



Generalscan R1120 Scan Engine User Guide

Generalscan Inc.

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Set Default Parameter

The SE-965HP-X20XR can be reset to two types of defaults: factory defaults or custom defaults. Scan the appropriate bar code below to reset the SE-965HP-X20XR to its default settings and/or set the scan engine's current settings as the custom default.

- **Restore Defaults** - Scan this bar code to reset all default parameters as follows.



***Restore Defaults**

Scan Angle

Parameter # BFh



NOTE Narrow scan angle is not supported by Class 1 scan engines.

This parameter sets the scan angle to narrow, medium, or wide.



Narrow Angle (10°)
(00h)



Medium Angle (35°)
(01h)



***Wide Angle (47°)**
(02h)

Adaptive Scanning

Parameter # F2h 51h

Enable Adaptive Scanning to improve decode range and optimize decode performance on certain bar codes. See [Adaptive Scanning](#) for a detailed explanation.

- ✓ **NOTES**
1. Adaptive Scanning is not applicable for Class 1 scan engines as a narrow scan angle is not supported by Class 1 scan engines.
 2. Disabling Adaptive Scanning only disables the scan angle transition to a narrow angle. It does not affect Interference Suppression parameters.



*Enable Adaptive Scanning
(00h)



Disable Adaptive Scanning
(01h)

Interference Suppression Mode

Parameter # F8h 04h B3h

- ✓ **NOTES**
1. Adaptive Scanning is not applicable for Class 1 scan engines as a narrow scan angle is not supported by Class 1 scan engines.
 2. For the SE-965HP-E200R/E205R Class 1 engines the Interference Suppression Mode default is **Interference Suppression Always On**. This is the recommended mode of operation for the Class 1 engine. (Also see the Class 1 engine note.)
 3. In Blink Mode, the recommended mode of operation is **Interference Suppression Always On**.

- Disable Interference Suppression: Reduced working range is possible in the presence of interfering ambient light.
- Interference Suppression Always On: Recommended only if the scanner is always in the presence of interfering ambient light.
- Ambient Light Interference Suppression Auto Detection: The scan angle changes from wide angle to medium angle in the presence of interfering ambient light, only when **Interference Suppression Scan Angle** is set to Medium.

Adaptive Scanning (continued)



**Disable Interference Suppression
(00h)**



**Interference Suppression Always On
(01h)
(see note above)**



***Ambient Light Interference Suppression
Auto Detection
(02h)**

Adaptive Scanning (continued)

Interference Suppression Scan Angle

Parameter # F8h 04h DBh

- ✓ **NOTE** In Blink Mode, the scan angle is always wide regardless of the scan angle, or the Interference Suppression scan angle parameter. (Also see the Class 1 engine note.)
- Medium Interference Suppression Scan Angle: Recommended for maximum working range in the presence of interfering ambient light.
 - Wide Interference Suppression Scan Angle: This is recommended for use in fixed-mount applications when the widest scan angle is required, or applications where no change in scan angle is desired. Reduced working range possible on certain bar codes in various lighting conditions. Using **Interference Suppression Scan Angle - Medium** can improve working range in these circumstances.



Interference Suppression Scan Angle - Medium
(01h)



*Interference Suppression Scan Angle - Wide
(02h)

Triggering Modes

Parameter # 8Ah

Choose one of the options below to trigger the scan engine. Bar codes and option numbers are on the following page.

- **Scan (Level)** - A trigger pull 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 Timeout is reached.
- **Scan (Pulse)** - A trigger pull activates the laser and decode processing. The laser remains on and decode processing continues until a valid decode or the Laser On Timeout is reached.
- **Continuous** - This trigger mode is used for triggerless operation. The laser is always on and decoding.



***Level**
(00h)



Pulse
(02h)



Continuous
(04h)

Timeout Between Decodes, Same Symbol

Parameter # 89h

In **Continuous** triggering modes and when **Continuous Bar Code Read** is enabled, this parameter sets the minimum time that must elapse before the scan engine decodes a second bar code identical to one just decoded. This reduces the risk of accidentally scanning the same symbol twice. It is programmable in 0.1 second increments from 0.0 to 9.9 seconds.

To set this timeout, scan the bar code below. Next scan two numeric bar codes that correspond to the desired timeout. Single digit values must have a leading zero. For example, to set a timeout of 0.5 seconds, scan the bar code below, then scan the **0** and **5** bar codes. To change the selection or cancel an incorrect entry, scan [Cancel](#).

✓ **NOTE** The Timeout between Decodes, Same Symbol **must be** greater than the [Timeout Between Decodes, Different Symbols](#).



Timeout Between Same Symbol
(Default: 1.0 sec)

Timeout Between Decodes, Different Symbols

Parameter # 90h

In **Continuous** and triggering modes and when **Continuous Bar Code Read** is enabled, this parameter sets the minimum time that must elapse before the scan engine decodes a second bar code different from the one just decoded. It is programmable in 0.1 second increments from 0.1 to 9.9 seconds.

To set this timeout, scan the bar code below. Next scan two numeric bar codes that correspond to the desired timeout. Single digit values must have a leading zero. For example, to set a timeout of 0.5 seconds, scan the bar code below, then scan the **0** and **5** bar codes. To change the selection or cancel an incorrect entry, scan [Cancel](#).

✓ **NOTE** The Timeout between Decodes, Different Symbols **cannot** be greater than or equal to the [Timeout Between Decodes, Same Symbol](#).



Timeout Between Decodes, Different Symbols
(Default: 0.2 sec)

Continuous Bar Code Read

Parameter # F1h 89h

In **Level** triggering modes, enable this to report every bar code while the trigger is pressed.



*Disable Continuous Bar Code Read
(00h)



Enable Continuous Bar Code Read
(01h)

Unique Bar Code Reporting

Parameter # F1h D3h

Enable this to report only unique bar codes while the trigger is pressed. This option only applies when **Continuous Bar Code Read** is enabled.



*Disable Unique Bar Code Reporting
(00h)



Enable Unique Bar Code Reporting
(01h)

Power Mode

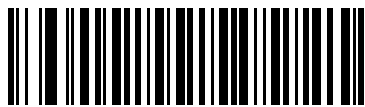
Parameter # 80h

This parameter determines the power mode of the engine.

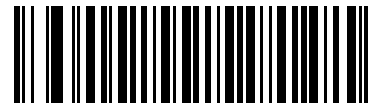
In **Low Power** mode, the scan engine enters into a low power consumption Sleep power state whenever possible (provided all WAKEUP commands were released).

In **Continuous Power** mode, the scan engine remains in the Awake state after each decode attempt.

The Sleep and Awake commands (refer to the *Simple Serial Interface (SSI) Programmer's Guide*) can be used to change the power state in either **Low Power** mode or **Continuous Power** mode.



Continuous Power
(00h)



*Low Power Mode
(01h)

Disable All Symbologies

Scan the bar code below to disable the decoding of all symbologies. Use this to simplify selecting a single symbology to decode by scanning this, then scanning the desired enable code type bar code. Note that the engine can still decode parameter bar codes.



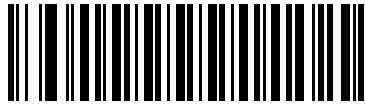
Disable All Symbologies

UPC/EAN

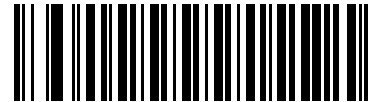
Enable/Disable UPC-A

Parameter # 01h

To enable or disable UPC-A, scan the appropriate bar code below.



***Enable UPC-A
(01h)**

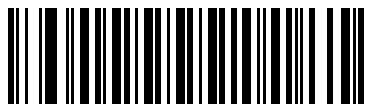


**Disable UPC-A
(00h)**

Enable/Disable UPC-E

Parameter # 02h

To enable or disable UPC-E, scan the appropriate bar code below.



***Enable UPC-E
(01h)**

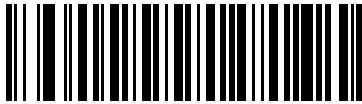


**Disable UPC-E
(00h)**

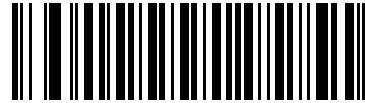
Enable/Disable UPC-E1**Parameter # 0Ch**

To enable or disable UPC-E1, scan the appropriate bar code below.

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



**Enable UPC-E1
(01h)**



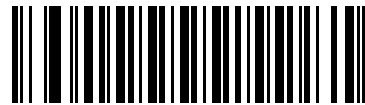
***Disable UPC-E1
(00h)**

Enable/Disable EAN-8/JAN-8**Parameter # 04h**

To enable or disable EAN-8/JAN-8, scan the appropriate bar code below.



***Enable EAN-8/JAN-8
(01h)**

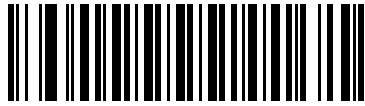


**Disable EAN-8/JAN-8
(00h)**

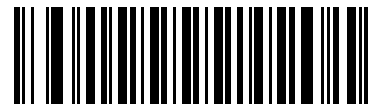
Enable/Disable EAN-13/JAN-13

Parameter # 03h

To enable or disable EAN-13/JAN-13, scan the appropriate bar code below.



*Enable EAN-13/JAN-13
(01h)



Disable EAN-13/JAN-13
(00h)

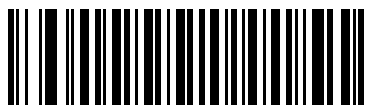
Enable/Disable Bookland EAN

Parameter # 53h

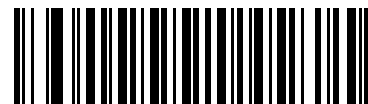
To enable or disable Bookland EAN, scan the appropriate bar code below.



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



Enable Bookland EAN
(01h)



*Disable Bookland EAN
(00h)

Decode UPC/EAN/JAN Supplementals

Parameter # 10h

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

- If you select **Decode UPC/EAN/JAN with Supplementals**, the engine only decodes UPC/EAN symbols with supplemental characters, and ignores symbols without supplementals.
- If you select **Ignore UPC/EAN/JAN Supplementals**, and the engine is presented with a UPC/EAN plus supplemental symbol, the engine decodes UPC/EAN and ignores the supplemental characters.
- If you select **Autodiscriminate UPC/EAN/JAN Supplementals**, the engine decodes UPC/EAN symbols with supplemental characters immediately. If the symbol does not have a supplemental, the engine must decode the bar code the number of times set via [Decode UPC/EAN Supplemental Redundancy](#) before transmitting its data to confirm that there is no supplemental.
- If you select one of the following **Supplemental Mode** options, the engine immediately transmits EAN-13 bar codes starting with that prefix that have supplemental characters. If the symbol does not have a supplemental, the engine must decode the bar code the number of times set via [Decode UPC/EAN Supplemental Redundancy](#) before transmitting its data to confirm that there is no supplemental. The engine transmits UPC/EAN bar codes that do not have that prefix immediately.

- **Enable 378/379 Supplemental Mode.**

- **Enable 978/979 Supplemental Mode.**



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

- **Enable 977 Supplemental Mode.**

- **Enable 414/419/434/439 Supplemental Mode.**

- **Enable 491 Supplemental Mode.**

- **Enable Smart Supplemental Mode** - applies to EAN-13 bar codes starting with any prefix listed previously.

- **Supplemental User-Programmable Type 1** - applies to EAN-13 bar codes starting with a 3-digit user-defined prefix. Set this 3-digit prefix using [User-Programmable Supplementals](#).

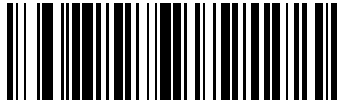
- **Supplemental User-Programmable Type 1 and 2** - applies to EAN-13 bar codes starting with either of two 3-digit user-defined prefixes. Set the 3-digit prefixes using [User-Programmable Supplementals](#).

- **Smart Supplemental Plus User-Programmable 1** - applies to EAN-13 bar codes starting with any prefix listed previously or the user-defined prefix set using [User-Programmable Supplementals](#).

- **Smart Supplemental Plus User-Programmable 1 and 2** - applies to EAN-13 bar codes starting with any prefix listed previously or one of the two user-defined prefixes set using [User-Programmable Supplementals](#).



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

Decode UPC/EAN/JAN Supplementals (continued)

**Decode UPC/EAN/JAN Only With Supplementals
(01h)**



***Ignore Supplementals
(00h)**



**Autodiscriminate UPC/EAN/JAN Supplementals
(02h)**



**Enable 378/379 Supplemental Mode
(04h)**



**Enable 978/979 Supplemental Mode
(05h)**



**Enable 977 Supplemental Mode
(07h)**

Decode UPC/EAN/JAN Supplementals (continued)

**Enable 414/419/434/439 Supplemental Mode
(06h)**



**Enable 491 Supplemental Mode
(08h)**



**Enable Smart Supplemental Mode
(03h)**



**Supplemental User-Programmable Type 1
(09h)**



**Supplemental User-Programmable Type 1 and 2
(0Ah)**



**Smart Supplemental Plus User-Programmable 1
(0Bh)**



**Smart Supplemental Plus User-Programmable 1 and 2
(0Ch)**

User-Programmable Supplementals

Supplemental 1: Parameter # F1h 43h

Supplemental 2: Parameter # F1h 44h

If you selected a Supplemental User-Programmable option from [Decode UPC/EAN/JAN Supplementals](#), select **User-Programmable Supplemental 1** to set the 3-digit prefix. Then select the 3 digits using the numeric bar codes beginning. Select **User-Programmable Supplemental 2** to set a second 3-digit prefix. Then select the 3 digits using the numeric bar codes beginning.



User-Programmable Supplemental 1



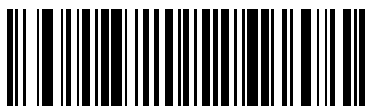
User-Programmable Supplemental 2

Decode UPC/EAN Supplemental Redundancy

Parameter # 50h

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

Scan the bar code below to select a decode redundancy value. Next scan two numeric bar codes. Single digit numbers must have a leading zero. To change the selection or cancel an incorrect entry, scan [Cancel](#).



UPC/EAN/JAN Supplemental Redundancy

UPC/EAN/JAN Supplemental AIM ID Format

Parameter # F1h A0h

Select an output format when reporting UPC/EAN/JAN bar codes with Supplementals with *Transmit Code ID Character* set to **AIM Code ID Character**:

- **Separate** - transmit UPC/EAN with supplementals with separate AIM IDs but one transmission, i.e.:
]E<0 or 4><data>]E<1 or 2>[supplemental data]
- **Combined** – transmit UPC/EAN with supplementals with one AIM ID and one transmission, i.e.:
]E3<data+supplemental data>
- **Separate Transmissions** - transmit UPC/EAN with supplementals with separate AIM IDs and separate transmissions, i.e.:
]E<0 or 4><data>
]E<1 or 2>[supplemental data]



Separate
(00h)



***Combined**
(01h)

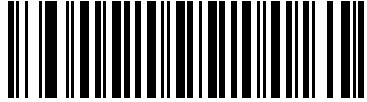


Separate Transmissions
(02h)

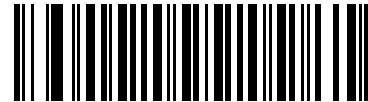
Transmit UPC-A Check Digit

Parameter # 28h

The check digit is the last character of the symbol used to verify the integrity of the data. Scan the appropriate bar code below to transmit the bar code data with or without the UPC-A check digit. It is always verified to guarantee the integrity of the data.



***Transmit UPC-A Check Digit
(01h)**

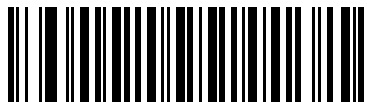


**Do Not Transmit UPC-A Check Digit
(00h)**

Transmit UPC-E Check Digit

Parameter # 29h

The check digit is the last character of the symbol used to verify the integrity of the data. Scan the appropriate bar code below to transmit the bar code data with or without the UPC-E check digit. It is always verified to guarantee the integrity of the data.



***Transmit UPC-E Check Digit
(01h)**



**Do Not Transmit UPC-E Check Digit
(00h)**

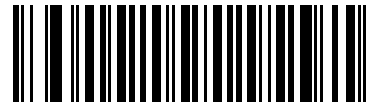
Transmit UPC-E1 Check Digit

Parameter # 2Ah

The check digit is the last character of the symbol used to verify the integrity of the data. Scan the appropriate bar code below to transmit the bar code data with or without the UPC-E1 check digit. It is always verified to guarantee the integrity of the data.



***Transmit UPC-E1 Check Digit
(01h)**

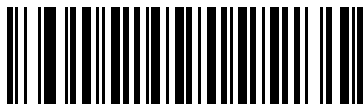


**Do Not Transmit UPC-E1 Check Digit
(00h)**

UPC-A Preamble

Parameter # 22h

Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-A preamble to the host device: transmit System Character only, transmit System Character and Country Code (“0” for USA), and transmit no preamble. Select the appropriate option to match the host system.



**No Preamble (<DATA>
(00h)**



***System Character (<SYSTEM CHARACTER>
<DATA>
(01h)**

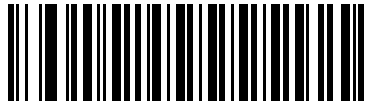


**System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER>
<DATA>
(02h)**

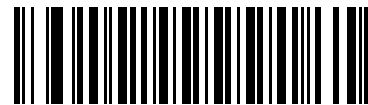
UPC-E Preamble

Parameter # 23h

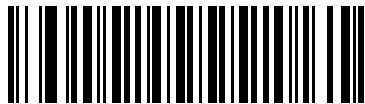
Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-E preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.



No Preamble (<DATA>)
(00h)



*System Character
(<SYSTEM CHARACTER> <DATA>)
(01h)

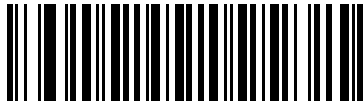


System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER>
<DATA>)
(02h)

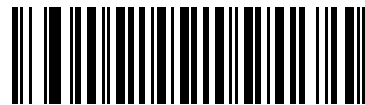
UPC-E1 Preamble

Parameter # 24h

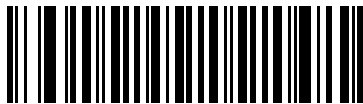
Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-E1 preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.



No Preamble (<DATA>)
(00h)



***System Character**
(<SYSTEM CHARACTER> <DATA>)
(01h)



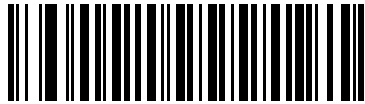
System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER>
<DATA>)
(02h)

Convert UPC-E to UPC-A

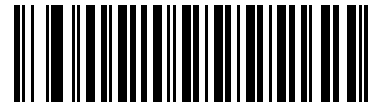
Parameter # 25h

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

When disabled, UPC-E decoded data is transmitted as UPC-E data, without conversion.



Convert UPC-E to UPC-A (Enable)
(01h)



***Do Not Convert UPC-E to UPC-A (Disable)**
(00h)

Convert UPC-E1 to UPC-A

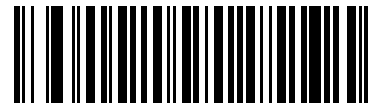
Parameter # 26h

Enable this to convert UPC-E1 decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

When disabled, UPC-E1 decoded data is transmitted as UPC-E1 data, without conversion.



Convert UPC-E1 to UPC-A (Enable)
(01h)



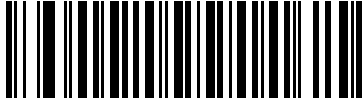
***Do Not Convert UPC-E1 to UPC-A (Disable)**
(00h)

EAN-8/JAN-8 Extend

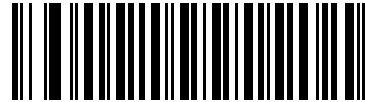
Parameter # 27h

When enabled, this parameter adds five leading zeros to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols.

When disabled, EAN-8 symbols are transmitted as is.



Enable EAN/JAN Zero Extend
(01h)



*Disable EAN/JAN Zero Extend
(00h)

Bookland ISBN Format

Parameter # F1h 40h



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

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

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



*Bookland ISBN-10
(00h)



Bookland ISBN-13
(01h)

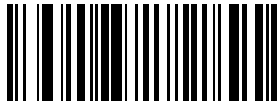
UPC/EAN Security Level

Parameter # 4Dh

The SE965HP offers four levels of decode security for UPC/EAN bar codes. Increasing levels of security are provided for decreasing levels of bar code quality. Select higher levels of security for decreasing levels of bar code quality. Increasing security decreases the scan engine's aggressiveness, so choose only that level of security necessary for the application.

UPC/EAN Security Level 0

This setting allows the scan engine to operate in its most aggressive state, while providing sufficient security in decoding most "in-spec" UPC/EAN bar codes.



UPC/EAN Security Level 0
(00h)

UPC/EAN Security Level 1

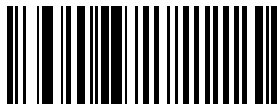
As bar code quality levels diminish, certain characters become prone to misdecodes before others (i.e., 1, 2, 7, 8). If misdecodes of poorly printed bar codes occur, and the misdecodes are limited to these characters, select this security level.



*UPC/EAN Security Level 1
(01h)

UPC/EAN Security Level 2

If misdecodes of poorly printed bar codes occur, and the misdecodes are not limited to characters 1, 2, 7, and 8, select this security level.



UPC/EAN Security Level 2
(02h)

UPC/EAN Security Level 3

If misdecodes still occur after selecting Security Level 2, select this security level. Be advised, selecting this option is an extreme measure against mis-decoding severely out of spec bar codes. Selection of this level of security significantly impairs the decoding ability of the scan engine. If this level of security is necessary, try to improve the quality of the bar codes.

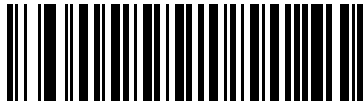


UPC/EAN Security Level 3
(03h)

UCC Coupon Extended Code

Parameter # 55h

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



Enable UCC Coupon Extended Code
(01h)



*Disable UCC Coupon Extended Code
(00h)

Coupon Report

Parameter # F1h DAh

Traditional coupon symbols (old coupon symbols) are composed of two bar codes: UPC/EAN and Code128. A new coupon symbol is composed of a single Databar Expanded bar code. The new coupon format offers more options for purchase values (up to \$999.99) and supports complex discount offers such as a second purchase requirement.

An interim coupon symbol also exists that contains both types of bar codes: UPC/EAN and Databar Expanded. This format accommodates both retailers that do not recognize or use the additional information included in the new coupon symbol, as well as those who can process new coupon symbols.

Scan a bar code below to select one of the following options for decoding coupon symbols:

- **Old Coupon Symbols** - Scanning an old coupon symbol reports both UPC and Code 128, scanning an interim coupon symbol reports UPC, and scanning a new coupon symbol reports nothing (no decode).
- **New Coupon Symbols** - Scanning an old coupon symbol reports either UPC or Code 128, and scanning an interim coupon symbol or a new coupon symbol reports Databar Expanded.
- **Both Coupon Formats** - Scanning an old coupon symbol reports both UPC and Code 128, and scanning an interim coupon symbol or a new coupon symbol reports Databar Expanded.



**Old Coupon Symbols
(00h)**



***New Coupon Symbols
(01h)**

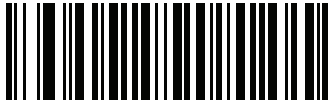


**Both Coupon Formats
(02h)**

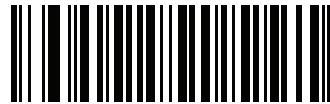
UPC Reduced Quiet Zone

Parameter # F8h 05h 09h

Scan one of the following bar codes to enable or disable decoding UPC bar codes with reduced quiet zones (the margins on either side of the bar code). If you select **Enable**, select a [1D Quiet Zone Level](#).



Enable UPC Reduced Quiet Zone
(1)



*Disable UPC Reduced Quiet Zone
(0)

ISSN EAN

Parameter # F1h 69h

To enable or disable ISSN EAN, scan the appropriate bar code below.



*Enable ISSN EAN
(01h)



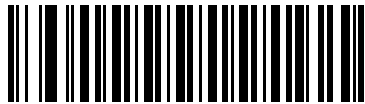
Disable ISSN EAN
(00h)

Code 128

Enable/Disable Code 128

Parameter # 08h

To enable or disable Code 128, scan the appropriate bar code below.



*Enable Code 128
(01h)



Disable Code 128
(00h)

Set Lengths for Code 128

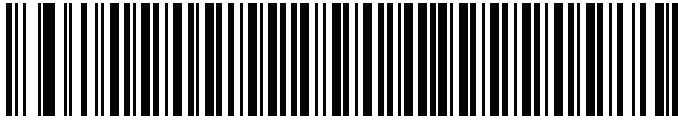
Parameter # L1 = D1h, L2 = D2h

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Code 128 to any length, one or two discrete lengths, or lengths within a specific range.

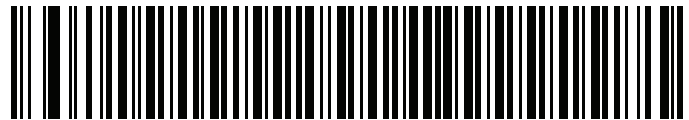
✓ **NOTE** When setting lengths for different bar code types, enter a leading zero for single digit numbers.

- **One Discrete Length** - Select this option to decode only Code 128 symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only Code 128 symbols with 14 characters, scan **Code 128 - One Discrete Length**, then scan **1** followed by **4**. To correct an error or change the selection, scan [Cancel](#).
- **Two Discrete Lengths** - Select this option to decode only Code 128 symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only Code 128 symbols containing either 2 or 14 characters, select **Code 128 - Two Discrete Lengths**, then scan **0**, **2**, **1**, and then **4**. To correct an error or change the selection, scan [Cancel](#).
- **Length Within Range** - Select this option to decode a Code 128 symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode Code 128 symbols containing between 4 and 12 characters, first scan **Code 128 - Length Within Range**. Then scan **0**, **4**, **1**, and **2** (enter a leading zero for single digit numbers). To correct an error or change the selection, scan [Cancel](#).
- **Any Length** - Select this option to decode Code 128 symbols containing any number of characters within the engine's capability.

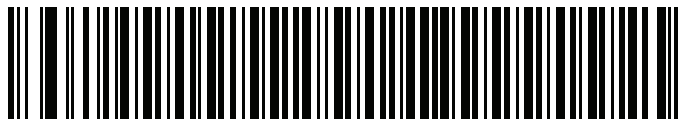
Set Lengths for Code 128 (continued)



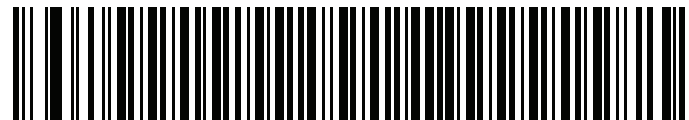
Code 128 - One Discrete Length



Code 128 - Two Discrete Lengths



Code 128 - Length Within Range



***Code 128 - Any Length**

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

Parameter # 0Eh

To enable or disable GS1-128, scan the appropriate bar code below. See [Appendix A, Miscellaneous Code Information](#) for details on [GS1-128 \(formerly UCC/EAN-128\)](#).



***Enable GS1-128
(01h)**



**Disable GS1-128
(00h)**

Enable/Disable ISBT 128

Parameter # 54h

To enable or disable ISBT 128, scan the appropriate bar code below.



***Enable ISBT 128
(01h)**



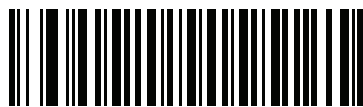
**Disable ISBT 128
(00h)**

ISBT Concatenation

Parameter # F1h 41h

Select an option for concatenating pairs of ISBT code types:

- If you select **Disable ISBT Concatenation**, the engine does not concatenate pairs of ISBT codes it encounters.
- If you select **Enable ISBT Concatenation**, there must be two ISBT codes in order for the engine to decode and perform concatenation. The engine does not decode single ISBT symbols.
- If you select **Autodiscriminate ISBT Concatenation**, the engine decodes and concatenates pairs of ISBT codes immediately. If only a single ISBT symbol is present, the engine must decode the symbol the number of times set via [ISBT Concatenation Redundancy](#) before transmitting its data to confirm that there is no additional ISBT symbol.



***Disable ISBT Concatenation
(00h)**



**Enable ISBT Concatenation
(01h)**



**Autodiscriminate ISBT Concatenation
(02h)**

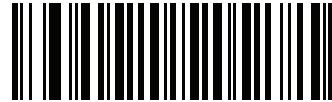
Check ISBT Table

Parameter # F1h 42h

The ISBT specification includes a table that lists several types of ISBT bar codes that are commonly used in pairs. If you set **ISBT Concatenation** to **Enable**, enable **Check ISBT Table** to concatenate only those pairs found in this table. Other types of ISBT codes are not concatenated.



*Enable Check ISBT Table
(01h)



Disable Check ISBT Table
(00h)

ISBT Concatenation Redundancy

Parameter # DFh

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

Scan the bar code below, then scan two [Numeric Bar Codes](#) to set a value between 2 and 20. Enter a leading zero for single digit numbers. To correct an error or change a selection, scan [Cancel](#). The default is 10.



ISBT Concatenation Redundancy

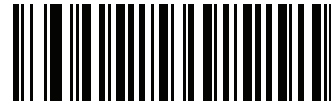
Code 128 Reduced Quiet Zone

Parameter # F8h 04h B8h

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



Enable Code 128 Reduced Quiet Zone
(1)



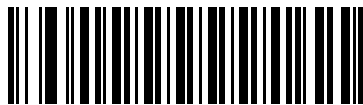
*Disable Code 128 Reduced Quiet Zone
(0)

Code 39

Enable/Disable Code 39

Parameter # 00h

To enable or disable Code 39, scan the appropriate bar code below.



*Enable Code 39
(01h)

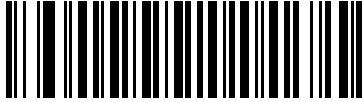


Disable Code 39
(00h)

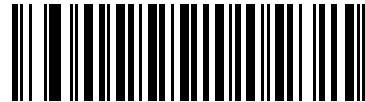
Enable/Disable Trioptic Code 39

Parameter # 0Dh

Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. Trioptic Code 39 symbols always contain six characters. To enable or disable Trioptic Code 39, scan the appropriate bar code below.



Enable Trioptic Code 39
(01h)



*Disable Trioptic Code 39
(00h)



NOTE Trioptic Code 39 and Code 39 Full ASCII cannot be enabled simultaneously. If an error beep sounds when enabling Trioptic Code 39, disable Code 39 Full ASCII and try again.

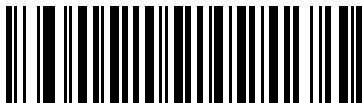
Convert Code 39 to Code 32 (Italian Pharma Code)

Parameter # 56h

Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Scan the appropriate bar code below to enable or disable converting Code 39 to Code 32.



NOTE Code 39 must be enabled for this parameter to function.



Enable Convert Code 39 to Code 32
(01h)

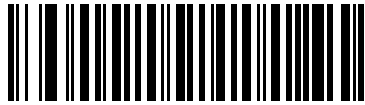


*Disable Convert Code 39 to Code 32
(00h)

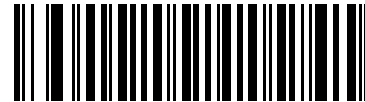
Code 32 Prefix

Parameter # E7h

Enable this parameter to add the prefix character "A" to all Code 32 bar codes. Convert Code 39 to Code 32 (Italian Pharma Code) must be enabled for this parameter to function.



Enable Code 32 Prefix
(01h)



*Disable Code 32 Prefix
(00h)

Set Lengths for Code 39

Parameter # L1 = 12h, L2 = 13h

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

- ✓ **NOTE** When setting lengths for different bar code types by scanning single digit numbers, single digit numbers must always be preceded by a leading zero.
- **One Discrete Length** - Select this option to decode only Code 39 symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only Code 39 symbols with 14 characters, scan **Code 39 - One Discrete Length**, then scan **1** followed by **4**. To correct an error or change the selection, scan [Cancel](#).
 - **Two Discrete Lengths** - Select this option to decode only Code 39 symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only those Code 39 symbols containing either 2 or 14 characters, select **Code 39 - Two Discrete Lengths**, then scan **0, 2, 1**, and then **4**. To correct an error or change the selection, scan [Cancel](#).
 - **Length Within Range** - Select this option to decode a Code 39 symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode Code 39 symbols containing between 4 and 12 characters, first scan **Code 39 - Length Within Range**. Then scan **0, 4, 1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan [Cancel](#).
 - **Any Length** - Select this option to decode Code 39 symbols containing any number of characters within the decoder capability.

Set Lengths for Code 39 (continued)



Code 39 - One Discrete Length



Code 39 - Two Discrete Lengths



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

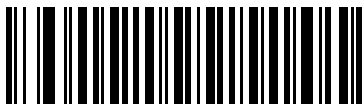


Code 39 - Any Length

Code 39 Check Digit Verification

Parameter # 30h

When this feature is enabled, the scan engine checks the integrity of all Code 39 symbols to verify that the data complies with specified check digit algorithm. Only those Code 39 symbols which include a modulo 43 check digit are decoded. Only enable this feature if your Code 39 symbols contain a module 43 check digit.



Enable Code 39 Check Digit
(01h)

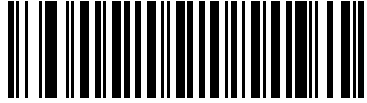


*Disable Code 39 Check Digit
(00h)

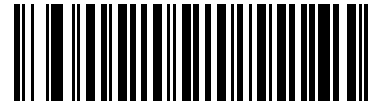
Transmit Code 39 Check Digit

Parameter # 2Bh

Scan a bar code below to transmit Code 39 data with or without the check digit.



Transmit Code 39 Check Digit (Enable)
(01h)



*Do Not Transmit Code 39 Check Digit (Disable)
(00h)

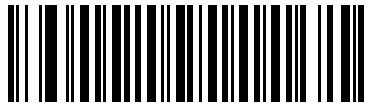


NOTE Code 39 Check Digit Verification must be enabled for this parameter to function.

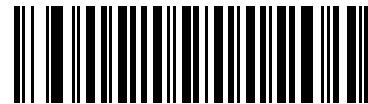
Code 39 Full ASCII Conversion

Parameter # 11h

Code 39 Full ASCII is a variant of Code 39 which pairs characters to encode the full ASCII character set. To enable or disable Code 39 Full ASCII, scan the appropriate bar code below.



Enable Code 39 Full ASCII
(01h)



*Disable Code 39 Full ASCII
(00h)



NOTE Trioptic Code 39 and Code 39 Full ASCII cannot be enabled simultaneously. If you get an error beep when enabling Code 39 Full ASCII, disable Trioptic Code 39 and try again.

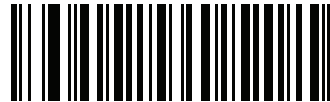
Code 39 Reduced Quiet Zone

Parameter # F8h 04h B9h

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



Enable Code 39 Reduced Quiet Zone
(1)



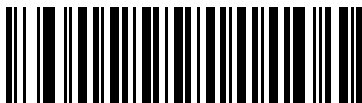
*Disable Code 39 Reduced Quiet Zone
(0)

Code 93

Enable/Disable Code 93

Parameter # 09h

To enable or disable Code 93, scan the appropriate bar code below.



Enable Code 93
(01h)



*Disable Code 93
(00h)

Set Lengths for Code 93

Parameter # L1 = 1Ah, L2 = 1Bh

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for Code 93 may be set for any length, one or two discrete lengths, or lengths within a specific range. To set lengths via serial commands, see [Setting Code Lengths Via Serial Commands](#).

- **One Discrete Length** - Select this option to decode only Code 93 symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only Code 93 symbols with 14 characters, scan **Code 93 - One Discrete Length**, then scan **1** followed by **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Two Discrete Lengths** - Select this option to decode only Code 93 symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only those Code 93 symbols containing either 2 or 14 characters, select **Code 93 - Two Discrete Lengths**, then scan **0**, **2**, **1**, and then **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Length Within Range** - Select this option to decode a Code 93 symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode Code 93 symbols containing between 4 and 12 characters, first scan **Code 93 - Length Within Range**. Then scan **0**, **4**, **1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan [Cancel](#).
- **Any Length** - Scan this option to decode Code 93 symbols containing any number of characters within the decoder's capability.



Code 93 - One Discrete Length



Code 93 - Two Discrete Lengths



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



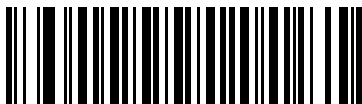
Code 93 - Any Length

Code 11

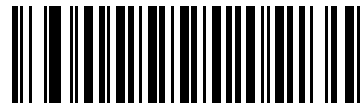
Enable/Disable Code 11

Parameter # 0Ah

To enable or disable Code 11, scan the appropriate bar code below.



Enable Code 11
(01h)



*Disable Code 11
(00h)

Set Lengths for Code 11

Parameter # L1 = 1Ch, L2 = 1Dh

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Code 11 to any length, one or two discrete lengths, or lengths within a specific range.

- **One Discrete Length** - Select this option to decode only Code 11 symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only Code 11 symbols with 14 characters, scan **Code 11 - One Discrete Length**, then scan **1** followed by **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Two Discrete Lengths** - Select this option to decode only Code 11 symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only those Code 11 symbols containing either 2 or 14 characters, select **Code 11 - Two Discrete Lengths**, then scan **0, 2, 1**, and then **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Length Within Range** - Select this option to decode a Code 11 symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode Code 11 symbols containing between 4 and 12 characters, first scan **Code 11 - Length Within Range**. Then scan **0, 4, 1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan [Cancel](#).
- **Any Length** - Scan this option to decode Code 11 symbols containing any number of characters within the scan engine capability.

Set Lengths for Code 11 (continued)**Code 11 - One Discrete Length****Code 11 - Two Discrete Lengths*****Code 11 - Length Within Range
(Default: 4 - 55)****Code 11 - Any Length**

Code 11 Check Digit Verification

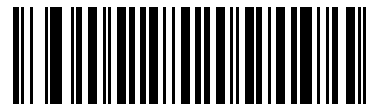
Parameter # 34h

This feature allows the scan engine to check the integrity of all Code 11 symbols to verify that the data complies with the specified check digit algorithm. This selects the check digit mechanism for the decoded Code 11 bar code. The options are to check for one check digit, check for two check digits, or disable the feature.

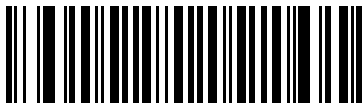
To enable this feature, scan the bar code below corresponding to the number of check digits encoded in the Code 11 symbols.



***Disable
(00h)**



**One Check Digit
(01h)**

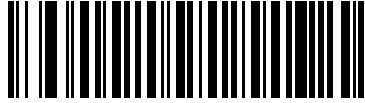


**Two Check Digits
(02h)**

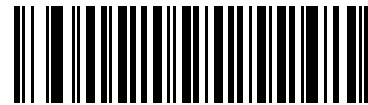
Transmit Code 11 Check Digits

Parameter # 2Fh

This feature selects whether or not to transmit the Code 11 check digit(s).



Transmit Code 11 Check Digit(s) (Enable)
(01h)



*Do Not Transmit Code 11 Check Digit(s) (Disable)
(00h)



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

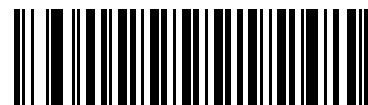
Interleaved 2 of 5

Parameter # 06h

To enable or disable Interleaved 2 of 5, scan the appropriate bar code below, and select an Interleaved 2 of 5 length from the following pages.



*Enable Interleaved 2 of 5
(01h)



Disable Interleaved 2 of 5
(00h)

Set Lengths for Interleaved 2 of 5

Parameter # L1 = 16h, L2 = 17h

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for I 2 of 5 may be set for any length, one or two discrete lengths, or lengths within a specific range. To set lengths via serial commands, see *Setting Code Lengths Via Serial Commands* on page B-8.

- ✓ **NOTE** When setting lengths, include a leading zero for single digit numbers.
- **One Discrete Length** - Select this option to decode only I 2 of 5 symbols containing a selected length. Select the length using the *Numeric Bar Codes*. For example, to decode only I 2 of 5 symbols with 14 characters, scan **I 2 of 5 - One Discrete Length**, then scan **1** followed by **4**. To correct an error or to change the selection, scan *Cancel*.
 - **Two Discrete Lengths** - Select this option to decode only I 2 of 5 symbols containing either of two selected lengths. Select lengths using the *Numeric Bar Codes*. For example, to decode only those I 2 of 5 symbols containing either 2 or 14 characters, select **I 2 of 5 - Two Discrete Lengths**, then scan **0, 2, 1**, and then **4**. To correct an error or to change the selection, scan *Cancel*.
 - **Length Within Range** - Select this option to decode an I 2 of 5 symbol with a specific length range. Select lengths using the *Numeric Bar Codes*. For example, to decode I 2 of 5 symbols containing between 4 and 12 characters, first scan **I 2 of 5 - Length Within Range**. Then scan **0, 4, 1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan *Cancel*.
 - **Any Length** - Scan this option to decode I 2 of 5 symbols containing any number of characters within the decoder capability.
- ✓ **NOTE** Due to the construction of the I 2 of 5 symbology, it is possible for a scan line covering only a portion of the code to be interpreted as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (I 2 of 5 - One Discrete Length - Two Discrete Lengths) for I 2 of 5 applications.



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



I 2 of 5 - Two Discrete Lengths

Set Lengths for Interleaved 2 of 5 (continued)



I 2 of 5 - Length Within Range



I 2 of 5 - Any Length

I 2 of 5 Check Digit Verification

Parameter # 31h

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).



*Disable
(00h)



USS Check Digit
(01h)



OPCC Check Digit
(02h)

Transmit I 2 of 5 Check Digit

Parameter # 2Ch

Scan the appropriate bar code below to transmit I 2 of 5 data with or without the check digit.



Transmit I 2 of 5 Check Digit (Enable)
(01h)

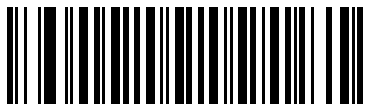


*Do Not Transmit I 2 of 5 Check Digit (Disable)
(00h)

Convert I 2 of 5 to EAN-13

Parameter # 52h

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



Convert I 2 of 5 to EAN-13 (Enable)
(01h)



*Do Not Convert I 2 of 5 to EAN-13 (Disable)
(00h)

I 2 of 5 Reduced Quiet Zone

Parameter # F8h 04h BAh

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



Enable I 2 of 5 Reduced Quiet Zone
(1)



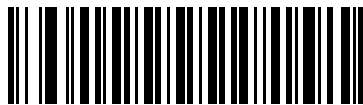
*Disable I 2 of 5 Reduced Quiet Zone
(0)

Discrete 2 of 5

Enable/Disable Discrete 2 of 5

Parameter # 05h

To enable or disable Discrete 2 of 5, scan the appropriate bar code below.



Enable Discrete 2 of 5
(01h)



*Disable Discrete 2 of 5
(00h)

Set Lengths for Discrete 2 of 5

Parameter # L1 = 14h, L2 = 15h

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for D 2 of 5 may be set for any length, one or two discrete lengths, or lengths within a specific range. To set lengths via serial commands, see [Setting Code Lengths Via Serial Commands](#).

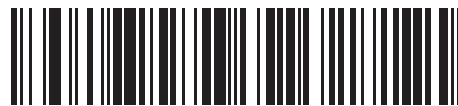
- **One Discrete Length** - Select this option to decode only D 2 of 5 symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only D 2 of 5 symbols with 14 characters, scan **D 2 of 5 - One Discrete Length**, then scan **1** followed by **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Two Discrete Lengths** - Select this option to decode only D 2 of 5 symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only those D 2 of 5 symbols containing either 2 or 14 characters, select **D 2 of 5 - Two Discrete Lengths**, then scan **0, 2, 1**, and then **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Length Within Range** - Select this option to decode a D 2 of 5 symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode D 2 of 5 symbols containing between 4 and 12 characters, first scan **D 2 of 5 - Length Within Range**. Then scan **0, 4, 1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan [Cancel](#).
- **Any Length** - Scan this option to decode D 2 of 5 symbols containing any number of characters within the decoder capability.



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



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



D 2 of 5 - Two Discrete Lengths



D 2 of 5 - Length Within Range



D 2 of 5 - Any Length

Chinese 2 of 5

Enable/Disable Chinese 2 of 5

Parameter # F0h 98h

To enable or disable Chinese 2 of 5, scan the appropriate bar code below.



Enable Chinese 2 of 5
(01h)



*Disable Chinese 2 of 5
(00h)

Matrix 2 of 5

Enable/Disable Matrix 2 of 5

Parameter # F1h 6Ah

To enable or disable Matrix 2 of 5, scan the appropriate bar code below.



Enable Matrix 2 of 5
(01h)



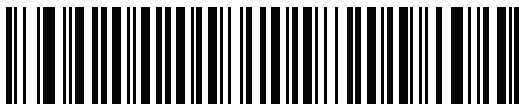
*Disable Matrix 2 of 5
(00h)

Set Lengths for Matrix 2 of 5

Parameter # L1 = F1h 6Bh, L2 = F1h 6Ch

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Matrix 2 of 5 to any length, one or two discrete lengths, or lengths within a specific range.

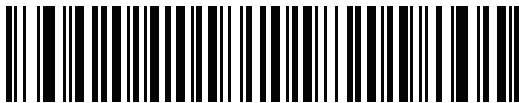
- One Discrete Length - Select this option to decode only Matrix 2 of 5 symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only Matrix 2 of 5 symbols with 14 characters, scan **Matrix 2 of 5 - One Discrete Length**, then scan 1 followed by 4. To correct an error or to change the selection, scan [Cancel](#).
- Two Discrete Lengths - Select this option to decode only Matrix 2 of 5 symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only Matrix 2 of 5 symbols containing either 2 or 14 characters, select **Matrix 2 of 5 -Two Discrete Lengths**, then scan 0, 2, 1, and then 4. To correct an error or to change the selection, scan [Cancel](#).
- Length Within Range - Select this option to decode a Matrix 2 of 5 symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode Matrix 2 of 5 symbols containing between 4 and 12 characters, first scan **Matrix 2 of 5 - Length Within Range**. Then scan 0, 4, 1, and 2 (enter a leading zero for single digit numbers). To correct an error or change the selection, scan [Cancel](#).
- Any Length - Scan this option to decode Matrix 2 of 5 symbols containing any number of characters within the decoder's capability.



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



Matrix 2 of 5 - Two Discrete Lengths



Matrix 2 of 5 - Length Within Range



Matrix 2 of 5 - Any Length

Matrix 2 of 5 Check Digit

Parameter # F1h 6Eh

The check digit is the last character of the symbol used to verify the integrity of the data. Scan the appropriate bar code below to transmit the bar code data with or without the Matrix 2 of 5 check digit.



**Enable Matrix 2 of 5 Check Digit
(01h)**



***Disable Matrix 2 of 5 Check Digit
(00h)**

Transmit Matrix 2 of 5 Check Digit

Parameter # F1h 6Fh

Scan a bar code below to transmit Matrix 2 of 5 data with or without the check digit.



**Transmit Matrix 2 of 5 Check Digit
(01h)**



***Do Not Transmit Matrix 2 of 5 Check Digit
(00h)**

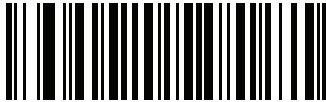
Korean 3 of 5

Enable/Disable Korean 3 of 5

Parameter # F1h 45h

To enable or disable Korean 3 of 5, scan the appropriate bar code below.

✓ **NOTE** The length for Korean 3 of 5 is fixed at 6.



Enable Korean 3 of 5
(01h)



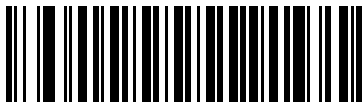
*Disable Korean 3 of 5
(00h)

Codabar

Enable/Disable Codabar

Parameter # 07h

To enable or disable Codabar, scan the appropriate bar code below.



Enable Codabar
(01h)



*Disable Codabar
(00h)

Set Lengths for Codabar

Parameter # L1 = 18h, L2 = 19h

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for Codabar may be set for any length, one or two discrete lengths, or lengths within a specific range. To set lengths via serial commands, see [Setting Code Lengths Via Serial Commands](#).

- **One Discrete Length** - Select this option to decode only Codabar symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only Codabar symbols with 14 characters, scan **Codabar - One Discrete Length**, then scan **1** followed by **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Two Discrete Lengths** - Select this option to decode only Codabar symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only Codabar symbols containing either 2 or 14 characters, select **Codabar - Two Discrete Lengths**, then scan **0**, **2**, **1**, and then **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Length Within Range** - Select this option to decode a Codabar symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode Codabar symbols containing between 4 and 12 characters, first scan **Codabar - Length Within Range**. Then scan **0**, **4**, **1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan [Cancel](#).
- **Any Length** - Scan this option to decode Codabar symbols containing any number of characters within the decoder capability.



Codabar - One Discrete Length



Codabar - Two Discrete Lengths



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



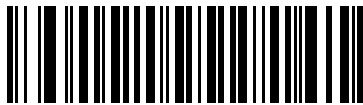
Codabar - Any Length

CLSI Editing

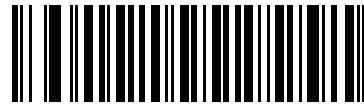
Parameter # 36h

When enabled, this parameter strips the start and stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar symbol.

✓ **NOTE** Symbol length does not include start and stop characters.



Enable CLSI Editing
(01h)

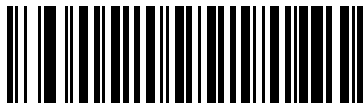


*Disable CLSI Editing
(00h)

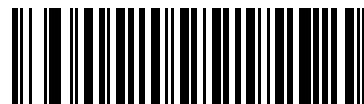
NOTIS Editing

Parameter # 37h

When enabled, this parameter strips the start and stop characters from decoded Codabar symbol.



Enable NOTIS Editing
(01h)



*Disable NOTIS Editing
(00h)

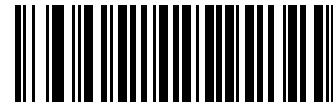
Codabar Upper or Lower Case Start/Stop Characters Detection

Parameter # F2h 57h

Select whether to detect upper case or lower case Codabar start/stop characters.



*Lower Case
(01h)



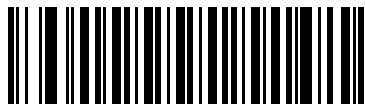
Upper Case
(00h)

MSI

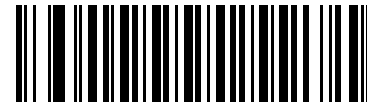
Enable/Disable MSI

Parameter # 0Bh

To enable or disable MSI, scan the appropriate bar code below.



Enable MSI
(01h)



*Disable MSI
(00h)

Set Lengths for MSI

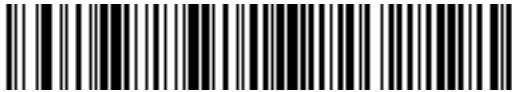
Parameter # L1 = 1Eh, L2 = 1Fh

The length of a code refers to the number of characters (i.e., human readable characters) the code contains, and includes check digits. Lengths for MSI can be set for any length, one or two discrete lengths, or lengths within a specific range. To set lengths via serial commands, see [Setting Code Lengths Via Serial Commands](#).

- **One Discrete Length** - Select this option to decode only MSI symbols containing a selected length. Select the length using the [Numeric Bar Codes](#). For example, to decode only MSI symbols with 14 characters, scan **MSI - One Discrete Length**, then scan **1** followed by **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Two Discrete Lengths** - Select this option to decode only MSI symbols containing either of two selected lengths. Select lengths using the [Numeric Bar Codes](#). For example, to decode only MSI symbols containing either 2 or 14 characters, select **MSI - Two Discrete Lengths**, then scan **0**, **2**, **1**, and then **4**. To correct an error or to change the selection, scan [Cancel](#).
- **Length Within Range** - Select this option to decode a MSI symbol with a specific length range. Select lengths using the [Numeric Bar Codes](#). For example, to decode MSI symbols containing between 4 and 12 characters, first scan **MSI - Length Within Range**. Then scan **0**, **4**, **1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan [Cancel](#).
- **Any Length** - Scan this option to decode MSI symbols containing any number of characters within the decoder capability.



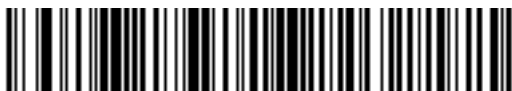
NOTE Due to the construction of the MSI symbology, it is possible for a scan line covering only a portion of the code to be interpreted as a complete scan, yielding less data than is encoded in the bar code. To prevent this, select specific lengths (MSI - One Discrete Length - Two Discrete Lengths) for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



MSI - One Discrete Length



MSI - Two Discrete Lengths



*MSI - Length Within Range
(Default: 6 - 55)

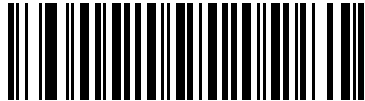


MSI - Any Length

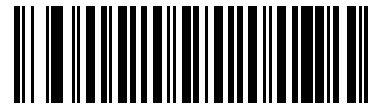
MSI Check Digits

Parameter # 32h

These check digits at the end of the bar code verify the integrity of the data. At least one check digit is always required. Check digits are not automatically transmitted with the data. If two check digits are selected, also select an [MSI Check Digit Algorithm](#).



***One MSI Check Digit
(00h)**

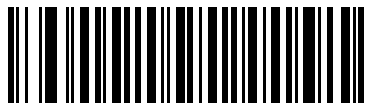


**Two MSI Check Digits
(01h)**

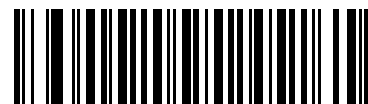
Transmit MSI Check Digit

Parameter # 2Eh

Scan a bar code below to transmit MSI data with or without the check digit.



**Transmit MSI Check Digit(s) (Enable)
(01h)**



***Do Not Transmit MSI Check Digit(s) (Disable)
(00h)**

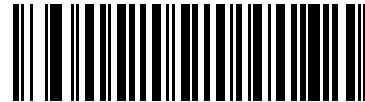
MSI Check Digit Algorithm

Parameter # 33h

Two algorithms are possible for the verification of the second MSI check digit. Select the bar code below corresponding to the algorithm used to encode the check digit.



MOD 10/MOD 11
(00h)



*MOD 10/MOD 10
(01h)

GS1 DataBar

GS1 DataBar types are:

- GS1 DataBar Omnidirectional
- GS1 DataBar Truncated
- GS1 DataBar Stacked
- GS1 DataBar Stacked Omnidirectional
- GS1 DataBar Limited
- GS1 DataBar Expanded
- GS1 DataBar Expanded Stacked

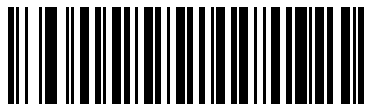
Scan the appropriate bar codes to enable or disable each type of GS1 DataBar.

GS1 DataBar

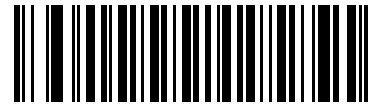
Parameter # F0h 52h

Scan the appropriate bar code below to enable or disable the following code types:

- GS1 DataBar Omnidirectional
- GS1 DataBar Truncated
- GS1 DataBar Stacked
- GS1 DataBar Stacked Omnidirectional,



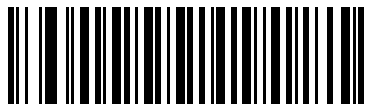
***Enable GS1 DataBar
(01h)**



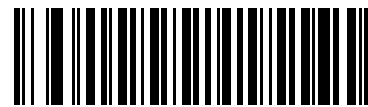
**Disable GS1 DataBar
(00h)**

GS1 DataBar Limited

Parameter # F0h 53h



***Enable GS1 DataBar Limited
(01h)**



**Disable GS1 DataBar Limited
(00h)**

GS1 DataBar Limited Security Level

Parameter # F1h D8h

The engine offers four levels of decode security for GS1 DataBar Limited bar codes. There is an inverse relationship between security and engine aggressiveness. Increasing the level of security may result in reduced aggressiveness in scanning, so only choose the level of security necessary.

- Level 1 – No clear margin required. This complies with the original GS1 standard, yet might result in erroneous decoding of the DataBar Limited bar code when scanning some UPC symbols that start with the digits “9” and “7”.
- Level 2 – Automatic risk detection. This level of security may result in erroneous decoding of DataBar Limited bar codes when scanning some UPC symbols. If a misdecode is detected, the engine operates in Level 3 or Level 1.
- Level 3 – Security level reflects newly proposed GS1 standard that requires a 5X trailing clear margin.
- Level 4 – Security level extends beyond the standard required by GS1. This level of security requires a 5X leading and trailing clear margin.



**Security Level 1
(01h)**



**Security Level 2
(02h)**



***Security Level 3
(03h)**



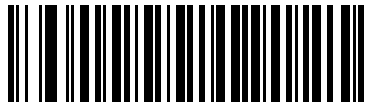
**Security Level 4
(04h)**

GS1 DataBar Expanded

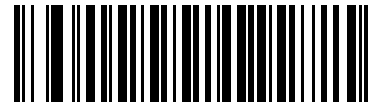
Parameter # F0h 54h

Scan the appropriate bar code below to enable or disable the following code types:

- GS1 DataBar Expanded
- GS1 DataBar Expanded Stacked.



***Enable GS1 DataBar Expanded
(01h)**



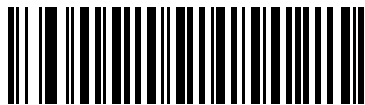
**Disable GS1 DataBar Expanded
(00h)**

Convert GS1 DataBar to UPC/EAN

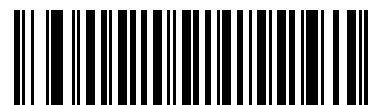
Parameter # F0h, 8Dh

This parameter only applies to GS1 DataBar and GS1 DataBar Limited symbols not decoded as part of a Composite symbol. Enable this to strip the leading '010' from DataBar and DataBar Limited symbols encoding a single zero as the first digit, and report the bar code as EAN-13.

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



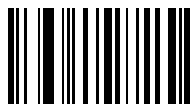
**Enable Convert GS1 DataBar to UPC/EAN
(01h)**



***Disable Convert GS1 DataBar to UPC/EAN
(00h)**

Numeric Bar Codes

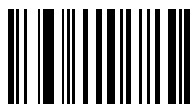
For parameters requiring specific numeric values, scan the appropriately numbered bar code(s).



0



1



2



3



4



5

Numeric Bar Codes (continued)

For parameters requiring specific numeric values, scan the appropriately numbered bar code(s).



6



7



8



9

Cancel

To correct an error or change a selection, scan the bar code below.



Cancel

MISCELLANEOUS CODE INFORMATION

GS1-128 (formerly UCC/EAN-128)

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

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

When AIM symbology identifiers are transmitted, the modifier character indicates the position of the leading FNC 1 character according to AIM guidelines. For example, **Jc1** indicates a GS1-128 symbol with a leading FNC1 character.

Standard Code 128 bar codes which do not have a leading FNC 1 may still be used, but are not encoded according to the GS1-128 convention. Standard Code 128 and GS1-128 may be mixed in an application. The SE955 autodiscriminates between these symbols, and can enable or disable one or both code types. [Table A-1](#) indicates the behavior of the SE955 in each of the four possible parameter settings.

Table A-1 Reading Standard Code 128 & GS1-128

Standard Code 128	GS1-128	Effect and Example
Disable	Disable	No Code 128 symbols can be read.
Disable	Enable	Read only symbols with leading FNC 1. Examples: FNC1ABCD ^{FNC1} E are read as ABCD ²⁹ E A ^{FNC1} BCD ^{FNC1} E are read as ABCD ²⁹ E FNC1FNC1ABCD ^{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 FNC 1. Examples: FNC1ABCD ^{FNC1} E cannot be read A ^{FNC1} BCD ^{FNC1} E cannot be read FNC1FNC1ABCD ^{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: FNC1ABCD ^{FNC1} E are read as ABCD ²⁹ E A ^{FNC1} BCD ^{FNC1} E are read as ABCD ²⁹ E FNC1FNC1ABCD ^{FNC1} E are read as ABCD ²⁹ E ABCD ^{FNC1} E is read as ABCD ²⁹ E ABCDE is read as ABCDE

Code Identifiers

Table A-2 lists Symbol and AIM code type identifiers. Each AIM Code Identifier contains the three-character string **Jcm** where:

- J = Flag Character (ASCII 93)
- c = Code Character (see Table A-2)
- m = Modifier Character (see Table A-3).

Table A-2 Code Characters

Code Type	Symbol Code Character	AIM Code Character
UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13	A	E
Code 39, Code 32	B	A
Codabar	C	F
Code 128, ISBT 128	D	C
Code 93	E	G
Interleaved 2 of 5	F	I
Discrete 2 of 5, or Discrete 2 of 5 IATA	G	S
Code 11	H	H
MSI	J	M
GS1-128	K	
Bookland EAN	L	X
Trioptic Code 39	M	X
Coupon Code	N	E (UPC portion) C (Code 128 portion)
GS1 DataBar Family	R	e
UCC Composite, TLC 39	T	
Chinese 2 of 5	U	X

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

Table A-3 *Modifier Characters*

Code Type	Option Value	Option
Code 39		
	0	No Check character or Full ASCII processing.
	1	Reader has checked one check character.
	3	Reader has checked and stripped check character.
	4	Reader has performed Full ASCII character conversion.
	5	Reader has performed Full ASCII character conversion and checked one check character.
	7	Reader has performed Full ASCII character conversion and checked and stripped check character.
	Example: A Full ASCII bar code with check character W, A+I+MI+DW , is transmitted as J^{A7}AimId where 7 = (3+4).	
Trioptic Code 39		
	0	No option specified at this time. Always transmit 0.
	Example: A trioptic bar code 412356 is transmitted as J^{X0}412356	
Code 128		
	0	Standard data packet, No Function code 1 in first symbol position.
	1	Function code 1 in first symbol character position.
	2	Function code 1 in second symbol character position.
	Example: A Code (EAN) 128 bar code with Function 1 character in the first position, ^{FNC1} Aim Id is transmitted as J^{C1}AimId	
I 2 of 5		
	0	No check digit processing.
	1	Reader has validated check digit.
	3	Reader has validated and stripped check digit.
	Example: An I 2 of 5 bar code without check digit, 4123, is transmitted as J^{I0}4123	
Codabar		
	0	No check digit processing.
	1	Reader has checked check digit.
	Example: A Codabar bar code without check digit, 4123, is transmitted as J^{F0}4123	
Code 93		
	0	No options specified at this time. Always transmit 0.
	Example: A Code 93 bar code 012345678905 is transmitted as J^{G00}012345678905	

Table A-3 *Modifier Characters (Continued)*

Code Type	Option Value	Option
MSI		
	0	Mod 10 check digit checked and transmitted.
	1	Mod 10 check digit checked but not transmitted.
		Example: An MSI bar code 4123, with a single check digit checked, is transmitted as JM04123
D 2 of 5		
	0	No options specified at this time. Always transmit 0.
		Example: A D 2 of 5 bar code 4123, is transmitted as JS04123
UPC/EAN		
	0	Standard packet in full EAN country code format, which is 13 digits for UPC-A, UPC-E, and EAN-13 (not including supplemental data).
	1	Two digit supplement data only.
	2	Five digit supplement data only.
	3	Combined data packet comprising 13 digits from a UPC-A, UPC-E, or EAN-13 symbol and 2 or 5 digits from a supplemental symbol.
	4	EAN-8 data packet.
		Example: A UPC-A bar code 012345678905 is transmitted as JE00012345678905
Bookland EAN		
	0	No options specified at this time. Always transmit 0.
		Example: A Bookland EAN bar code 123456789X is transmitted as JX0123456789X

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

JE0 (UPC chars) (terminator) **JE2** (supplemental) (terminator)

In the SE955, however, the format is changed to:

JE0 (UPC chars) **JE2** (supplemental)

Therefore, a UPC with two supplemental characters, 01234567890510, is transmitted to the host as a 21-character string, **JE00012345678905JE110**.