Spectralink 84-Series Wireless Telephone

Barcode Administration Guide

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Warranty

The *Product Warranty and Software License and Warranty* and other support documents are available at http://support.spectralink.com.

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Contents

Introduction

This is your guide to understanding how barcode technology works in conjunction with the Spectralink 8450/8452/8453 handsets and how to deploy it in your facility.

Refer to this document when you need to configure your handsets for a barcode application or when you need to change a barcode configuration due to advances or changes in the technology.

Be aware that this is a living document. Barcode technology changes rapidly and this document makes every effort to keep up. If you have questions, please contact your Spectralink service provider.

Product Support

Spectralink wants you to have a successful installation. If you have questions please contact the Customer Support Hotline at 1-800-775-5330.

The hotline is open Monday through Friday, 6 a.m. to 6 p.m. Mountain time.

For Technical Support: mailto:technicalsupport@spectralink.com

For Knowledge Base: http://support.spectralink.com/SpectralinkService/support/us/support/voice/wi-fi/spectralink_8400_wireless.html

For Return Material Authorization: mailto:nalarma@spectralink.com

Spectralink References

All Spectralink documents are available at http://support.spectralink.com. Use the Documents and Downloads pane and select Voice as the Product Type and then select the Spectralink 84-Series Wireless Telephone from the page. For other documents, use the navigation pane on the left to locate the product and open the page.

Specific Documents

The *Spectralink 84-Series Wireless Telephone Administration Guide* provides a comprehensive list of every parameter available on Spectralink 84-Series Wireless Telephones.

Spectralink 84-Series Wireless Telephone Deployment Guide This document introduces deployment concepts and the methods of provisioning the 84-Series handsets in any type of facility. It is the fundamental text and a prerequisite to this Administration Guide, especially for administrators who are new to the Spectralink 84-Series handsets or who may wish a refresher course.

Quick Barcode Connector Administration Guide Provides instruction for implementation of the barcode application. The *Spectralink 84-Series User Guide* contains information about using the barcode feature.

The *Spectralink 84-Series User Guide* offers comprehensive instructions on using each of the features deployed on the handsets.

Barcode Reference

The Bar Code Book: A Comprehensive Guide to Reading, Printing, Specifying, Evaluating, and Using Bar Code and Other Machine-Readable Symbols by Roger C. Palmer, Fifth Edition

The book describes the many different forms of 1-D and 2-D bar code symbols, explains how they work, compares their attributes, and provides detailed reference information. Equipment used for printing, reading, and evaluating bar code symbols is reviewed, and extensive information is provided about the applicable industry standards. The emerging fields of Direct Part Marking and image-based scanning is reviewed, and the issue of patents is presented. Many applications of the technology are described.

Conventions Used In This Document

Icons

Icons indicate extra information about nearby text.

Caution

The *Caution* icon highlights information you need to know to avoid a hazard that could potentially impact device performance, application functionality, successful feature configuration and/or affect handset or network performance.

Admin Tip

This tip advises the administrator of a smarter, more productive or alternative method of performing an administrator-level task or procedure.

Settings

The Settings icon highlights information to help you zero in on settings you need to choose for a specific behavior, to enable a specific feature, or access customization options.

Typography

A few typographic conventions, listed next, are used in this guide to distinguish types of in-text information.

Convention	*Description*
Bold	Highlights interface items such as menus, soft keys, file names, and directories. Also used to represent menu selections and text entry to the handset.
Italics	Used to emphasize text, to show example values or inputs, and to show titles of reference documents available from the Spectralink Support Web site and other reference sites.
Underlined blue	Used for URL links to external Web pages or documents. If you click on text in this style, you will be linked to an external document or Web page.
Bright orange text	Used for cross references to other sections within this document. If you click on text in this style, you will be taken to another part of this document.
`Fixed-width-font`	Used for code fragments and parameter names.

This guide also uses a few writing conventions to distinguish conditional information.

Convention	*Description*
<*MACaddress*>	Indicates that you must enter information specific to your installation, handset, or network. For example, when you see <*MACaddress*>, enter your handset's 12-digit MAC address. If you see <*installed-directory*>, enter the path to your installation directory.
>	Indicates that you need to select an item from a menu. For example, **Settings** > **Basic** indicates that you need to select **Basic** from the **Settings** menu.

Chapter 1: Understanding Barcode Technology

Barcode technology enables you to encode and decode information stored in a variety of visual patterns. Barcode patterns can store a variety of data. Currently, the Spectralink 8450 handset supports a wide range of one-dimensional (1D) and stacked 1D barcode types, including the Code 128 barcode symbology, which can contain up to 70 numerals and/or characters. The Spectralink 8452/8453 handset supports a wide range of two-dimensional (2D) barcode types. Two-dimensional barcode symbologies typically encode more data, which may be contained in a smaller barcode label, as compared with 1D barcode symbologies. The Spectralink 8450 can only decode 1D barcode symbologies, whereas the Spectralink 8452/8453 can decode both 1D and 2D barcode label formats. The Spectralink 8452/8453 can also decode composite barcodes that contain both a 1D and a 2D barcode component, such as the GS1 Composite CC-A/B symbology often found on drug packaging.

1D vs. 2D Formats

8450 and 1D Barcode Patterns

Barcode patterns can store a variety of data. Currently, your Spectralink 8450 handset supports a wide range of one-dimensional (1D) and stacked ID barcode types, including the Code 128 barcode symbology, which can contain up to 70 numerals and/or characters.

1D example (Code 128 symbology)

8452/8453 and 2D Barcode Patterns

Your Spectralink 8452/8453 handset supports a wide range of two-dimensional (2D) barcode types. Two-dimensional barcode symbologies typically encode more data, which may be contained in a smaller barcode label, as compared with 1D barcode symbologies. The Spectralink 8452/8453 can decode both 1D and 2D barcode label formats, as well as composite 1D/2D barcodes.

2D example (QR Code symbology)

Chapter 2: Barcode Applications

Barcode information is typically entered into a field in an application that processes the data. This application might be running:

- in the web browser on the handset
- on a computer that is linked to a Spectralink 845x handset via QBC.

Using On-board Applications

The first item is a web application running on the web browser on the handset. The scanned information is used by the web application and either populates an input field on the page or is used by code in the web page to continue a work flow.

Using the Quick Barcode Connector™ (QBC)

The second item is an application that is running on a computer accessible to the user that has been loaded with the Quick Barcode Connector application. QBC enables you to capture barcode data using a Spectralink 8450 or 8452/8453 handset and transfer the data to the application running on the computer associated with the scanning handset. You can think of it as a wireless barcode scanner connected to the computer.

For more information, see the *Quick Barcode Connector (QBC) Administration Guide*.

Caution: Required settings for QBC

Several settings MUST be set to their default value to ensure correct interoperability between the handset and QBC:

- barcode.preambleTransmissionValue (default Null)
- barcode.postambleTransmissionValue (default Null)
- barcode.symbologyIdTransmission (default 0)

See the explanation of these parameters in Administration Parameters.

Supported Symbologies

All of the symbologies listed here are enabled by default except GS1 Composite.

Symbology	*1D*	*2D*
Aztec		X
Codabar	X	X
Code11	X	X
Code 39	X	X
Code 93	X	X
Code 128*†	X	X
DataMatrix	X	X
EAN / UPC†	X	X
GS1 Composite*†	X	X
GS1 DataBar	X	X
Interleaved 2 of 5*	X	X
Micro PDF 417		X
MSI Code	X	X
PDF 417		X
Plessey Code	X	X
QR Code		X
Standard 2 of 5	X	X
Telepen	X	X

* Some parameters apply only to 1D or 2D.

† This symbology has conflicts with other symbologies or internally. Please see the section *Conflicting Symbologies* for explanation.

Note: Symbologies available by default on 84- and 87- Series handsets

All symbologies covered in this document (except for GS1 Composite) are available on both the 84- and 87-Series handsets and are enabled by default. The 84 Series can be additionally configured through the .cfg files. The 87-Series is not further configurable for barcode symbologies and therefore only the default settings can be deployed as of this writing.

Special Alerts for Barcode Applications

You can assign special alerts, ringtones and vibrations for certain events. The *Spectralink 84-Series User Guide* contains instruction on how to set ring types for different conditions.

Chapter 3: Barcode Implementation

Implementation of barcode parameters requires that you include your symbology parameters in the configuration (.cfg) files that you prepare for your facility. If you are using one of the templates included with the software, common barcodes are enabled by default.

Configuration flexibility allows you to structure the files according to the most efficient method for your facility. See the *Spectralink 84-Series Deployment Guide* for a full explanation of .cfg files and how they are structured. Double check the site.cfg file to determine if the barcode you want to deploy is enabled.

Parameters are assigned by:

- Site – parameters that apply to the entire deployment such as network, log-in, DHCP, etc.
- Group – parameters that apply to a limited number of users such as nurses or sales departments.
- User – parameters that apply to specific users such as extension and username.

The first essential factor in determining how to configure the parameters is whether all 8450/8452/8453 handsets will be using the same barcode symbology/symbologies or if specific groups will need certain symbologies that conflict with the symbologies used by another group. See the section below for information on conflicting symbologies.

Admin Tip: Recommended configuration

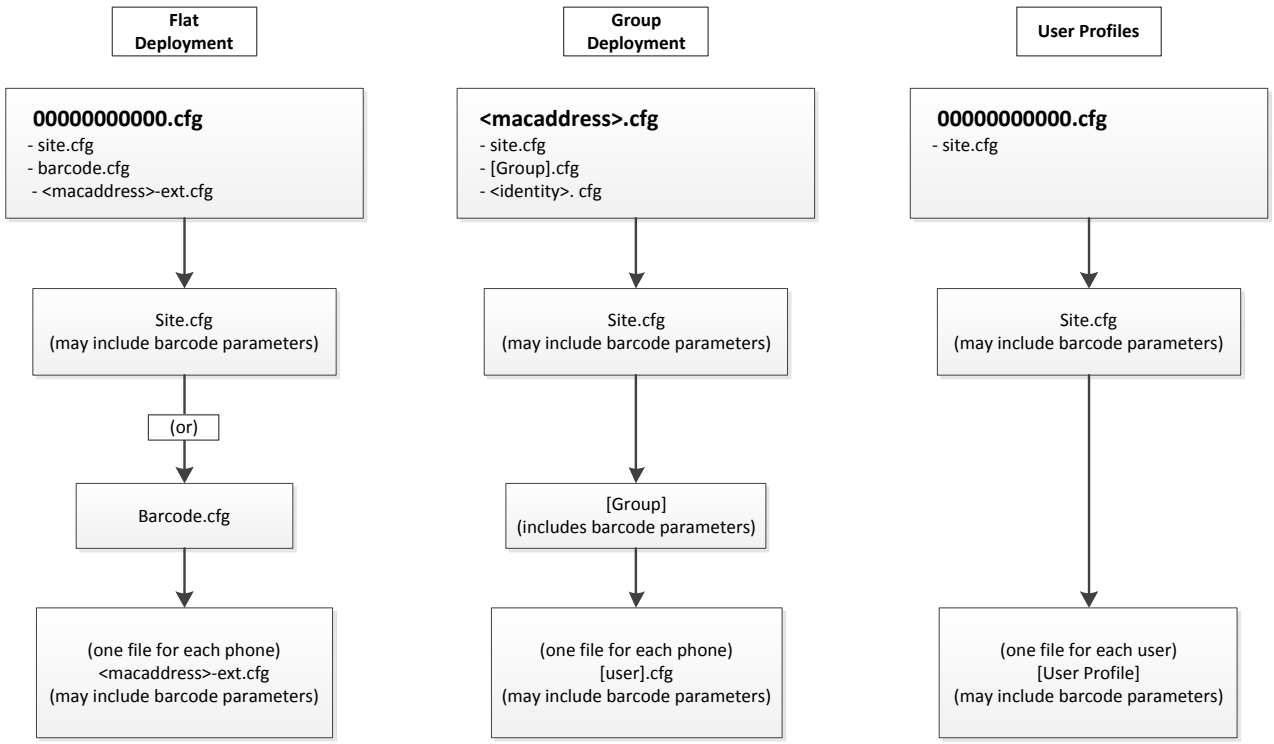
Although barcode parameters can be included almost anywhere in the .cfg file structure, the recommendations given here conform to the standard configurations as given in the Spectralink 84-Series Deployment Guide. Following these guidelines will make your installation easier to administer and support.

One of these three types of configurations is recommended.

- If different and conflicting barcode symbologies are deployed, the conflicting parameters should be assigned to a group or groups and included in each group's .cfg file.
- If all barcode symbologies are the same for all handsets and no conflicting symbologies are required, the parameters are best deployed site-wide in the site.cfg file or in a separate barcode.cfg file that all handsets reference through the 00000000000.cfg file.
- In rare instances, parameters should be included in the user file. For instance if only one user requires a certain symbology that conflicts with the symbologies used in the rest of the facility, that specific handset can be configured with the unique symbology.

  If conflicting symbologies are in use and group .cfg files cannot be used, you must include the barcode parameters in each user profile .cfg file.

These recommendations align with the three Scenarios described in the Deployment Guide:



Settings: The barcode.cfg file

All barcode parameters are included in the barcode.cfg template. You can use this file to customize barcode parameters for your facility by either including it wholesale as in Flat Deployment or by copying and pasting the symbologies you want to deploy into another .cfg file.

As you can see from the above graphic, any .cfg file could contain the barcode parameters. Your primary concerns should be accuracy of deployment and ease of maintenance. Therefore, the general parameters should be included in the site.cfg file unless:

- you are using the barcode.cfg file as shown as an option in the Flat Deployment scenario
- you must deploy conflicting parameters in which case you would put the symbologies in a [Group] or [user] file.

Conflicting Symbologies

Caution

Certain symbologies are mutually exclusive. If you use the barcode.cfg file, ensure that you disable the symbologies that you do not want to deploy. If you deploy conflicting symbologies, ensure that they are segregated by [Group] or by [User].

The GS1 Composite symbology and the EAN/UPC symbology can conflict with each other.

This is due to the fact that some GS1 Composite variants (e.g. CC-A/B) contain a 2D barcode and a UPC or EAN barcode. If you are trying to scan such a barcode and you have EAN/UPC enabled, the barcode scanner may only return the EAN/UPC data and not the 2D portion of the composite barcode.

ISBT 128 and Code 128 conflict with each other.

ISBT 128 consists of a Code 128 barcode with special data ID information prepended to the barcode data. If read as an ISBT 128 barcode, the scanner can correctly interpret this special data ID information. If read as a Code 128 barcode, the scanner will mistake the special data ID information as just part of the barcode data. For this reason, the configuration parameters enforce that they can't both be activated. (See barcode.symbology.symbology128Type.selection)

Chapter 4: Barcode Parameters

Barcode parameters must be set to correctly scan the symbologies encountered so that the information passed to application programs (either internal web applications or to the PC via QBC) contains the barcode data information the programs expected. For QBC, the barcode parameters set in the provisioning server files must match the type of barcode input requested by the application program for a successful implementation of barcoding.

Barcode parameter groups are listed here in alphabetical order. Most symbologies are enabled by default.

Administration Parameters

Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode. aimingBeamDuration	0 to 2550, milliseconds	500 or 400	The aiming beam duration. The default for the Spectralink 8450 is 500. The default for the Spectralink 8452/8453 is 400.
barcode. aimingBeamMode	0 to 2	0	The aiming beam mode. If the aiming beam is turned on, the scanner will turn on the aiming beam for the barcode.aimingBeamDuration before attempting to decode a barcode. This allows a user to more accurately aim the scanner, ensuring accurate scanning of a particular barcode when many barcodes are close together. Enabling this will cause the minimum time to scan a barcode to increase by the barcode.aimingBeamDuration. *NOTE: Changing this value from will significantly change the user's barcode scanning experience, so be sure to enlist your user's help in determining their preferred method.* The supported values are: • 0 = typical aimer • 1 = one button press aim and read • 2 = first button press aim, second button press read
barcode. centerDecodingActivation	0 or 1	0 or 1	A flag to determine if center decoding activation is enabled. Center Decoding causes the scanner to only attempt to decode barcodes at, or near the center of the scan area. If 0, center decoding activation is disabled (default for the Spectralink 8450). If 1, center decoding activation is enabled (default for the Spectralink 8452/8453). The barcode.centerDecodingTolerance parameter is used.

Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode. centerDecodingTolerance	0 to 100	00 or 10	The center decoding tolerance. The larger the value, the further from the center the barcode can be and still be decoded. A low value is useful when there is a high density of barcodes. A high value allows the scanner to more quickly acquire and read a barcode. The default for the Spectralink 8450 is 00. The default for the Spectralink 8452/8453 is 10.
barcode. postambleTransmissionValue	Hex string 1-20 bytes of 00-FF or Null	Null	The postamble transmission value. If defined, this value is appended to the barcode data scanned. (e.g. [barcode data][postamble]) If the QBC application is used, this parameter MUST be set to Null. Note that the QBC application allows configuration of a postamble that it will append to the barcode data. Note that all of the optional transmitted data is inserted in the following order if configured: [preamble][symbologyID][barcode data][postamble]
barcode. preambleTransmissionValue	Hex string 1-20 bytes of 00-FF or Null	Null	The preamble transmission value. If defined, this value is prepended to the barcode data scanned. ([preamble][barcode data]) If the Quick Barcode Connector (QBC) application is used, this parameter MUST be set to Null. Note that the QBC application allows configuration of a preamble that it will prepend to the barcode data. Note that all of the optional transmitted data is inserted in the following order if configured: [preamble][symbologyID][barcode data][postamble]
barcode.symbologyId Transmission	0 to 2	0	Determines whether the AIM symbology ID is transmitted. The symbology ID is a code that uniquely identifies each barcode symbology type. If non-zero, the Symbology ID is sent just before the barcode data. ([symbologyID][barcode data]) If the QBC application is used, this parameter MUST be set to Null. The supported values are: • 0 = disable transmission • 2 = AIM Identifier Note that all of the optional transmitted data is inserted in the following order if configured: [preamble][symbologyID][barcode data][postamble] AIM identifiers are 3 characters, starting with a “]”. The second character is the AIM symbology ID character, and the third character is the Processing

<table>
<tr><th>Parameter</th><th>Permitted Values</th><th>Default</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>option. Thus, for example, the AIM for an Aztec barcode is “]z0”. The symbology ID and processing option characters for all supported symbologies are:

<table><tr><th>Symbology</th><th>Symbology ID</th><th>Processing option</th></tr><tr><td>Aztec</td><td>z</td><td>0</td></tr><tr><td>Codabar</td><td>F</td><td>0,1,2 or 4</td></tr><tr><td>Code 11</td><td>H</td><td>0,1 or 3</td></tr><tr><td>Code 39</td><td>A</td><td>0,1,3,4,5 or 7</td></tr><tr><td>Code 93/93i</td><td>G</td><td>0,1-9,A-Z,or a-m</td></tr><tr><td>Datamatrix</td><td>d</td><td>1</td></tr><tr><td>EAN/UPC (standard lengths)</td><td>E</td><td>0,3 or 4</td></tr><tr><td>EAN/UPC (other lengths with no check digit)</td><td>X</td><td>0</td></tr><tr><td>EAN/UPC linear components</td><td>E</td><td>0,1,2,3 or 4</td></tr><tr><td>GS1 Composite</td><td>e</td><td>0,1,2 or 3</td></tr><tr><td>GS1 Databar</td><td>e</td><td>0</td></tr><tr><td>Interleaved 2 of 5</td><td>I</td><td>0,1 or 3</td></tr><tr><td>MSI Code</td><td>M</td><td>0 or 1</td></tr><tr><td>PDF417/MicroPDF</td><td>L</td><td>0,3,4 or 5</td></tr><tr><td>Plessey Code</td><td>P</td><td>0</td></tr><tr><td>QR Code</td><td>Q</td><td>0 or 1</td></tr><tr><td>Standard 2 of 5 (2 start/stop bars)</td><td>R</td><td>0,1 or 3</td></tr><tr><td>Standard 2 of 5 (3 start/stop bars)</td><td>S</td><td>0</td></tr><tr><td>Telepen</td><td>B</td><td>0 or 1</td></tr></table></td></tr>
<tr><td>barcode.
illuminationLevel
(2D only)</td><td>0 to 100</td><td>50</td><td>The illumination level of the background rectangular LED. 50% gives good overall performance. Higher values might give better performance in very low light environments but will have an impact on battery life in heavy scanning situations.
Only available for 8452/8453.</td></tr>
</table>

Symbology Parameters

Aztec

(2D only)

Aztec Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. aztec. enabled	0 or 1	1	A flag to determine whether or not Aztec symbology is enabled. Aztec is a two-dimensional matrix style symbology which can encode around 3000 character using entire

Aztec Parameter	*Permitted Values*	*Default*	*Interpretation*
			256-byte ASCII character set. This symbology is only available on the Spectralink 8452/8453 handset.
barcode.symbology. aztec. structureAppendMode	0 or 1	0	A flag to determine whether or not structure append mode is enabled. If set to 1, the Aztec structured append header is used instead of ECI.
barcode.symbology. aztec. GS1-128Emulation	0 or 1	0	A flag to determine whether or not GS1-128 Emulation is enabled.

Codabar

Codabar Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. codabar. enabled	0 or 1	1	A flag to determine whether or not Codabar symbology is enabled. Codabar is a self-checking, discrete numerical symbology. It has a 16 character set and is used in blood banks, libraries and certain express parcel applications.
barcode.symbology. codabar. checkDigitTransmission	0 or 1	0	A flag to determine whether or not the check digit is transmitted for Codabar. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. codabar. checkDigitVerification	0 or 1	0	A flag to determine whether or not to enable check digit verification for Codabar.
barcode.symbology. codabar. clsi	0 or 1	0	The CLSI library system. The CLSI library system for Codabar inserts spaces after characters 1, 5, and 10 in the 14-character label. Start/stop characters can be transmitted or not transmitted as required. This system is used by some libraries in the USA. The support values are: • 0 = not active • 1 = active (insert spaces)
barcode.symbology. codabar. concatenation	0 to 2	0	Two adjacent Codabar codes scanned in a single sweep can be concatenated and sent as a single message. Codabar concatenation is applied according to the concatenation mode selected in barcode. symbology. codabar. concatenationMode.

Codabar Parameter	*Permitted Values*	*Default*	*Interpretation*
			The supported values are: • 0 = not active • 1 = transmitted concatenated code only • 2 = transmit all codes (single and concatenated)
barcode.symbology.codabar.concatenationMode	0 to 2	0	Concatenation is applied differently depending on the concatenation mode. There are 3 different modes: • No restrictions Concatenates all adjacent codes, intermediate start/stop characters are not transmitted. • First code stop character = second code start character Only concatenates adjacent codes if the first code stop character is the same as the second code start character (C123456A + A123456D = 123456123456 or C123456123456D if start/stop characters are transmitted). • American Blood Commission (ABC) Only concatenates adjacent codes if the stop character of the first code = D and the start character of the second code = D (C123456D + D123456A = 123456123456 or C123456123456A if start/stop characters are transmitted). The supported values are: • 0 = no restrictions • 1 = first code stop = second code start • 2 American Blood Commission (ABC)
barcode.symbology.codabar.lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length

Codabar Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. codabar. lengthL1	0 to 255	6	The Codabar symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.codabar.lengthMode used. Minimum length for Codabar is 3 characters. Bar code length = <start> + <bar code data> + [check digit] + <stop>
barcode.symbology. codabar. lengthL2	0 to 255	0	The Codabar symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.codabar.lengthMode used. Minimum length for Codabar is 3 characters. Bar code length = <start> + <bar code data> + [check digit] + <stop>
barcode.symbology. codabar. lengthL3	0 to 255	0	The Codabar symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.codabar.lengthMode used. Minimum length for Codabar is 3 characters. Bar code length = <start> + <bar code data> + [check digit] + <stop>
barcode.symbology. codabar. startStopTransmission	0 to 4	0	The start/stop tramission characters. The supported values are: • 0 = not transmitted • 1 = “a, b,c, d” transmitted • 2 = “A, B, C, D” transmitted • 3 = “a,b,c,d / t,n, *, e” transmitted • 4 = “DC1, DC2, DC3, DC4” transmitted

Code 11

Code 11 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. code11. enabled	0 or 1	1	A flag to determine whether or not Code 11 symbology is enabled. Code 11 is a very high density, discrete numeric symbology. It is most extensively used in labeling telecommunications components and equipment.

Code 11 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology.code11.checkDigitTransmission	0 or 1	1	A flag to determine whether or not the check digit is transmitted for Code 11. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology.code11.checkDigitVerification	1 or 2	1	The number of check digits for Code 11 check digit verification. The supported values are: • 1 = 1 digit • 2 = 2 digits
barcode.symbology.code11.lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length
barcode.symbology.code11.lengthL1	0 to 255	0	The Code 11 symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code11.lengthMode used. Minimum length for Code 11 is 2 characters. Bar code length = <bar code data>
barcode.symbology.code11.lengthL2	0 to 255	0	The Code 11 symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code11.lengthMode used. Minimum length for Code 11 is 2 characters. Bar code length = <bar code data>

Code 11 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. code11. lengthL3	0 to 255	0	The Code 11symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code11.lengthMode used Minimum length for Code 11 is 2 characters. Bar code length = <bar code data>

Code 39

Code 39 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. code39. enabled	0 or 1	1	A flag to determine whether or not Code 39 symbology is enabled. Code 39 is a discrete, variable length, and self-checking alphanumeric symbology. The character set is uppercase A to Z, 0 to 9, dollar sign ($), period (.), slash (/), percent (%), space ( ), plus (+), and minus (-). Standard Code 39 supports 43 characters while Code 39 Full ASCII (or Extended Code 39) supports 128 characters.
barcode.symbology. code39. acceptedCharacters	1 to 3	2	The Code 39 accepted start characters. The supported values are: • 1 = $ only • 2 = * only • 3 = * and $
barcode.symbology. code39. checkDigitTransmission	0 or 1	0	A flag to determine whether or not the check digit is transmitted for Code39. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. code39. checkDigitVerification	0 to 3	1	There are 3 types of check digit verification for Code 39: • Modulo 43 Standard check digit for Code 39 that uses the Modulo 43 algorithm. It provides extra validation of data. • French CIP Check digit used for the French pharmaceutical industry. It is only used for codes with 7 characters. • Italian CPI

Code 39 Parameter	*Permitted Values*	*Default*	*Interpretation*
			Check digit used by the Italian pharmaceutical industry, also known as Code 32. If the checksum is not validated the code is transmitted as standard Code 39. Activating one type of check digit deactivates all other check digits. The supported values are: • 0 = disable • 1 = modulo 43 • 2 = French CIP • 3 = Italian CPI
barcode.symbology. code39. format	0 or 1	0	The Code 39 format type. When Code 39 full ASCII conversion is enabled Code 39 bar codes are transmitted with an extended character set. The full 128 ASCII character set is encoded in Code 39 by combining two regular Code 39 characters. The support values are: • 0 = standard 43 characters • 1 = full ASCII (extended)
barcode.symbology. code39. lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length
barcode.symbology. code39. lengthL1	0 to 255	0	The Code 39 symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code39.lengthMode used. Minimum length for Code 39 is 3 characters.

Code 39 Parameter	*Permitted Values*	*Default*	*Interpretation*
			Bar code length = <start> + <bar code data> + [check digit] + <stop>
barcode.symbology. code39. lengthL2	0 to 255	0	The Code 39 symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code39.lengthMode used. Minimum length for Code 39 is 3 characters. Bar code length = <start> + <bar code data> + [check digit] + <stop>
barcode.symbology. code39. lengthL3	0 to 255	0	The Code 39 symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code39.lengthMode used. Minimum length for Code 39 is 3 characters. Bar code length = <start> + <bar code data> + [check digit] + <stop>
barcode.symbology. code39. readingTolerance	0 to 2	0	The Code 39 reading tolerance. The tolerance levels for reading "hard to read" bar codes are: • High This is the most permissive mode. When enabled, the scanner reads codes of variable quality. The first margin of the quiet zone is expected to be four times the width of the narrow element, and the second margin twice the width. Quiet zone is the white space before and after a bar code to ensure correct decoding. • Medium This mode allows medium permissiveness. • Low This is the least permissive mode. When enabled, the scanner reads only high quality codes that meet the official Code 39 standards. The first margin of the quiet zone is expected to be seven times the width of the narrow element, the second margin ten times. The support values are: • 0 = high • 1 = medium • 2 = low

Code 39 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. code39. startStop	0 or 1	0	A flag to determine whether or not the Code 39 start/stop transmission is transmitted. The supported values are: • 0 = not transmitted • 1 = transmitted

Code 93

Code 93 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. code93. enabled	0 or 1	1	A flag to determine whether or not Code 93 symbology is enabled. Code 93 is an alphanumeric full ASCII symbology using combinations of 2 characters. Unlike Code 39, Code 93 is a continuous symbology which produces denser code. Code 93i encompasses and extends Code 93: alphanumeric, full and extended ASCII, and all Unicode characters.
barcode.symbology. code93. lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length
barcode.symbology. code93. lengthL1	0 to 255	0	The Code 93 symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code93.lengthMode used. Minimum length for Code 93 is 1 character. Bar code length = <bar code data>

Code 93 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. code93. lengthL2	0 to 255	0	The Code 93 symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code93.lengthMode used. Minimum length for Code 93 is 1 character. Bar code length = <bar code data>
barcode.symbology. code93. lengthL3	0 to 255	0	The Code 93 symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the barcode.symbology.code93.lengthMode used. Minimum length for Code 93 is 1 character. Bar code length = <bar code data>

Code 128

Code 128 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. symbology128Type. selection	0 to 4	3	The group of 128 Type symbologies that are enabled. The supported values are: • 0 = Code 128 disabled, GS1-128 disabled, ISBT 128 disabled. • 1 = Code 128 *enabled*, GS1-128 disabled, ISBT 128 disabled. • 2 = Code 128 disabled, GS1-128 *enabled*, ISBT 128 disabled • 3 = (default) Code 128 *enabled*, GS1-128 *enabled*, ISBT 128 disabled • 4 = Code 128 disabled, GS1-128 disabled, ISBT 128 *enabled* Code 128 is a very high-density alphanumeric symbology that supports the extended ASCII character set. It is a variable length, continuous code that uses multiple element widths. GS1-128 is a form of Code 128. It uses the normal Code 128 and adds the FNC1 character in the first position. ISBT 128 is a variant of Code 128. It has been adapted for use in Blood Transfusion Services worldwide by the International Society of Blood Transfusion (ISBT).

Code 128 Parameter	*Permitted Values*	*Default*	*Interpretation*
Caution ISBT 128 and Code 128 cannot be enabled at the same time.			
barcode.symbology. symbology128Type. GS1-128Id	0 or 1	1	The GS1-128 identifier. According the GS1-128 norm, the AIM identifier "]C1" is added by default in front of each GS1-128 bar code as follows:]C1<data> You can decide to keep this identifier or remove it. The supported values are: • 0 = remove AIM identifier from data • 1 = include AIM identifier in data
barcode.symbology. symbology128Type. fnc1Separator	Hex string One byte of 00 to FF	1d	The FNC1 separator character. This separator is used when multiple identifiers and their fields are concatenated. For example, this is useful for separating fields when the <GS> character cannot be transmitted. The value should be specified in hexidecimal.
barcode.symbology. symbology128Type. lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length
barcode.symbology. symbology128Type. lengthL1	0 to 255	0	The symbology 128 L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Code 128/GS1-128 is 1 character. Bar code length = <bar code data>

Code 128 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. symbology128Type. lengthL2	0 to 255	0	The symbology 128 L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Code 128/GS1-128 is 1 character. Bar code length = <bar code data>
barcode.symbology. symbology128Type. lengthL3	0 to 255	0	The symbology 128 L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Code 128/GS1-128 is 1 character. Bar code length = <bar code data>
barcode.symbology. symbology128Type. readingRange (1D only)	0 or 1	0	The symbology 128 reading range. Use extended reading range when long distance reading is important for your application. When using this mode a special algorithm is used and reading distances are significantly increased. The supported values are: • 0 = normal • 1 = extended
barcode.symbology. symbology128Type. readingTolerance	0 to 2	0	The symbology 128 reading tolerance. Set the tolerance level for reading hard to read bar codes: • High - most permissive (reads codes of variable quality) • Medium - medium permissiveness • Low - least permissive (reads only high quality codes including · quiet zone verification) Quiet zone is the white space before and after a bar code to ensure correct decoding. The support values are: • 0 = high • 1 = medium • 2 = low
barcode.symbology. symbology128Type. isbt128TransmitCodes	0 to 2	0	The transmission mode for concatenated ISBT 128 codes. The supported values are: • 0 = Disable Codes are always transmitted as single codes (no concatenation). • 1 = Concatenated codes only

Code 128 Parameter	*Permitted Values*	*Default*	*Interpretation*
			Only transmits concatenated codes, does not transmit single codes. • 2 = Single codes and concatenated codes Single codes and concatenated codes are both transmitted. If the product can only "see" one code of a code pair it will send that code as a single code. If the product "sees" both codes of a pair it will concatenate the codes depending on the concatenation mode setting.
barcode.symbology. symbology128Type. isbt128Concatenate Pairs	0 or 1	0	The ISBT 128 Concatenation pairs. Certain ISBT 128 codes are always concatenated in compliance with Section 4. 1 of the "ISBT 128 Bar Code Symbology and Application Specification for Labeling of Whole Blood and Blood Components" (June 2000, Version 1. 2. 1). These include: • Donation Identification Number + ABO/Rh (D) Blood Groups • Donation Identification Number + Donor Identification Number • Donation Identification Number + Confidential Unit Exclusion Status • Product Code + Expiration Date All other code pairs are not concatenated unless the scanner is set to concatenate all code pairs. Concatenated codes are transmitted according to the concatenation transmission mode selected. The support values are: • 0 = authorized ISBT 128 code pairs only • 1 = all ISBT 128 code pairs
barcode.symbology. symbology128Type. gtinProcessing	0 or 1	0	A flag to determine whether or not GTIN processing for GS1-128 is enabled. GTIN stands for "Global Trade Item Number" and transmits GS1-128 as the 14 character GS1 Composite GTIN.
barcode.symbology. symbology128Type. unconventionalGS1-128	0 or 1	0	A flag to determine whether or not unconventional GS1-128 barcodes are decoded. Unconventional GS1-128 allows decoding of unconventional GS1-128 which is GS1-128 with two FNC1 characters at the beginning.

Datamatrix

Datamatrix Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. datamatrix. enabled	0 or 1	1	A flag to determine whether or not the DataMatrix symbology is enabled. DataMatrix is a two-dimensional matrix symbology which can encode up to 2000 characters. DataMatrix is only supported by the Spectralink 8452/8453 handset.

EAN / UPC

EAN / UPC Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. upca. enabled	0 or 1	1	A flag to determine whether or not the UPC-A symbology is enabled. Universal Product Code (UPC) symbology is the most commonly used bar code on consumer products in the USA and Canada. It is a fixed-length, numeric, continuous symbology that uses four element widths.
barcode.symbology. upce. enabled	0 or 1	1	A flag to determine whether or not the UPC-E symbology is enabled. UPC-E is a compressed version of UPC-A. It cuts the data length in half by compressing the extra zeros. As it is more compact than UPC-A, it is especially used on products with very small packaging where UPC-A bar codes would not normally fit.
barcode.symbology. ean8. enabled	0 or 1	1	A flag to determine whether or not the EAN-8 symbology is enabled. EAN-8 is a compressed version of EAN-13 (as UPC-A and UPC-E). As it is more compact than EAN-13, it is especially used on products with very small packaging where EAN-13 bar codes would not normally fit.
barcode.symbology. ean13. enabled	0 or 1	1	A flag to determine whether or not the EAN-13 symbology is enabled. The European Article Numbering (EAN) symbology is an extension of the UPC-A symbology which includes the country information. This symbology is used on most consumer goods in Europe.
barcode.symbology. upcean. addondigit. transmission	0 or 1	0	The requirements for add-on digits for UPC/EAN symbologies. The supported values are: • 0 = add-on digits not required but transmitted if read • 1 = add-on digits required and transmitted

EAN / UPC Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. upcean. addondigit. addon2	0 or 1	0	A flag to determine whether or not add-on 2 for all UPC/EAN symbologies is enabled.
barcode.symbology. upcean. addondigit. addon5	0 or 1	0	A flag to determine whether or not add-on 5 for all UPC/EAN symbologies is enabled.
barcode.symbology. upcean. addondigit. securityLevel	0 to 100	10	The add-on digit security is used only when add-on digits are not required but transmitted. A higher security level results in more secure decoding however this can slow the decode rate.
barcode.symbology. upca. checkDigit Transmission	0 or 1	1	A flag to determine whether or not the check digit is transmitted for UPCA. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. upce. checkDigit Transmission	0 or 1	1	A flag to determine whether or not the check digit is transmitted for UPCE. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. ean8. checkDigit Transmission	0 or 1	1	A flag to determine whether or not the check digit is transmitted for EAN-8. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. ean13. checkDigit Transmission	0 or 1	1	A flag to determine whether or not the check digit is transmitted for EAN-13. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. upca. upcNumber SystemTransmission	0 or 1	1	A flag to determine whether or not number system transmission for UPC-A is enabled. UPC-A has a transmitted number system equal to 0. To transmit the additional leading character (country code), select "UPC-A transmitted as EAN-13" option. The number system is transmitted as follows: <leading character> <number system> <data>

EAN / UPC Parameter	*Permitted Values*	*Default*	*Interpretation*
			<check digit>
barcode.symbology. upce. upcNumber SystemTransmission	0 or 1	1	A flag to determine whether or not number system transmission for UPC-E is enabled. The number system is transmitted as follows: <leading character> <number system> <data> <check digit>
barcode.symbology. upca. reencoding	0 or 1	1	The UPC-A re-encoding format. The support values are: • 0 = UPC-A transmitted as UPC-A • 1 = UPC-A converted and transmitted as EAN-13
barcode.symbology. upce. reencoding	0 or 1	1	The UPC-E re-encoding format. The support values are: • 0 = UPC-E transmitted as UPC-E • 1 = UPC-E converted and transmitted as UPC-A
barcode.symbology. ean8. reencoding	0 or 1	0	The EAN-8 re-encoding format. The support values are: • 0 = EAN-8 transmitted as EAN-8 • 1 = EAN-8 converted and transmitted as EAN-13
barcode.symbology. upcean. isbn. enabled	0 or 1	1	Converts all EAN-13 bar codes beginning with "978" or "979" (except for "9790") by removing the first 3 digits, calculating the checksum on the remaining characters, and adding the ISBN (International Standard Book Number) check digit. The supported values are: • 0 = EAN-13 conversion to ISBN disabled • 1 = EAN-13 conversion to ISBN enabled Note: No conversion is done if GTIN processing is active.
barcode.symbology. upcean. gtinProcessing	0 or 1	0	A flag to determine whether or not GTIN processing for all UPC/EAN symbologies is enabled. GTIN stands for "Global Trade Item Number" and transmits UPC/EAN symbologies as the 14 character EAN. UCC GTIN.
barcode.symbology. upcean. readingRange (1D only)	0 or 1	1	The reading range can be set to standard or extended. Use extended reading range when long distance reading is important for your application. When using this mode a special algorithm is used and reading distances are significantly increased. The supported values are: • 0 = normal

EAN / UPC Parameter	*Permitted Values*	*Default*	*Interpretation*
			• 1 = extended

GS1 Composite

GS1 Composite Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. GS1Composite. cc-abCombined.enabled	0 or 1	0	0 = Not active 1 = Active
barcode.symbology. GS1Composite. cc-c.enabled	0 or 1	0	0 = No active 1 = Active
barcode.symbology. GS1Composite. linearTransmissionOnly (2D only)	0 or 1	0	0 = Note active 1 = Active
barcode.symbology. GS1Composite. unconventional (2D only)	0 or 1	0	0 = Not active 1 = Active
barcode.symbology. GS1Composite. GS1-128Emulation (1D only)	0 or 1	0	0 = Not active 1 = Active
barcode.symbology. GS1CompositeType. eanUpcCompositeMessage	0 to 2	2	0 = Never linked 1 = Always linked 2 = Auto-discriminate

GS1 Databar

GS1 Databar Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. databar. expended. enabled	0 or 1	1	A flag to determine whether or not the GS1 DataBar expanded symbology is enabled. GS1 DataBar is a high density 1D bar code designed to encode standard GS1 Composite/EAN item numbers - up to 14 digits - in a very small footprint. GS1 DataBar Expanded encodes a GS1 Composite item identification plus supplementary element strings such

GS1 Databar Parameter	*Permitted Values*	*Default*	*Interpretation*
			as weight and "best before" date in a linear symbol that can be scanned omni-directionally by suitably programmed point-of-sale scanners. GS1 DataBar Expanded reads the following types of GS1 DataBar: • GS1 DataBar Expanded • GS1 DataBar Expanded Stacked
barcode.symbology. databar. limited. enabled	0 or 1	1	A flag to determine whether or not the GS1 DataBar limited symbology is enabled. GS1 DataBar is a high density 1D bar code designed to encode standard GS1 Composite/EAN item numbers - up to 14 digits - in a very small footprint. GS1 DataBar Limited encodes a 14-digit GS1 Composite item identification with indicator digits of zero or one in a linear symbol for use on small items that will not be scanned at the point-of-sale. GS1 DataBar Limited does not read stacked version.
barcode.symbology. databar. omni. enabled	0 or 1	1	A flag to determine whether or not the GS1 DataBar omni-directional symbology is enabled. GS1 DataBar is a high density 1D bar code designed to encode standard GS1 Composite/EAN item numbers - up to 14 digits - in a very small footprint. GS1 DataBar Omni-Directional encodes the full 14 digit GS1 Composite item identification in a linear symbol that can be scanned in any direction. GS1 DataBar Omni-Directional reads the following types of GS1 DataBar: • GS1 DataBar Omni-Directional • GS1 DataBar Truncated • GS1 DataBar Stacked • GS1 DataBar Stacked Omni-Directional

Interleaved 2 of 5

Interleaved 2 of 5 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. interleaved2of5. enabled	0 or 1	1	A flag to determine whether or not the Interleaved 2 of 5 symbology is enabled. Interleaved 2 of 5 is a higher-density numerical symbology based upon the Standard 2 of 5 symbology. It is used primarily in the distribution and warehouse industry. Unlike Standard 2 of 5, which only encodes information in the width of the bars,

Interleaved 2 of 5 Parameter	*Permitted Values*	*Default*	*Interpretation*
			Interleaved 2 of 5 encodes data in the width of both the bars and spaces.
barcode.symbology. interleaved2of5. checkDigit Transmission	0 or 1	0	A flag to determine whether or not the check digit is transmitted for Interleaved 2 of 5. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. interleaved2of5. checkDigitVerification	0 to 2	0	There are 2 types of check digit verification for Interleaved 2 of 5: • Modulo 10 Check digit usually used for Code Interleaved 2 of 5 that applies the Modulo 10 algorithm. • French CIP HR Check digit used for the French pharmaceutical industry. It is only used for codes with 7 characters. Activating one type of check digit deactivates all other check digits. The supported values are: • 0 = disable check digit verification • 1 = enable Modulo 10 check digit verification • 2 = enable French CIP HR check digit verification
barcode.symbology. interleaved2of5. lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length.

Interleaved 2 of 5 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology.interleaved2of5.lengthL1	0 to 255	0	The Interleaved 2 of 5 symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Interleaved 2 of 5 is 4 characters. Bar code length = <bar code data>
barcode.symbology.interleaved2of5.lengthL2	0 to 255	0	The Interleaved 2 of 5 symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Interleaved 2 of 5 is 4 characters. Bar code length = <bar code data>
barcode.symbology.interleaved2of5.lengthL3	0 to 255	0	The Interleaved 2 of 5 symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Interleaved 2 of 5 is 4 characters. Bar code length = <bar code data>
barcode.symbology.interleaved2of5.readingRange (1D only)	0 or 1	1	The Interleaved 2 of 5 symbology reading range. Reading range can be set to standard or extended. Use extended reading range when long distance reading is important for your application. When using this mode a special algorithm is used and reading distances are significantly increased. The supported values are: • 0 = normal • 1 = extended
barcode.symbology.interleaved2of5.readingTolerance	0 to 2	0	The Interleaved 2 of 5 symbology reading tolerance. Set the tolerance level for reading hard to read bar codes: • High - most permissive (reads codes of variable quality) • Medium - medium permissiveness • Low - least permissive (reads only high quality codes including · quiet zone verification) Quiet zone is the white space before and after a bar code to ensure correct decoding. The support values are: • 0 = high • 1 = medium • 2 = low

Micro PDF 417

(2D only)

Micro PDF 417 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. micropdf417. enabled	0 or 1	1	A flag to determine whether or not the Micro PDF417 symbology is enabled. Micro PDF417 is closely based on PDF417 but is more space efficient. It is used for applications that do not require the full data capacity of PDF417.
barcode.symbology. micropdf417. code128Emulation	0 or 1	0	When Micro PDF417 Code 128 Emulation is enabled and reading a Micro PDF417 code containing a special flag, the scanner transmits the Code 128 AIM identifier instead of the Micro PDF417 identifier ( ]C instead of]L). The supported values are: • 0 = disable emulation • 1 = enable emulation

MSI Code

MSI Code Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. msi. enabled	0 or 1	1	A flag to determine whether or not the MSI Code symbology is enabled. MSI Code is a bar code symbology and a modified version of Plessey Code. This code is fixed, continuous, and non-self-checking. It is often used to mark retail shelves for inventory reordering. The character set is 0 - 9 plus additional symbols.
barcode.symbology. msi. checkDigitTransmission	0 or 1	1	A flag to determine whether or not the check digit is transmitted for MSI code. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted.
barcode.symbology. msi. checkDigitVerification	1 to 2	1	There are two types of check digit verification for MSI Code: • Modulo 10 Check digit usually used for MSI Code that applies the Modulo 10 algorithm. • Double Modulo 10 The "Double Modulo 10" method essentially means the MSI bar code has two Modulo 10 checksum digits. The supported values are: • 1 = modulo 10

MSI Code Parameter	*Permitted Values*	*Default*	*Interpretation*
			• 2 = double modulo 10
barcode.symbology.msi.lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length.
barcode.symbology.msi.lengthL1	0 to 255	6	The MSI Code symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for MSI Code is 3 characters. Bar code length = <bar code data>
barcode.symbology.msi.lengthL2	0 to 255	0	The MSI Code symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for MSI Code is 3 characters. Bar code length = <bar code data>
barcode.symbology.msi.lengthL3	0 to 255	0	The MSI Code symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for MSI Code is 3 characters. Bar code length = <bar code data>

PDF 417

(2D only)

PDF 417 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. pdf417. enabled	0 or 1	1	A flag to determine whether or not the PDF417 symbology is enabled. Macro PDF417, a feature of PDF417, extends the capability of PDF417 by allowing up to 99,999 PDF417 symbols to be used to store data. This requires the use of more than one PDF417 bar code.
barcode.symbology. pdf417. addresseeTransmission	0 or 1	0	A flag to determine whether or not the PDF417 addressee is transmitted.
barcode.symbology. pdf417. checksumTransmission	0 or 1	0	A flag to determine whether or not the PDF417 checksum is transmitted.
barcode.symbology. pdf417. fileNameTransmission	0 or 1	0	A flag to determine whether or not the PDF417 filename is transmitted.
barcode.symbology. pdf417. fileSizeTransmission	0 or 1	0	A flag to determine whether or not the PDF417 file size is transmitted.
barcode.symbology. pdf417. segmentCount Transmission	0 or 1	0	A flag to determine whether or not the PDF417 segment count is transmitted.
barcode.symbology. pdf417. senderTransmission	0 or 1	0	A flag to determine whether or not the PDF417 sender is transmitted.
barcode.symbology. pdf417. timestampTransmission	0 or 1	0	A flag to determine whether or not the PDF417 time stamp is transmitted.

Plessey Code

Plessey Code Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. plessey. enabled	0 or 1	1	A flag to determine whether or not the Plessey Code symbology is enabled. Plessey Code is a variable length, numerical symbology based on a four bit binary number scheme. This pulse-

Plessey Code Parameter	*Permitted Values*	*Default*	*Interpretation*
			width modulated bar code is commonly used for shelf marking in grocery stores.
barcode.symbology. plessey. checkDigitTransmission	0 or 1	0	A flag to determine whether or not the check digit is transmitted for Plessey code. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted.
barcode.symbology. plessey. lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length.
barcode.symbology. plessey. lengthL1	0 to 255	0	The Plessey Code symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Plessey Code is 3 characters. Bar code length = <bar code data>
barcode.symbology. plessey. lengthL2	0 to 255	0	The PlesseyCode symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Plessey Code is 3 characters. Bar code length = <bar code data>
barcode.symbology. plessey. lengthL3	0 to 255	0	The Plessey Code symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for Plessey Code is 3 characters. Bar code length = <bar code data>

QR Code

(2D only)

QR Code Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. qr2. enabled	0 or 1	1	A flag to determine whether or not the QR Code symbology is enabled. QR Code is a matrix symbology consisting of a square array of modules with a finder pattern located at three corners. A wide range of symbol sizes is supported along with four levels of error correction, and the symbology is noted for its high data density. QR code decoding is only supported on the Spectralink 8452/8453 wireless handset.

Standard 2 of 5

Standard 2 of 5 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. standard2of5. enabled	0 or 1	1	A flag to determine whether or not the Standard 2 or 5 symbology is enabled. Standard 2 of 5 is a low-density numerical symbology encoding all information in the width of the bars. This symbology is also referred to as "Straight 2 of 5" and "Industrial 2 of 5".
barcode.symbology. standard2of5. checkDigit Transmission	0 or 1	0	A flag to determine whether or not the check digit is transmitted. The supported values are: • 0 = check digit not transmitted • 1 = check digit transmitted
barcode.symbology. standard2of5. checkDigitVerification	0 or 1	0	A flag to select whether to verify it using a Modulo 10 algorithm or not to verify it. The supported values are: • 0 = disable • 1 = modulo 10
barcode.symbology. standard2of5. format	0 or 1	0	The Standard 2 of 5 format. The supported formats are: • 0 = Identicon (6 start/stop bars) • 1 = Computer Identics (4 start/stop bars) Note: If setting the format to Computer Identics format, Spectralink recommends disabling Interleaved 2 of 5 symbology (risks of misreading between both symbologies).

Standard 2 of 5 Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. standard2of5. lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length.
barcode.symbology. standard2of5. lengthL1	0 to 255	0	The Standard 2 of 5 symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. The minimum length for Standard 2 of 5 is 3 characters. Bar code length = <bar code data>
barcode.symbology. standard2of5. lengthL2	0 to 255	0	The Standard 2 of 5 symbology L2 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. The minimum length for Standard 2 of 5 is 3 characters. Bar code length = <bar code data>
barcode.symbology. standard2of5. lengthL3	0 to 255	0	The Standard 2 of 5 symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. The minimum length for Standard 2 of 5 is 3 characters. Bar code length = <bar code data>

Telepen

Telepen Parameter	*Permitted Values*	*Default*	*Interpretation*
barcode.symbology. telepen. enabled	0 or 1	1	A flag to determine whether or not the Telepen symbology is enabled. Telepen is an alphanumeric full

Telepen Parameter	*Permitted Values*	*Default*	*Interpretation*
			ASCII symbology with a defined letter case. It supports both ASCII and numeric formats.
barcode.symbology. telepen. format	0 or 1	0	Telepen supports two formats, ASCII and numeric. The Telepen numeric format is used for data compression and is encoded as follows: • start, stop and check digit remain unchanged • ASCII characters between 0 and 16 remain unchanged • characters from 17 to 26 take values from '0X' to '9X' • values over 26 are obtained by subtracting 27 from their ASCII value The supported values are: • 0 = ASCII • 1 = numeric
barcode.symbology. telepen. lengthMode	0 to 2	0	Length 1 (L1), Length 2 (L2) and Length 3 (L3) are used differently depending on the length mode. There are three length modes: • L1 as minimum length Codes with as many characters as specified by L1 and longer are read. L2 and L3 are not used. • L1, L2, and L3 as three fixed lengths Only codes that comply with the lengths specified by L1, L2 and L3 will be read. • L1 as minimum length, L2 as maximum length Codes that are at least the minimum length specified by L1 and not longer than the maximum length specified by L2 are read. L3 is not used. The supported values are: • 0 = L1 as minimum length • 1 = L1, L2, L3 as fixed lengths • 2 = L1 as minimum length, L2 as maximum length.
barcode.symbology. telepen. lengthL1	0 to 255	0	The Telepen symbology L1 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for MSI Code is 3 characters. Bar code length = <bar code data> + [check digit]
barcode.symbology. telepen. lengthL2	0 to 255	0	The Telepen symbology L2 length.

Telepen Parameter	*Permitted Values*	*Default*	*Interpretation*
			Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for MSI Code is 3 characters. Bar code length = <bar code data> + [check digit]
barcode.symbology.telepen.lengthL3	0 to 255	0	The Telepen symbology L3 length. Use L1, L2 and L3 to compose acceptable bar code lengths depending on the length mode used. Minimum length for MSI Code is 3 characters. Bar code length = <bar code data> + [check digit]

Appendix A: Open Source Information

OFFER for Source for GPL and LGPL Software

You may have received a Spectralink 84-Series Wireless Handset from Spectralink that contains—in part—free software (software licensed in a way that allows you the freedom to run, copy, distribute, change, and improve the software).

A complete list of all open source software included in the Spectralink 84-Series Wireless Handset, as well as related license and copyright information, is available at http://support.spectralink.com.

You may also obtain the same information by contacting Spectralink by regular mail or email at the addresses listed at the bottom of this notice.

For at least three (3) years from the date of distribution of the applicable product or software, we will give to anyone who contacts us at the contact information provided below, for a charge of no more than our cost of physically distributing, the items listed in “Spectralink OFFER of Source for GPL and LGPL Software”, which is available at http://support.spectralink.com.

Contact Information for Requesting Source Code

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