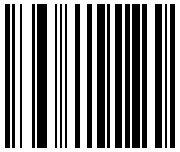


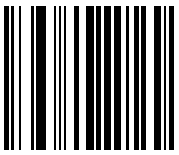
5



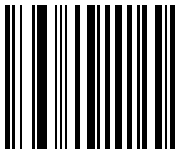
6



7



8



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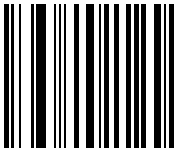
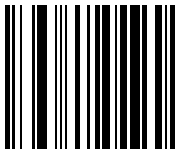


Cancel



BlueCore Device Firmware Update Installation Instruction

Prerequisites:

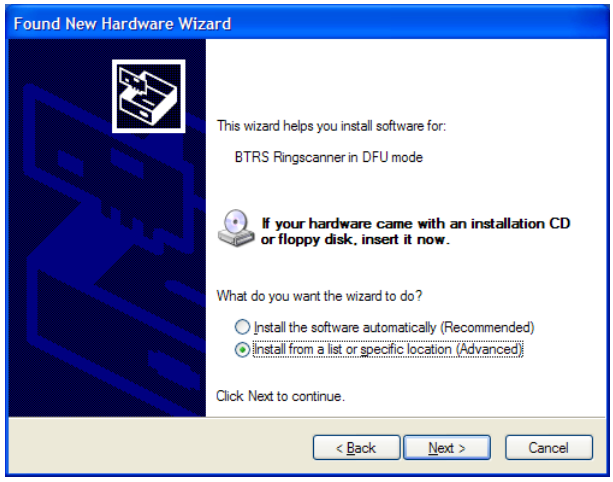
- BlueCore Device Firmware Update program (contact your LXE representative to obtain the BlueCore Device Firmware Update file).
- A desktop/laptop Win XP or Win 2000 PC with an available USB port.
- A Bluetooth module and a fully charged battery.
- Bluetooth Module Firmware update cable (8650A051CBLBTUPDATE).
- Firmware update file (contact your LXE representative to obtain the latest Bluetooth Module firmware update file).

Note: A Bluetooth module is required when performing the initial install of the BlueCore Device Firmware Update program on the PC.

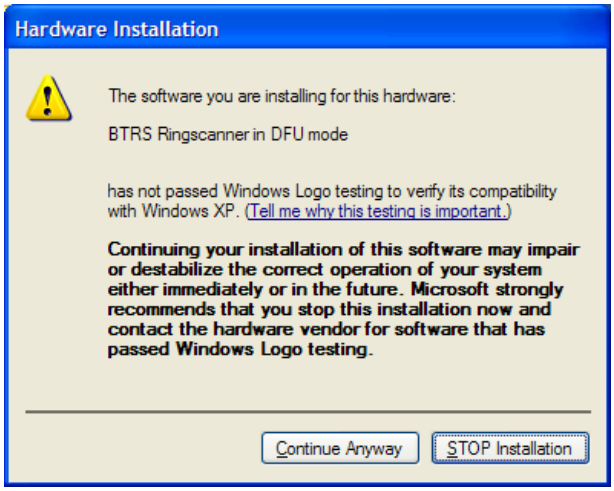
Install BlueCore Device Update Wizard and Driver

1. Install the BlueCore Device Update Wizard on a PC by doubleclicking the DFUWizardSetup[version].exe file located in the Install folder.
2. Accept the license agreement, choose typical installation and then select Finish.
3. Insert the battery into the Bluetooth module to be updated (or used for the initial installation of the BlueCore Device Update Wizard).
4. Insert the update cable into the Bluetooth module to be updated. The module should power up, indicated by a beep sequence and the blue LED illuminating then flashing.
5. Insert the USB update cable into one of the host PC USB ports. The PC should recognize that a USB device has been detected.
6. A message will appear stating the USB device driver needs to be installed on the PC.
7. The Windows Found New Hardware Wizard dialogue may appear requesting to connect to Windows Update to search for software. Select No, not this time. Then click Next to continue. If the dialogue box shown below does not appear, continue.

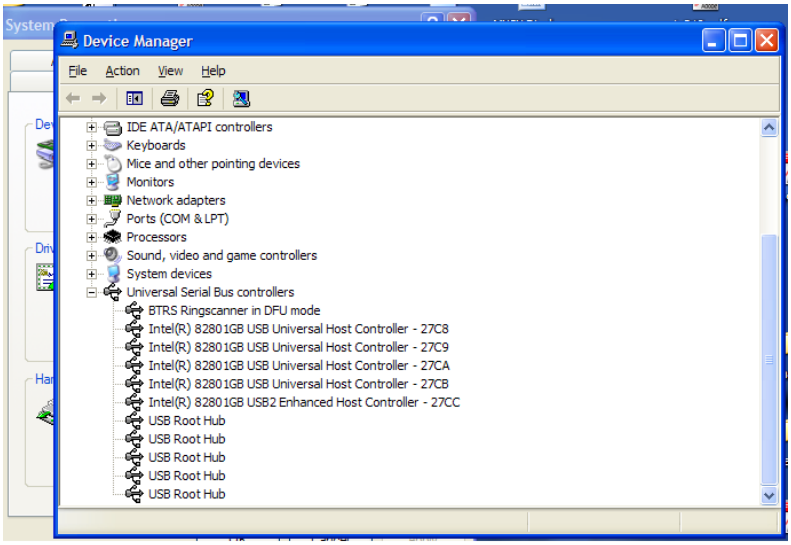
8. The next dialogue box appears to help you install software for the BTRS Ring Scanner.
9. Select Install from a list or specific location. Click Next to continue.



10. Browse to the driver location on the installation CD (/driver) or your hard drive, if the installation program was downloaded to your hard drive, and click Next.
11. Click Continue Anyway when the dialog box appears stating “the driver has not passed Windows logo testing to verify compatibility”.



12. Select Finish on the next dialog box.
13. Navigate to the Windows Device Manager screen. On WindowsXP devices, one path to the Device Manager screen is Start | Control Panel | System | Hardware tab and click the Device Manager button. Shown below is a sample of a Device Manager screen.



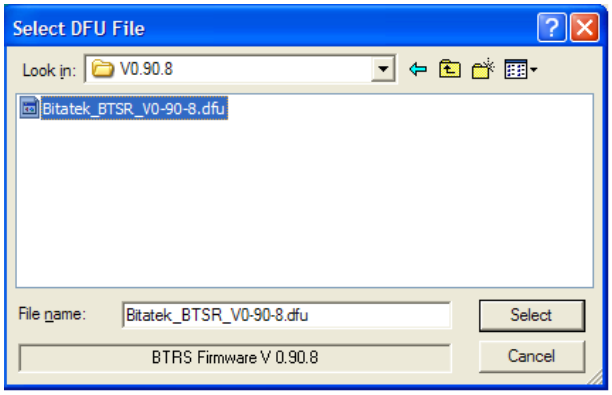
14. Click the plus sign next to Universal Serial Bus controllers. Verify the BTRS Ringscanner in DFU mode is present. Close all open windows and return to the PC desktop.
15. You are ready to update the Bluetooth Ring Scanner module firmware.

Update the Module Firmware

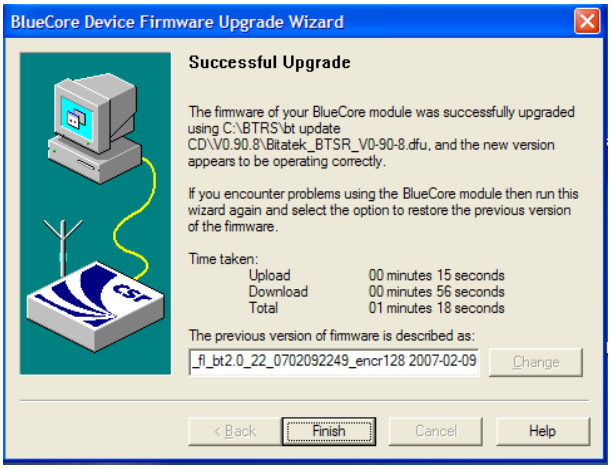
Note: The module in this segment refers to the module used when installing the BlueCore Device Update Wizard application.

1. Click Start | All Programs and start the BlueCore Device Firmware Update Wizard application.
2. Click Next to begin the upgrade process.
3. Select how the Bluetooth module is connected to your PC by choosing the Universal Serial Bus (USB) connection type. Click Next to continue.

4. Select Download a new version of the firmware, saving a copy of the current version first. Any previous version will be replaced upgrade action and then click Next.
5. Browse to and highlight the latest firmware upgrade file. The file has a DFU extension. Click Select to continue.



6. The upgrade process proceeds and ends with a Successful Upgrade message (see step 7). The Bluetooth module may emit a series of beeps or the blue LED may stop flashing and remain illuminated until the upgrade is finished.



7. Click Finish.

Bluetooth Module Technical Specifications

Physical	
I/O Port	A 22 spring-pin, symmetrical port
Module Size	Without Scanner : Height 0.75" / 1.90cm x Width 1.75" / 4.44cm x Length 2.4" / 6.1cm With Scanner : Height 0.75" / 1.90cm x Width 1.75" / 4.44cm x Length 2.9" / 7.4cm
Module Weight	2.15oz / 60.9g with battery / 1.60oz / 45g without battery 4.05 – 4.15oz / 114g – 117g with battery and scanner Ring Scanner : 1.75oz / 49.6g Ring Imager : 1.85oz / 52.4g
Battery	Li-Ion, 3.7v 750mAh with a 500 charge/discharge life cycle
Environmental	
Operating Temperature	-4° F to 122° F (-20° C to +50° C)
Storage Temperature	-40° F to 158° F (-40°C to +60°C)
Water and Dust Resistance	Sealed to IP-54 specifications or better
Humidity	5% to 95% relative humidity, non-condensing
Corrosion	Corrosion resistant when exposed to water and common cleaning chemicals
Chemical Resistance	Corrosion resistant when exposed to water and common cleaning chemicals
Abrasion Resistance	Housing resists normal abrasion from dirty hands.

The CF Bluetooth Radio in the LXE Bluetooth Ring Scanner is Bluetooth Special Interest Group (SIG) Qualified, is listed as an EPL (End Product Listing) and with QDID: B011904.

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. Symbol's test labels of the part numbers given are examples of optimum quality barcodes.
- As distance decreases the visible scan line also decreases (visible scan length = 1.8 x distance to label x TAN (scan angle / 2). The useable scan length is approximately 90% of visible scan line and must fully encompass the barcode label to be successfully decoded. On larger symbol densities of 20 mil, 40 mil and 55 mil, this affects minimum decode distance.
- + / - 5 degree pitch is used to reduce the inhibiting effects of spectral reflection (glare) near 0 degree of the scan head aspect to the barcode. Optimal operation is obtained at 2 degrees to 15 degrees pitch offset.
- Scan rate of 25 + / - 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 barcode decoding with a duration from 1 second to 8 second.

Ring Scanner

Factory Default Scan Angle -- Wide (47 degrees)

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 barcode and the scan angle.

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 degrees 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 degrees 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 degrees C.

PL4407 Decode Distances in Darkness

Symbol Density	Focus Position	Typical Working Ranges	
		Near	Far
5.0 mil	Near Far	3.5 in / 8.9 cm 6.5 in / 16.5 cm	5.875 in / 14.1 cm N/A
6.67 mil	Near Far	3.75 in / 9.5 cm N/A	5.75 in / 14.6 cm N/A
7.5 mil	Near Far	2.75 in / 7.0 cm 4.25 in / 10.8 cm	6.875 in / 17.5 cm 7.125 in / 18.1 cm
10 mil	Near Far	3.25 in / 8.3 cm 5.75 in / 14.6 cm	6.375 in / 16.2 cm 7.25 in / 18.4 cm
13 mil	Near Far	2.25 in / 5.7 cm 3.00 in / 7.6 cm	7.375 in / 18.7 cm 8.375 in / 21.3 cm

* Near ranges are field-of-view limited. Working range specifications at temperature 23 degrees C.

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 Encode Char.	Keystroke
1000	00h	%U	CTRL 2
1001	0lh	$A	CTRL A
1002	02h	$B	CTRL B
1003	03h	$C	CTRL C
1004	04h	$D	CTRL D
1005	05h	$E	CTRL E
1006	06h	$F	CTRL F
1007	07h	$G	CTRL G
1008	08h	$H	CTRL H
1009	09h	$I	CTRL I
1010	0Ah	$J	CTRL J
1011	0Bh	$K	CTRL K
1012	0Ch	$L	CTRL L
1013	0Dh	$M	CTRL M
1014	0Eh	$N	CTRL N
1015	0Fh	$O	CTRL O
1016	10h	$P	CTRL P
1017	1lh	$Q	CTRL Q
1018	12h	$R	CTRL R
1019	13h	$S	CTRL S
1020	14h	$T	CTRL T
1021	15h	$U	CTRL U
1022	16h	$V	CTRL V
1023	17h	$W	CTRL W
1024	18h	$X	CTRL X
1025	19h	$Y	CTRL Y
1026	lAh	$Z	CTRL Z
1027	lBh	%A	CTRL [
1028	lCh	%B	CTRL \

Scan Value	Hex Value	Full ASCII Code 39 Encode Char.	Keystroke
1029	lDh	%C	CTRL]
1030	lEh	%D	CTRL 6
1031	lFh	%E	CTRL -
1032	20h	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
1049	31h	1	1
1050	32h	2	2
1051	33h	3	3
1052	34h	4	4
1053	35h	5	5
1054	36h	6	6
1055	37h	7	7
1056	38h	8	8
1057	39h	9	9
1058	3Ah	/Z	:
1059	3Bh	%F	;
1060	3Ch	%G	<
1061	3Dh	%H	=

Scan Value	Hex Value	Full ASCII Code 39 Encode Char.	Keystroke
1062	3Eh	%I	>
1063	3Fh	%J	?
1064	40h	%V	@
1065	41h	A	A
1066	42h	B	B
1067	43h	C	C
1068	44h	D	D
1069	45h	E	E
1070	46h	F	F
1071	47h	G	G
1072	48h	H	H
1073	49h	I	I
1074	4Ah	J	J
1075	4Bh	K	K
1076	4Ch	L	L
1077	4Dh	M	M
1078	4Eh	N	N
1079	4Fh	O	O
1080	50h	P	P
1081	51h	Q	Q
1082	52h	R	R
1083	53h	S	S
1084	54h	T	T
1085	55h	U	U
1086	56h	V	V
1087	57h	W	W
1088	58h	X	X
1089	59h	Y	Y
1090	5Ah	Z	Z
1091	5Bh	%K	[
1092	5Ch	%L	\
1093	5Dh	%M	]
1094	5Eh	%N	^

Scan Value	Hex Value	Full ASCII Code 39 Encode Char.	Keystroke
1095	5Fh	%O	-
1096	60h	%W	‘
1097	61h	+A	a
1098	62h	+B	b
1099	63h	+C	c
1100	64h	+D	d
1101	65h	+E	e
1102	66h	+F	f
1103	67h	+G	g
1104	68h	+H	h
1105	69h	+I	i
1106	6Ah	+J	j
1107	6Bh	+K	k
1108	6Ch	+L	1
1109	6Dh	+M	m
1110	6Eh	+N	n
1111	6Fh	+O	o
1112	70h	+P	p
1113	71h	+Q	q
1114	72h	+R	r
1115	73h	+S	s
1116	74h	+T	t
1117	75h	+U	u
1118	76h	+V	v
1119	77h	+W	w
1120	78h	+X	x
1121	79h	+Y	y
1122	7Ah	+Z	z
1123	7Bh	%P	{
1124	7Ch	%Q	|
1125	7Dh	%R	}
1126	7Eh	%S	~
1127	7Fh		Undefined

Revision History

Revision / Date	Location	Change
D / October 2009	1. Cover page and contents 2. Status LED and Beep Indicators 3. Bluetooth Module Technical Specifications	1. Apply Marketing color scheme 2. Expanded out of range behavior explanation 3. Added technical information for the Bluetooth Ring Scanner Module battery

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