

Balluff BVS HS-Q Family
Standard Handheld Barcode Reader
Operation Manual



World Headquarters Germany

Balluff GmbH
Schurwaldstraße 9
73765 Neuhausen a.d.F
Service-Hotline +49 7158 173-370
service@balluff.de

Subsidiaries**USA**

Balluff Inc.
8125 Holton Drive
Florence,
Kentucky 41042-0937
Phone (859) 727-2200,
1-800-543-8390
applications@balluff.com

Copyright Notice

Copyright © Balluff GmbH, Neuhausen a.d.F., Germany, 2015. All rights reserved.

In particular: Reproduction, modification, dissemination and translation into other languages.

Please note that all texts, graphics and images in this operating manual are subject to copyright and other protection laws. Commercial copies, reproductions, modifications and dissemination in any form require prior written agreement from Balluff GmbH.

Owners of Balluff products are hereby granted a non-exclusive, revocable license to reproduce and transmit this documentation for the purchaser's own internal business purposes. Purchaser shall not remove or alter any proprietary notices, including copyright notices, contained in this documentation and shall ensure that all notices appear on any reproductions of the documentation.

An electronic version of this document is downloadable from the Balluff website (www.Balluff.com).

If you visit our website and would like to make comments or suggestions about this or other Balluff publications, please let us know via the "Contact" page.

Disclaimer

This document contains operating instructions and technical documentation for BVS HS Handscanners by Balluff GmbH. All specifications and instructions in this document, especially the Safety Notes section, must be strictly observed. This operator's manual must be carefully stored so that it is always available. The information and illustrations in this operating manual were carefully checked to the best of our ability. Nevertheless, Balluff GmbH cannot assume any liability for the correctness and completeness of this information, since in spite of all due care errors and mistakes cannot be completely avoided. In particular this information and the illustrations do not constitute agreements as to condition according to § 434 of the German Civil Code or guarantees according to § 443 of the GCC.

The information in this manual is based on current knowledge and experience of Balluff GmbH.

No legally binding assurance of certain properties or suitability for a specific purpose can be derived from the information in this operating manual.

Trademarks

The product, goods, company and technology names are trademarks of the respective companies. In particular: Microsoft®, Windows®, Windows XP®, .NET FRAMEWORK ® and Windows 7® are registered trademarks of Microsoft Corporation ; QR Code (R) is a registered trademark of Denso Wave Incorporated. Balluff and Balluff Logo are registered trademarks of Balluff GmbH in many countries. It is the user's responsibility to observe any property rights and provisions.

Patents

This product is covered by one or more of the following patents:

Design patents: EP002158717, USD723563, ZL201330271434.1

Utility patents: EP0996284B1, EP0997760B1, EP0999514B1, EP1128315B1, EP1396811B1, EP1413971B1, EP1828957B1, JP4435343B2, US6478224, US6512218, US6513714, US6561427, US6808114, US6997385, US7053954, US7075663, US7234641, US7387246, US7721966, US8245926, US8561906

All patents belong to a third party

END USER SOFTWARE LICENSE AGREEMENT (EULA)	11
Introduction	15
About this Manual	15
Overview	15
Manual Conventions	15
Technical Support	15
Balluff Website Support	15
Telephone Technical Support	15
About the Reader	16
Programming the Reader	16
Configuration Methods	16
Programming Barcodes	16
Cordless Models Only	16
Using the Bluetooth base (cradle)	17
Bluetooth base LEDs	17
Charging the Batteries	17
Battery Safety	18
Replacing the Battery Pack	19
Setup	21
Unpacking	21
Setting Up the Reader	21
Installing the Interface Cable	21
Cordless Models	23
Configuring the Base Station	23
Connecting the Base Station	23
Base Station Connection and Routing	23
Host Connection	25
Power Connection	25
System and Network Layouts	25
Stand Alone Layout	25
Connecting the Base when Security Pin is Enabled	25
Linking the Reader to a Base Station	26
RF Devices	26
BT Models only	26
Linking a BT Reader to a PC	26
Linking to a PC in Server Mode (BT Slave Mode)	26
Linking to a PC in Client Mode (BT Master Mode)	26
Power Off	27
Interface Selection	27
Setting the Interface	27
Available Interfaces	28
Customizing Configuration Settings	28
Configure Interface Settings	28
Global Interface Features	29
Configuring Other Features	29
Data Format	29
Reading Parameters	29
Symbology-Specific Parameters	29
1D Symbologies	29
2D Symbologies	29
Software Version Transmission	29
Resetting the Product Configuration to Defaults	29
Restore Custom Defaults	29
Restore Factory Configuration	29
Configuration Using Barcodes	31
Configuration Parameters	31
Interface Configuration:	31
Parameters common to all interface applications:	31
Symbology-specific parameters:	31
To program features:	31

Global Interface Features	32
Host Commands — Obey/Ignore	32
USB Suspend Mode	32
RS-232 Interface	33
Baud Rate	34
Data Bits	35
Stop Bits	35
Parity	36
Handshaking Control	36
RS-232/USB-Com Interfaces	37
Intercharacter Delay	38
Beep On ASCII BEL	38
Beep On Not on File	39
ACK NAK Options	39
ACK Character	40
NAK Character	40
ACK NAK Timeout Value	41
ACK NAK Retry Count	42
ACK NAK Error Handling	42
Indicate Transmission Failure	43
Disable Character	43
Enable Character	44
Keyboard Settings	45
Country Mode	46
Send Control Characters	49
Control Character 00	49
Control Character 01	49
Control Character 02	49
Intercode Delay	49
Caps Lock State	50
Numlock	50
USB Keyboard Speed	51
USB Keyboard Numeric Keypad	52
USB-OEM Interface	53
USB-OEM Device Usage	54
USB Interface Options	54
Transmit Labels in Code 39 Format	55
IBM Standard Format	55
Mixed IBM Standard and Code 39 Format	55
Code 39 Format	55
Interface Options	55
Data Format	56
Global Prefix/Suffix	57
Global AIM ID	58
AIM IDs	58
Set AIM ID Individually for GS1-128	60
Label ID	60
Label ID: Pre-Loaded Sets	61
Individually Set Label ID	61
Label ID Control	61
Label ID Symbology Selection – 2D Symbologies	66
Advanced Formatting: User Label Edit	67
Case Conversion	67
Character Conversion	68
Reading Parameters	69
Double Read Timeout	70
LED and Beeper Indicators	71
Power On Alert	71
Good Read: When to Indicate	71
Good Read Beep Type	72
Good Read Beep Frequency	72
Good Read Beep Length	73

Good Read Beep Volume	74
Good Read LED Duration	75
Reading Features	76
Scan Mode	76
Stand Mode Indication	77
Stand Operation	77
Pick Mode	78
Stand Mode Sensitivity	78
Stand Mode Illumination Off Time	79
Reading Active Time	79
Stand Illumination Control	80
Flash On Time	80
Flash Off Time	81
Aiming Pointer	81
Aiming Duration Timer	82
Green Spot Duration	83
Mobile Phone Mode	83
Partial Label Reading Control	84
Decode Negative Labels	84
Multiple Label Reading	85
Multiple Labels per Frame	85
Multiple Labels Ordering by Code Symbology	86
Multiple Labels Ordering by Code Length	86
1D Symbologies	87
1D Code Selection	87
Disable All Symbologies	88
Code EAN/UPC	89
Coupon Control	89
UPC-A	90
UPC-A Enable/Disable	90
UPC-A Check Character Transmission	90
Expand UPC-A to EAN-13	91
UPC-A Number System Character Transmission	91
UPC-A 2D Component	92
UPC-E	92
UPC-E Enable/Disable	92
UPC-E Check Character Transmission	93
UPC-E 2D Component	93
Expand UPC-E to EAN-13	94
Expand UPC-E to UPC-A	94
UPC-E Number System Character Transmission	95
GTIN Formatting	95
EAN 13 (Jan 13)	96
EAN 13 Enable/Disable	96
EAN 13 Check Character Transmission	96
EAN-13 Flag 1 Character	97
EAN-13 ISBN Conversion	97
EAN-13 2D Component	98
ISSN	98
ISSN Enable/Disable	98
EAN 8 (Jan 8)	99
EAN 8 Enable/Disable	99
EAN 8 Check Character Transmission	99
Expand EAN 8 to EAN 13	100
EAN 8 2D Component	100
UPC/EAN Global Settings	101
UPC/EAN Price Weight Check	101
UPC/EAN Quiet Zones	102
Add-Ons	103
Optional Add-ons	103
Cordless models only:	103
Optional Add-On Timer	104

Optional GS1-128 Add-On Timer	106
Code 39	109
Code 39 Enable/Disable	109
Code 39 Check Character Calculation	109
Code 39 Check Character Transmission	110
Code 39 Start/Stop Character Transmission	110
Code 39 Full ASCII	110
Code 39 Quiet Zones	111
Code 39 Length Control	111
Code 39 Set Length 1	112
Code 39 Set Length 2	113
Trioptic Code	114
Trioptic Code Enable/Disable	114
Code 32 (Ital Pharmaceutical Code)	114
Code 32 Enable/Disable	114
Code 32 Feature Setting Exceptions	114
Code 32 Check Char Transmission	115
Code 32 Start/Stop Character Transmission	115
Code 39 CIP (French Pharmaceutical)	116
Code 39 CIP Enable/Disable	116
Code 39 Danish PPT	116
Code 39 Danish PPT Enable/Disable	116
Code 39 LaPoste	117
Code 39 LaPoste Enable/Disable	117
Code 39 PZN	117
Code 39 PZN Enable/Disable	117
Code 128	118
Code 128 Enable/Disable	118
Expand Code 128 to Code 39	118
Code 128 Check Character Transmission	118
Code 128 Function Character Transmission	119
Code 128 Quiet Zones	119
Code 128 Length Control	120
Code 128 Set Length 1	121
Code 128 Set Length 2	122
GS1-128	123
GS1-128 Enable	123
GS1-128 2D Component	123
Code ISBT 128	124
ISBT 128 Concatenation	124
ISBT 128 Force Concatenation	124
ISBT 128 Concatenation Mode	125
ISBT 128 Dynamic Concatenation Timeout	126
Interleaved 2 of 5 (I 2 of 5)	127
I 2 of 5 Enable/Disable	127
I 2 of 5 Check Character Calculation	128
I 2 of 5 Check Character Transmission	129
I 2 of 5 Length Control	129
I 2 of 5 Set Length 1	129
I 2 of 5 Set Length 2	131
Interleaved 2 of 5 CIP HR	132
Interleaved 2 of 5 CIP HR Enable/Disable	132
Follett 2 of 5	132
Follett 2 of 5 Enable/Disable	132
Standard 2 of 5	133
Standard 2 of 5 Enable/Disable	133
Standard 2 of 5 Check Character Calculation	133
Standard 2 of 5 Check Character Transmission	134
Standard 2 of 5 Length Control	134
Standard 2 of 5 Set Length 1	135
Standard 2 of 5 Set Length 2	136
Industrial 2 of 5	137

Industrial 2 of 5 Enable/Disable	137
Industrial 2 of 5 Check Character Calculation	137
Industrial 2 of 5 Check Character Transmission	138
Industrial 2 of 5 Length Control	138
Industrial 2 of 5 Set Length 1	139
Industrial 2 of 5 Set Length 2	140
Code IATA	141
IATA Enable/Disable	141
IATA Check Character Transmission	141
Codabar	142
Codabar Enable/Disable	142
Codabar Check Character Calculation	142
Codabar Check Character Transmission	143
Codabar Start/Stop Character Transmission	143
Codabar Start/Stop Character Set	144
Codabar Start/Stop Character Match	144
Codabar Quiet Zones	145
Codabar Length Control	145
Codabar Set Length 1	146
Codabar Set Length 2	147
ABC Codabar	148
ABC Codabar Enable/Disable	148
ABC Codabar Concatenation Mode	148
ABC Codabar Dynamic Concatenation Timeout	149
ABC Codabar Force Concatenation	150
Code 11	151
Code 11 Enable/Disable	151
Code 11 Check Character Calculation	151
Code 11 Check Character Transmission	152
Code 11 Length Control	152
Code 11 Set Length 1	153
GS1 DataBar™ Omnidirectional	155
GS1 DataBar™ Omnidirectional Enable/Disable	155
GS1 DataBar™ Omnidirectional GS1-128 Emulation	155
GS1 DataBar™ Omnidirectional 2D Component	156
GS1 DataBar™ Expanded	157
GS1 DataBar™ Expanded Enable/Disable	157
GS1 DataBar™ Expanded GS1-128 Emulation	157
GS1 DataBar™ Expanded 2D Component	158
GS1 DataBar™ Expanded Length Control	159
GS1 DataBar™ Expanded Set Length 1	160
GS1 DataBar™ Expanded Set Length 2	161
GS1 DataBar™ Limited	162
GS1 DataBar™ Limited Enable/Disable	162
GS1 DataBar™ Limited GS1-128 Emulation	162
GS1 DataBar™ Limited 2D Component	163
Code 93	163
Code 93 Enable/Disable	163
Code 93 Check Character Calculation	164
Code 93 Check Character Transmission	164
Code 93 Length Control	165
Code 93 Set Length 1	166
Code 93 Set Length 2	167
Code 93 Quiet Zones	168
MSI	168
MSI Enable/Disable	168
MSI Check Character Calculation	169
MSI Check Character Transmission	169
MSI Length Control	170
MSI Set Length 1	171
MSI Set Length 2	172
Plessey	173

Plessey Enable/Disable	173
Plessey Check Character Calculation	173
Plessey Check Character Transmission	174
Plessey Length Control	174
Plessey Set Length 1	175
Plessey Set Length 2	176
2D Symbolologies	177
2D Global Features	177
2D Maximum Decoding Time	178
2D Structured Append	179
2D Normal/Inverse Symbol Control	179
Symbology Selection	180
Aztec Code	180
Aztec Code Enable / Disable	180
Aztec Code Length Control	180
Aztec Code Set Length 1	180
Aztec Code Set Length 2	182
China Sensible Code	183
China Sensible Code Enable / Disable	183
China Sensible Code Length Control	183
China Sensible Code Set Length 1	184
China Sensible Code Set Length 2	185
Data Matrix	186
Data Matrix Enable / Disable	186
Data Matrix Square/Rectangular Style	186
Data Matrix Length Control	187
Data Matrix Set Length 1	187
Data Matrix Set Length 2	188
Maxicode	189
Maxicode Enable / Disable	189
Maxicode Primary Message Transmission	189
Maxicode Length Control	190
Maxicode Set Length 1	190
Maxicode Set Length 2	191
PDF417	192
PDF417 Enable / Disable	192
PDF417 Length Control	192
PDF417 Set Length 1	193
PDF417 Set Length 2	194
Micro PDF417	195
Micro PDF417 Enable / Disable	195
Micro PDF417 Code 128 GS1-128 Emulation	195
Micro PDF417 Length Control	196
Micro PDF417 Set Length 1	196
Micro PDF417 Set Length 2	197
QR Code	198
QR Code Enable / Disable	198
QR Code Length Control	198
QR Code Set Length 1	199
QR Code Set Length 2	200
Micro QR Code	201
Micro QR Code Enable/Disable	201
Micro QR Code Length Control	201
Micro QR Code Set Length 1	202
Micro QR Code Set Length 2	203
UCC Composite	204
UCC Composite Enable / Disable	204
UCC Optional Composite Timer	205
Postal Code Selection	206
Postnet BB Control	207
WIRELESS FEATURES	208
Wireless Beeper Features	209

Good Transmission Beep	209
Beep Frequency	209
Beep Duration	210
Beep Volume	211
Disconnect Beep	211
Docking Beep	212
Leash Alarm	212
Configuration Updates	214
Automatic Configuration Update	214
Copy Configuration to Reader	214
Copy Configuration to Base Station	214
Batch Features	215
Batch Mode	215
Send Batch	215
Erase Batch Memory	216
RF Batch Mode Transmit Delay	216
Direct Radio Autolink	217
Bluetooth-Only Features	217
RF Address Stamping	217
Source Radio Address Transmission	217
Source Radio Address Delimiter Character	218
Link Timeout	218
BT Security Features	219
BT Security Mode	219
BT PIN Code	219
Select PIN Code Length	220
Set PIN Code	220
Other BT Features	221
BT Poll Rate	221
Power Off	221
Powerdown Timeout	222
References	223
RS-232 Parameters	224
RS-232	224
Baud Rate	224
Stop Bits	224
Parity	224
Handshaking Control	224
RS-232/USB COM Parameters	225
Intercharacter Delay	225
ACK NAK Options	226
ACK Character	226
NAK Character	227
ACK NAK Timeout Value	228
ACK NAK Retry Count	229
Disable Character	230
Enable Character	231
Symbolologies	231
Set Length	231
Set Length 1	232
Set Length 2	232
Data Editing	233
Global Prefix/Suffix	234
Example: Setting a Prefix	234
Global AIM ID	235
Label ID	236
Label ID: Pre-loaded Sets	236
Label ID: Set Individually Per Symbology	238
Character Conversion	241
Reading Parameters	242
Good Read LED Duration	242
Reading Features	243

Scan Mode	243
Stand Mode Off Time	244
Reading Active Time	245
Aiming Duration Time	246
Flash On Time	247
Flash Off Time	248
Multiple Labels Ordering by Code Symbology	249
RF Features	251
Automatic Configuration Update	251
RF Address Stamping	252
Source Radio Address Delimiter Character	252
BT Features	253
BT Pin Code	253
Appendix A: Technical Specifications	254
Imager Labeling	258
Radio Features	258
Standard Cable Pinouts	259
LED and Beeper Indications	261
Error Codes	262
Base Station Indications (Cordless Models ONLY)	263
Base Station Button Indicators	263
Appendix B: Standard Defaults.....	264
Appendix C: Sample Barcodes.....	276
1D Barcodes	276
GS1 DataBar™ (RSS)	278
GS1 DataBar™-14	279
2D Barcodes	280
Appendix D: Keypad.....	281
Appendix E: Scancode Tables.....	283
Control Character Emulation	283
Single Press and Release Keys	283
Example	283
Interface Type, USB-Keyboard or USB-Keyboard for APPLE	284
Interface Type, USB-Keyboard or USB-Keyboard for APPLE (continued)	285
Interface type USB-Keyboard Alt Mode	286
Interface type USB-Keyboard Alt Mode (continued)	287
Digital Interface	288
IBM31xx 102-key	289
IBM XT	291
Microsoft Windows Codepage 1252	293
ASCII Chart	294

1 END USER SOFTWARE LICENSE AGREEMENT (EULA)

BALLUFF GMBH

1 END USER SOFTWARE LICENSE AGREEMENT (EULA) **FOR THE BVS HS-Q Series**

Notice to End User: There are two types of software covered by this END USER LICENSE AGREEMENT ("EULA"):

(1) The Balluff Product you have acquired contains embedded software ("Embedded Software") which is integral to the Product's operation; and (2) Optional Application Software provided to you on an optional basis ("Application Software"). Embedded Software and Application Software are collectively referred to as "Software" and are subject to the terms and conditions contained in this EULA. Software is provided only for use with, and for authorized end users of, the Balluff BVS HS-Q Series of hand held readers ("Product"). Portions of the Embedded Software include or operate with Open Source software or libraries ("Open Source"). Use of Open Source is subject to the Open Source licenses entitled "BVS_HS-QReaders_OpenSource.zip" available at the following website <http://www.balluff.com>.

This EULA (End User Software License Agreement) ("EULA" or "Agreement") is a legally binding agreement governing the licensing of the Software and Documentation by Balluff GbmH. and its subsidiaries and affiliates ("Balluff") to the entity or person who has purchased or otherwise acquired a Balluff Product ("End User"). For purposes of this Agreement, any software that is not Embedded Software or Application Software is software associated with a separate end-user license agreement is licensed to you under the terms of that license agreement. Balluff and End User hereby agree as follows:

1. Definitions

- 1.1. "Affiliate" means a business entity currently existing or later acquired that is controlled by, or is under common control with Balluff GmbH.
- 1.2. "Documentation" means materials such as user's guides, program reference guides, quick reference guides, manuals, or similar materials associated with or related to the Balluff Product, whether in printed, "online", or other form.
- 1.3. "Proprietary Information" means: (a) source code, object code, software, documentation, and any related internal design, system design, data base design, algorithms, technology, technical data or information, implementation techniques, and trade secrets related to the Software, (b) any other trade secrets marked appropriately or identified as proprietary or confidential, and (c) any information that End User, under the circumstances, should recognize as confidential. Proprietary Information does not include any information that the receiving party can establish was (1) in the public domain, (2) already in the receiving party's possession or rightfully known prior to receipt, (3) rightfully learned from a third party not in violation of any other's proprietary rights, or (4) independently developed without access to Proprietary Information.
- 1.4. "Balluff Product" means the Balluff BVS HS-Q series scanner product, including all embedded Software in and all Documentation related to such product, which has been purchased or otherwise acquired by End User, whether obtained directly or indirectly from Balluff.
- 1.5. "Software" means any software or computer programs of Balluff or its third party licensors in machine readable form which is embedded in the Balluff Product, whether obtained directly or indirectly from Balluff, including any replacement, update, upgrade, enhancement or modification.

2. Scope Of License Granted

- 2.1. Balluff grants to End User a non-exclusive, non-transferable, perpetual license to use the Software, solely on the Balluff Product in which it is embedded ("designated Balluff Product"), in machine-readable form only, solely for End User's internal business purposes. This Agreement does not convey ownership of the Software to End User. Title to the Software shall be and remain with Balluff or the third party from whom Balluff has obtained a licensed right. As used in this Agreement, the term "purchase" or its equivalents when applied to the Software shall mean "acquire under license". End User is not entitled to receipt or use of the source code to any Software.
- 2.2. End User shall not copy, modify, decompile, disassemble, reverse engineer, or otherwise reproduce or remanufacture the Software, whether modified or unmodified, nor sell, assign, sublicense, distribute, lend, rent, give, or otherwise transfer the Software to any other person or organization, for purposes other than as expressly provided in this Agreement, without Balluff's prior written consent.

1 **END USER SOFTWARE LICENSE AGREEMENT (EULA)**

3. Transfers, Support

- 3.1. Any copying, installing, reproduction, remanufacture, reverse engineering, electronic transfer, or other use of the Software on other than the designated Balluff Product will be a material breach of this Agreement. However, Balluff may elect not to terminate this Agreement or the granted licenses, but instead may elect to notify End User that End User is deemed to have ordered and accepted a license for each breaching use. End User shall pay Balluff the applicable list price for such licenses as of the date of such breach.
- 3.2. End User may obtain support for Software from Balluff at Balluff's standard support fees and under Balluff's standard support terms and conditions in effect at the time the support is requested.
- 3.3. End User shall make at its own cost and liability a back up copy of any data processed and/or run through the Software

4. Intellectual Property

End User acknowledges that the Software constitutes valuable trade secrets of Balluff or Balluff's third party licensors and that the Software is protected by intellectual property laws and treaties. The license set forth in this Agreement does not transfer to End User any ownership of Balluff's or its third party licensors' copyrights, patents, trademarks, service marks, trade secrets, or other intellectual property rights and End User shall have no right to commence any legal actions to obtain such rights. End User shall not remove, modify, or take any other action that would obscure any copyright, trademark, patent marking, or other intellectual property notices contained in or on the Balluff Product.

5. Proprietary Information

- 5.1. End User acknowledges that Proprietary Information is the confidential, pro-prietary, and trade secret property of Balluff and Balluff's third party licensors and End User acquires no right or interest in any Proprietary Information.
- 5.2. End User shall not disclose, provide, or otherwise make available the Proprietary Information of Balluff or its third party licensors to any person other than End User's authorized employees or agents who are under confidentiality agreement, and End User shall not use the Proprietary Information other than in conjunction with use of the Balluff Product exclusively for End User's internal business purposes. End User shall take steps to protect the Proprietary Information no less securely than if it were End User's own intellectual property.
- 5.3. The provisions of this Proprietary Information Section shall survive and continue for five (5) years after the termination of this Agreement.

6. Limited Warranty

- 6.1. Balluff warrants that, under normal use and operation, the Balluff Product will conform substantially to the applicable Documentation for the period specified in the Documentation. During this period, for all reproducible non-conformities for which Balluff has been given written notice, Balluff will use commercially reasonable efforts to remedy nonconformities verified by Balluff. End User agrees to supply Balluff with all reasonably requested information and assistance necessary to help Balluff in remedying such nonconformities. For all defects reported to Balluff within the warranty period, Balluff's liability is limited to providing End User with one copy of corrections or responding to End User's problem reports according to Balluff's standard assistance practices. Balluff does not warrant that the product will meet End User's requirements or that use of the product will be uninterrupted or error free, or that Balluff's remedial efforts will correct any nonconformance. This limited warranty does not cover any product that have been subjected to damage or abuse, whether intentionally, accidentally, or by neglect, or to unauthorized repair or unauthorized installation, and shall be void if End User modifies the product, uses the product in any manner other than as established in the Documentation, or if End User breaches any of the provisions of this Agreement.
- 6.2. EXCEPT AS PROVIDED IN THIS AGREEMENT, THE BALLUFF PRODUCT IS PROVIDED "AS IS" AND BALLUFF MAKES NO WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, WRITTEN OR ORAL, WITH RESPECT TO THE PRODUCT, AND SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

1 **END USER SOFTWARE LICENSE AGREEMENT (EULA)**

7. Infringement

- 7.1. Balluff will defend End User against any claim in a lawsuit that the Balluff Product furnished hereunder infringe a United States patent or copyright of a third party and Balluff will pay any damages finally awarded against End User by a court of competent jurisdiction that are attributable to such claim or will pay End User's part of any settlement that is attributable to such claim, provided, that 1) End User notifies Balluff promptly in writing of the claim, 2) Balluff controls the defense or settlement of the claim, and 3) End User cooperates fully with Balluff in such defense or settlement. All notices of a claim should be sent to Balluff GbmH Schurwaldstraße 9, D-73765 Neuhausen/Fildern, Germany. In the defense or settlement of any such claim, Balluff may, at its option, 1) procure for End User the right to continue using the Balluff Product, 2) modify the Balluff Product so that it becomes non-infringing, 3) replace the Balluff Product with an equivalent product not subject to such claim, or 4) provide End User an opportunity to return the Balluff Product and receive a refund of the purchase price paid, less a reasonable allowance for use.
- 7.2. Balluff shall have no liability to End User for claims of infringement based upon 1) the use of any Balluff Product in combination with any product which Balluff has not either furnished or authorized for use with Product 2) the use of any Balluff Product designed, manufactured, or modified to the specifications of End User, or 3) End User's modification of the Balluff Product without written authorization from Balluff.
- 7.3. THE FOREGOING STATES BALLUFF'S COMPLETE AND ENTIRE OBLIGATION CONCERNING CLAIMS OF PATENT, COPYRIGHT, OR OTHER INTELLECTUAL PROPERTY INFRINGEMENT, CANCELS AND SUPERCEDES ANY PRIOR AGREEMENTS, WHETHER ORAL OR WRITTEN, BETWEEN THE PARTIES CONCERNING SUCH CLAIMS, AND WILL NOT BE MODIFIED OR AMENDED BY ANY PAST, CONTEMPORANEOUS, OR FUTURE AGREEMENTS OR DEALINGS BETWEEN THE PARTIES, WHETHER ORAL OR WRITTEN, EXCEPT AS SET FORTH IN A FUTURE WRITING SIGNED BY BOTH PARTIES

8. Limitation Of Liability

IN NO EVENT SHALL BALLUFF'S LIABILITY FOR DAMAGES, IF ANY, WHETHER BASED UPON CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, STRICT LIABILITY, WARRANTY, OR ANY OTHER BASIS, WILL INCLUDE LOST PROFITS, LOST DATA, INTERRUPTION OF BUSINESS OR SERVICE, OR FOR ANY OTHER SPECIAL, PUNITIVE, EXEMPLARY, OR OTHER SIMILAR DAMAGES, EVEN IF BALLUFF HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BALLUFF SHALL BE LIABLE FOR THOSE DAMAGES WHICH OCCURRED DIRECTLY FROM ANY BREACH OF CONSTITUTIONAL OBLIGATIONS OF THIS AGREEMENT AND WHICH HAVE CAUSED ACTUAL FINANCIAL LOSS AS OF THEIR OCCURRENCE.

9. Government Restricted Rights; International Use

- 9.1. Use, duplication, or disclosure of the Software by the U.S. Government is subject to the restrictions for computer software developed at private expense as set forth in the U.S. Federal Acquisition Regulations at FAR 52.227-14(g), or 52.227-19 or in the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013(c)(1)(ii), whichever is applicable.
- 9.2. End User must comply with the applicable local laws of the country in which the Balluff Product is used, with U.S. export control laws, and with this Agreement. The provisions of the "United Nations Convention on International Sale of Goods" shall not apply to this Agreement.

10. Termination

- 10.1. Either party may terminate this Agreement or any license granted under this Agreement at any time upon written notice if the other party breaches any provision of this Agreement.
- 10.2. Upon termination of this Agreement, End User immediately shall cease using any nonembedded software and shall return to Balluff or destroy all non-embedded software covered by this Agreement, and shall furnish Balluff with a certificate of compliance with this provision signed by an officer or authorized representative of End User. For embedded software, End User agrees to sign a waiver prepared by Balluff concerning further use of the embedded Software. End User's resumed or continued use of the embedded Software after termination shall constitute End User's agreement to be bound by the terms and conditions of this Agreement for such use.

1

END USER SOFTWARE LICENSE AGREEMENT (EULA)

11. General Provisions

- 11.1. Entire Agreement; Amendment. This document contains the entire agreement between the parties relating to the licensing of the Software and supersedes all prior or contemporaneous agreements, written or oral, between the parties concerning the licensing of the Software. This Agreement may not be changed, amended, or modified except by written document signed by Balluff.
- 11.2. Notice. All notices required or authorized under this Agreement shall be given in writing, and shall be effective when received, with evidence of receipt. Notices to Balluff shall be sent to the attention of Contract Administration, Balluff GmbH Schurwaldstraße 9, D-73765 Neuhausen/Fildern, Germany, or such other address as may be specified by Balluff in writing.
- 11.3. Waiver. A party's failure to enforce any of the terms and conditions of this Agreement shall not prevent the party's later enforcement of such terms and conditions.
- 11.4. It is agreed that (a) place of jurisdiction for legal actions falling within the jurisdiction as regards the subject matter of the Amtsgericht (local courts) shall be the Amtsgericht Stuttgart, Germany and (b) place of jurisdiction for legal actions falling within the jurisdiction as regards the subject matter of the Landgericht (regional courts) shall be the Landgericht Stuttgart, Germany.
- 11.5. German law shall apply exclusively without giving effect to its conflict of laws principles.
- 11.6. In addition to these EULA, the General Terms and Conditions of Balluff shall apply. In the event that individual provisions of the EULA contradict any provision of General Terms and Conditions, then, the EULA shall prevail. Without prejudice of the foregoing, should a clause of the EULA contradict the applicable law, then, to the extent the General Terms and Conditions have most favorable provision for Balluff in this respect, then the Parties shall refer to the General Terms and Conditions of Balluff.

- END -

Software Product Policy

Balluff reserves the right to ship its products with the latest version of software/firmware available. This provides our customers with the very latest in Balluff software technology.

2 Introduction

2 Introduction

2.1 About this Manual

This Operation Manual (OPM) is provided for users seeking advanced technical information, including connection, programming, maintenance and specifications. The Quick Reference Guide (QRG) and other publications associated with this product are downloadable free of charge from the website listed on the back cover of this manual.

2.1.1 Overview

Chapter 2 [Introduction](#) (this chapter) presents information about manual conventions, and an overview of the reader, its features and operation.

Chapter 3 [Unpacking](#) presents information about unpacking, cable connection information and setting up the reader.

Chapter 4 [Configuration Using Barcodes](#) provides instructions and barcode labels for customizing your reader. There are different sections for interface types, general features, data formatting, symbology-specific and model-specific features.

Chapter 5 [References](#) contains additional information and examples for selected barcode features.

Appendix A, [Appendix A: Technical Specifications](#) lists physical and performance characteristics, as well as environmental and regulatory specifications. It also provides standard cable pinouts and LED/Beeper functions.

Appendix B, [Appendix B: Standard Defaults](#) references common factory default settings for reader features and options.

Appendix C, [Appendix C: Sample Barcodes](#) offers sample barcodes for several common symbologies.

Appendix D, [Appendix D: Keypad](#) includes numeric barcodes to be readed for certain parameter settings.

Appendix E, [Appendix E: Scancode Tables](#) lists control character emulation information for USB Keyboard interfaces.

2.1.2 Manual Conventions

The following conventions are used in this document:

The symbols listed below are used in this manual to notify the reader of key issues or procedures that must be observed when using the reader:



Notes contain information necessary for properly diagnosing, repairing and operating the reader.



CAUTION

The CAUTION symbol advises you of actions that could damage equipment or property.

Current versions of this Operation Manual (OPM), Quick Reference Guide (QRG), and any other manuals, instruction sheets and utilities for this product can be downloaded from the website listed below.

2.2 Technical Support

2.2.1 Balluff Website Support

The Balluff website (www.balluff.com) is the complete source for technical support and information for Balluff products. The site offers product support, warranty information, product manuals, and, software updates, demos,

2.2.2 Telephone Technical Support

If you do not have internet or email access, you may contact our technical support. See second page or check the back cover of your manual for more contact information.

2

Introduction

2.3 About the Reader

The Balluff BVS HS-Q Series handheld area imager family was specifically created to meet the market demand with outstanding omni-directional reading performance on virtually all codes at an affordable price. Elegant design details are incorporated into a smaller, balanced lightweight enclosure without sacrificing its durability.

Ideally suited for applications at warehouse and good's inspection, the Balluff BVS HS-Q Series reader features a new illumination and aiming system developed with the unique intent to reduce visual stress of the operator during the daily reading activities. It consists of a soft, dark red illumination combined with two blue LED triangles pointing at the targeted barcode.

The result is a precise aiming system which contributes to low eye fatigue, yet still allows top operator efficiency.

The Balluff BVS HS-Q Series family reads typical printed linear barcodes as well as complex 2D barcodes displayed on the screen of a mobile device. The BVS HS-Q readers are an elegant and robust reader family that provide fast, reliable reading.

Imaging technology meets or exceeds the productivity compared to laser scanners and provides the additional advantages of a lower cost-of-ownership and greater product reliability over the long term.

The family of BVS HS-Q Series handheld area consists out of several models:

- BVS HS-QC-SDR-MA-01-01 - Cable version with USB cable in a kit
- BVS HS-QB-SDR-MA-02-02 -Bluetooth version with basestation and USB cable in a kit
- BVS HS-QB-SDR-MA-02-03- Bluetooth version with basestation and RS232 cable in a kit

2.4 Programming the Reader

2.4.1 Configuration Methods

Programming Barcodes

The reader is factory-configured with a standard set of default features. After reading the interface barcode, you can select other options and customize your reader through use of the instructions and programming barcode labels available in the corresponding features section for your interface. Customizable settings for many features are found in ["Configuration Parameters" on page 31](#).

Some programming labels, like ["Restore Custom Defaults" on page 29](#), require only the scan of the single label to enact the change. Most, however, require the reader to be placed in Programming Mode prior to reading them. Scan an ENTER/EXIT barcode once to enter Programming Mode. Once the reader is in Programming Mode, scan a number of parameter settings before reading the ENTER/EXIT barcode a second time, which will then accept your changes, exit Programming Mode and return the reader to normal operation.



There are some exceptions to the typical programming sequence described above. Please read the description and setting instructions carefully when configuring each programmable feature.

2.5 Cordless Models Only



The following information is applicable only to the BVS HS QBxxx device.

2 Introduction

2.5.1 Using the Bluetooth base (cradle)

Bluetooth base LEDs

LEDs on the Base provide information about the Base as well as battery charging status, as shown.

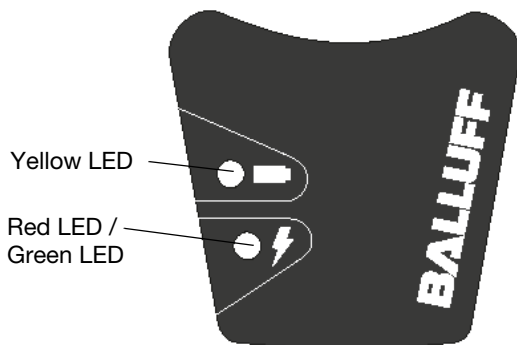
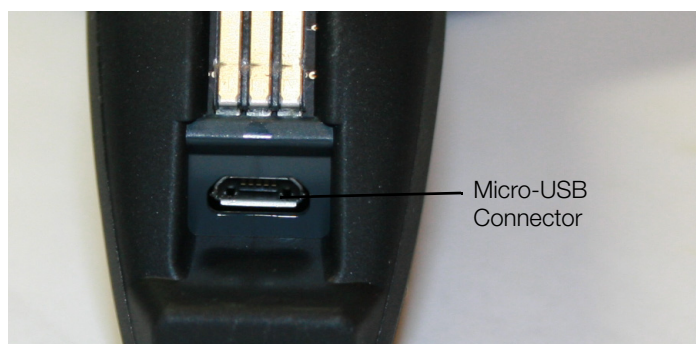


Figure 1: Base LEDs

	Power on / Data	Yellow On = Base is powered Yellow Blinking = Base receives data and commands from the Host or the Reader.
	Charging	Red On = Battery charging is in progress.
	Charge completed	Green On = the Battery is completely charged.
	Charging + Charge completed	Red and Green Blinking together = the Reader is not correctly placed onto the Base.

2.5.2 Charging the Batteries

The battery can be charged by connecting the reader directly to a host through the micro-USB connector available in the bottom of the handle, as shown.



Alternatively, simply insert the handheld reader into the base. When the reader is fully seated in the cradle, it will sound a “chirp” to indicate that the cradle has detected the reader connection. The LEDs on the base will indicate the status of the battery.



Before using the Battery, read “Battery Safety” in the following section. Balluff recommends annual replacement of rechargeable battery packs to ensure maximum performance.

2

Introduction

2.6 Battery Safety

To reinstall, charge and/or perform any other action on the battery, follow the instructions in this manual.



Before installing the Battery, read “Battery Safety” on this and the following pages. Balluff recommends annual replacement of rechargeable battery packs to ensure maximum performance.



WARNING

Do not discharge the battery using any device except for the reader. When the battery is used in devices other than the designated product, it may damage the battery or reduce its life expectancy. If the device causes an abnormal current to flow, it may cause the battery to become hot, explode or ignite and cause serious injury.

Lithium-ion battery packs may get hot, explode or ignite and cause serious injury if exposed to abusive conditions. Be sure to follow the safety warnings listed below:

- ▶ Do not place the battery pack in fire or heat.
- ▶ Do not connect the positive terminal and negative terminal of the battery pack to each other with any metal object (such as wire).
- ▶ Do not carry or store the battery pack together with metal objects.
- ▶ Do not pierce the battery pack with nails, strike it with a hammer, step on it or otherwise subject it to strong impacts or shocks.
- ▶ Do not solder directly onto the battery pack.
- ▶ Do not expose the battery pack to liquids, or allow the battery to get wet.
- ▶ Do not apply voltages to the battery pack contacts.



WARNING

In the event the battery pack leaks and the fluid gets into your eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.



CAUTION

Always charge the battery at 0° - 40°C temperature range.

Use only the authorized power supplies, battery pack, chargers, and docks supplied. The use of any other power supplies can damage the device and void your warranty.

Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite.

Do not place the battery in or near fire, on stoves or other high temperature locations.



CAUTION

Do not place the battery in direct sunlight, or use or store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.

Do not place the battery in microwave ovens, high-pressure containers or on induction cookware.

Immediately discontinue use of the battery if, while using, charging or storing the battery, the battery emits an unusual smell, feels hot, changes color or shape, or appears abnormal in any other way.

Do not replace the battery pack when the device is turned on.

Do not remove or damage the battery pack's label.

2 Introduction



Do not use the battery pack if it is damaged in any part.
Battery pack usage by children should be supervised.

CAUTION

As with other types of batteries, Lithium-Ion (LI) batteries will lose capacity over time. Capacity deterioration is noticeable after one year of service whether the battery is in use or not. It is difficult to precisely predict the finite life of a LI battery, but cell manufacturers rate them at 500 charge cycles. In other words, the batteries should be expected to take 500 full discharge / charge cycles before needing replacement. This number is higher if partial discharging / recharging is adhered to rather than full / deep discharging.



Storage of batteries for long time at fully charged status or at fully discharged status should be avoided.

CAUTION



In case of long storage, to avoid deep discharge of the battery it is recommended to partially recharge the battery every three months to keep the charge status at a medium level.

As a reference, run a fast recharge for 20 minutes every three months on unused products to avoid any performance deterioration of the cell.

CAUTION

The useful life of LI batteries depends on usage and number of charges, etc., after which they should be removed from service, especially in mission critical applications. Do not continue to use a battery showing excessive loss of capacity, it should be properly recycled / disposed of and replaced.

Collect and recycle waste batteries separately from the device in compliance with European Directive 2006/66/EC, 2011/65/EU, 2002/96/EC and 2012/19/EU and subsequent modifications, US and China regulatory and others laws and regulations about the environment.

2.7 Replacing the Battery Pack



Before proceeding, read "Battery Safety" on the preceding pages. Balluff recommends annual replacement of rechargeable battery packs to ensure maximum performance.

- 1 Using a coin or a screwdriver, unscrew the bottom of the battery pack until it is disengaged.



The battery pack will rise slightly in the rear, pushed by the contact springs.

- 2 Extract the battery pack by slightly rotating the pack and pulling away from the reader.

2

Introduction



To mount the new battery pack reverse the process:

- 1 Insert the top of the new pack inside the reader's handle.
- 2 Rotate the battery pack downward while pressing the bottom side of the battery pack (to seat securely into the contacts springs) so that the edges of the pack and the handle board are aligned, while replacing the screw in the bottom of the handle.

3 Setup

3 Setup

- 3.1 Unpacking** Check carefully to ensure the reader and any accessories ordered are present and undamaged. If any damage occurred during shipment, contact our Technical Support. Information is shown on [page 16](#).
KEEP THE PACKAGING. Should the unit ever require service, it should be returned in its original shipping container.
- 3.2 Setting Up the Reader** Depending on whether you are using a Corded or Wireless version of the BVS HS Q - Series of readers, follow the steps provided in this section to connect and get your reader up and communicating with its host.
- 1 Begin by [Installing the Interface Cable \(Corded\) or Connecting the Base Station](#).
 - 2 Go to [Interface Selection](#) and set the desired interface.
 - 3 [Configure Interface Settings](#) (only if not using factory settings for that interface).
 - 4 Go to [Configuring Other Features](#) (if modifications are needed from factory settings).
- 3.3 Installing the Interface Cable** For Corded versions, connect the reader cable by inserting the cable into the handle as shown in [Figure: Connect/disconnect the cable](#). To remove it, insert a paper clip into the release aperture, then unplug the cable.

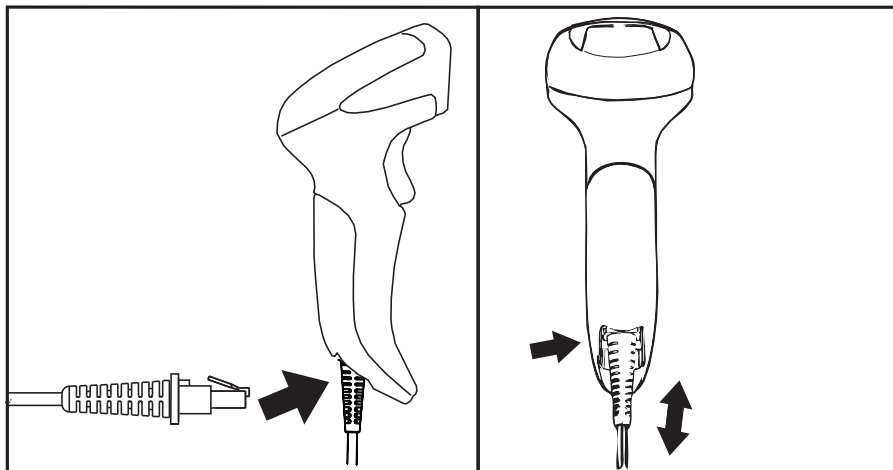


Figure 1: Connect/disconnect the cable



Figure 2: RS-232 Serial Connection

Turn off power to the terminal/PC and connect the reader to the terminal/PC serial port via the RS-232 cable as shown in [Figure: RS-232 Connection](#). If the terminal will not support POT (Power Off the Terminal) to supply reader power, use the approved power supply (AC Adapter). Plug the AC Adapter barrel connector into the socket on the RS-232 cable connector and the AC Adapter plug into a standard power outlet.



Figure 3: RS-232 Connection



Figure 4: USB Connection

Connect the reader to a USB port on the terminal/PC using the correct USB cable for the interface type you ordered. Reference [Figure: USB connection](#).

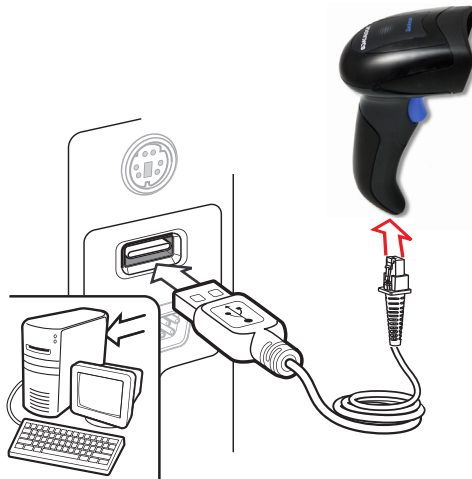


Figure 5: USB connection

Other connection types are described below and illustrated in [Figure: Other Interface Connections](#).

3 Setup

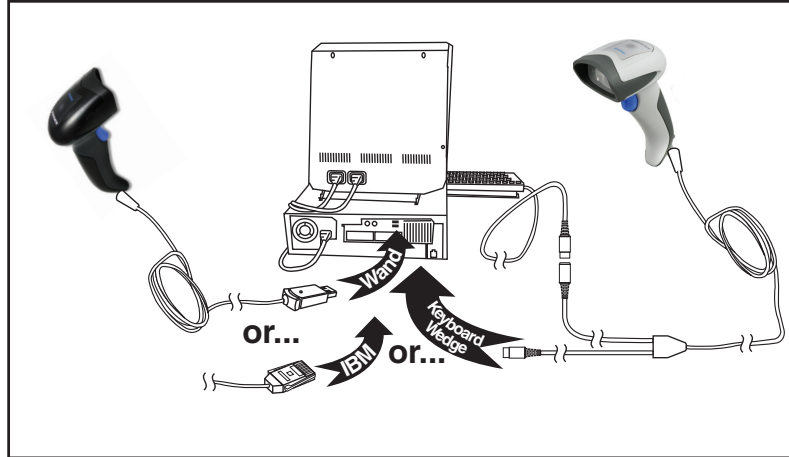
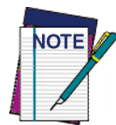


Figure 6: Other Interface Connections



Specific cables are required for connection to different hosts. The connectors illustrated above are examples only. Actual connectors may vary from those illustrated, but the steps to connect the reader remain the same.

Cordless Models

The power supply connects directly to the base (not on the cable's jack) for all configurations. For all interfaces (except RS-232) a power supply is recommended but not necessary, because the base can be powered from the Host. When the base is powered from the Host, it automatically selects a slow charge rate.

3.4 Configuring the Base Station

3.4.1 Connecting the Base Station

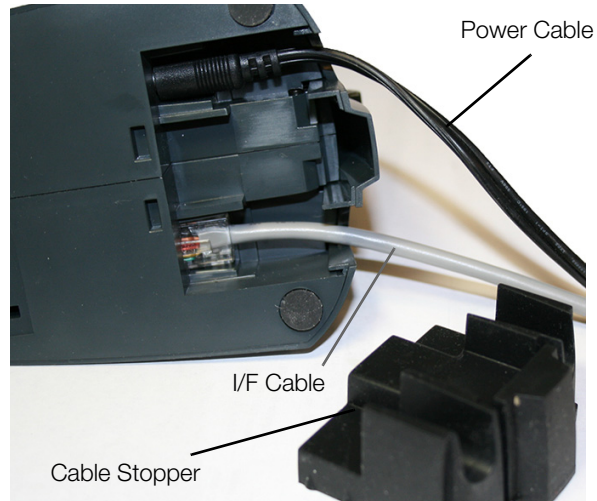
[Figure: Connecting the Base Station on page 24](#) shows how to connect the Base Station to a terminal, PC or other host device. Turn off the host before connection and consult the manual for that equipment (if necessary) before proceeding. Connect the interface cable before applying power to the Base Station.



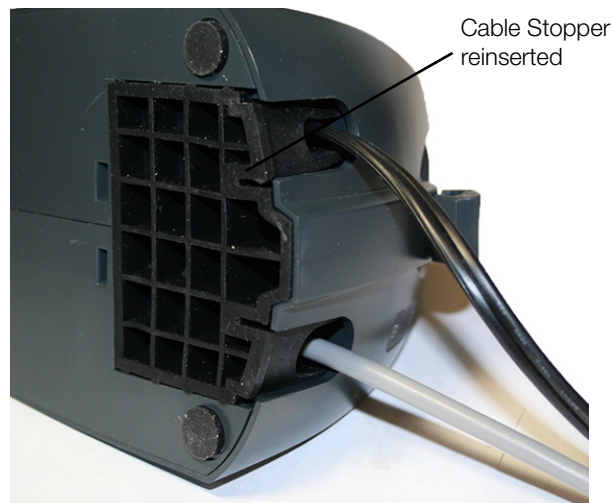
The BVS HS QB xxx can also be Powered by the Terminal. When powered by the Terminal, the battery charger is automatically set as Slow charge. For some specific interfaces or hosts or lengths of cable, the use of an external power supply may be recommended for full recharging capability (see ["Appendix A: Technical Specifications" on page 254](#) for more details).

3.4.2 Base Station Connection and Routing

- 1 Remove the rubber Cable Stopper from the bottom of the Base Station.
- 2 Securely plug the Power Cable and Interface (I/F) Cable connectors into their respective ports in the underside of the Base Station.



3 After the cables are plugged in, reinsert the rubber Cable Stopper.



4 Connect to an AC Adapter, and plug the AC power cord into the (wall) outlet.

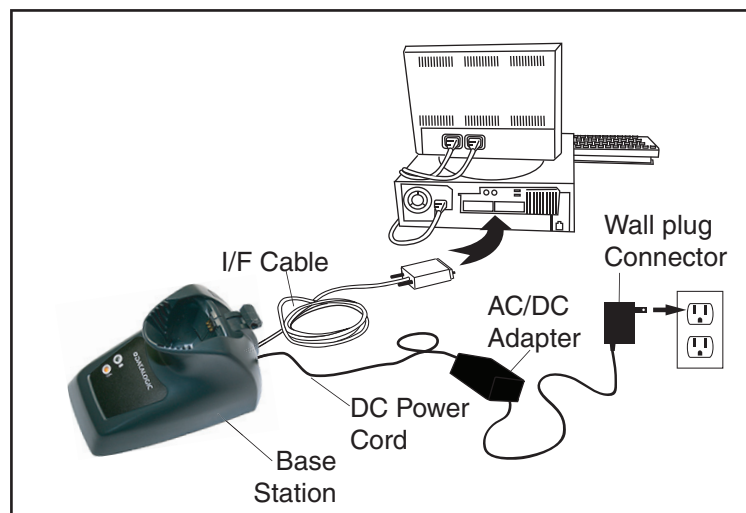


Figure 7: Connecting the Base Station

3 Setup

Host Connection

Verify before connection that the reader's cable type is compatible with your host equipment. Most connections plug directly into the host device as shown in [Figure: Connecting to the Host](#).

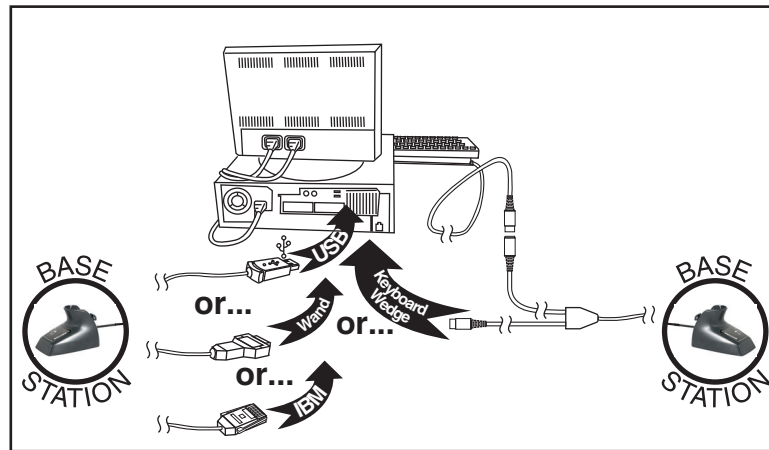


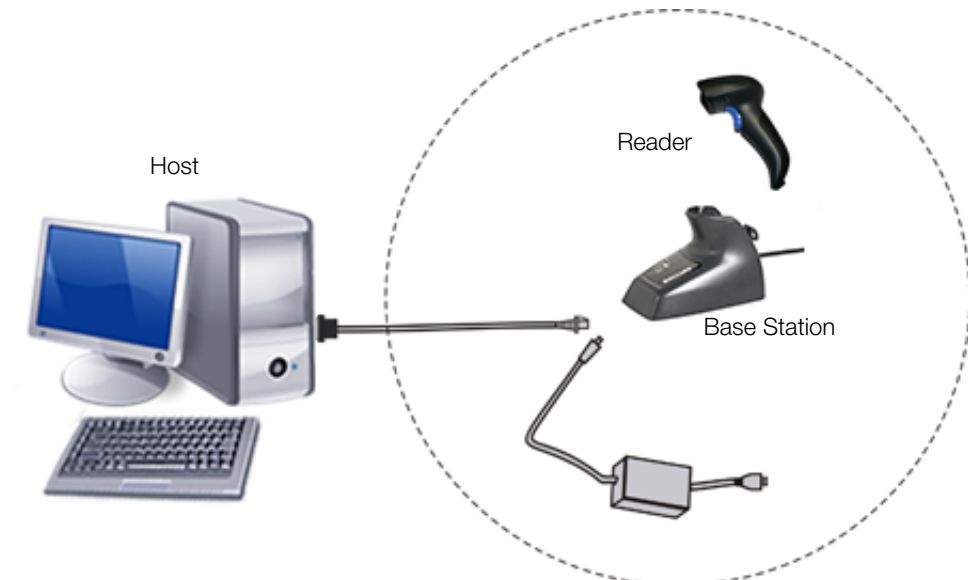
Figure 8: Connecting to the Host

Power Connection

Plug the AC Adapter into an approved AC wall socket with the cable facing downwards (as shown in [Figure: Connecting to the Host](#)) to prevent undue strain on the socket.

3.4.3 System and Network Layouts

Stand Alone Layout



3.4.4 Connecting the Base when Security Pin is Enabled

When connecting the Base to a system that has a custom Security Pin enabled, follow the steps below in the order shown:

- 1 Power down the host system.
- 2 Connect the appropriate interface cable into the Base as shown.
- 3 Place the reader in the Base.
- 4 Power up the host. The reader will link to the Base



Setup

- 5 When the host completely powers up, a new custom Security Pin Code may be sent to the reader and Base, depending on host configuration. Contact our Technical Support for more information.



If you want to change security settings or set up a PIN, see Figure "Bluetooth-Only Features" on page 217.

3.4.5 Linking the Reader to a Base Station

RF Devices

For RF devices, before configuring the interface it is necessary to link the handheld with the base. To link the handheld and the base, press the trigger to wake it and place it on the base. If the reader was previously linked to another base, you must first scan the Unlink action command before re-linking to the new base.



Unlink

BT Models only

Remember: The mandatory condition for establishing a new linking between a BT handheld and a BT base is that the handheld is unlinked and they share the same security configuration. A successful link is indicated by three ascending tones from the reader. A high-low-high-low tone indicates the link attempt was unsuccessful. A single green LED flash after this tone indicates no Base Station was discovered. Two green LED flashes after this tone indicates that more than one Base Station was discovered and the reader did not link. Three LED flashes after this tone indicate a security error.

3.4.6 Linking a BT Reader to a PC

The reader can optionally be linked to a Bluetooth-enabled PC with the serial port profile, in either server mode or client mode.

Linking to a PC in Server Mode (BT Slave Mode)

To link a BT reader in server mode to a Bluetooth-enabled PC, follow these steps:

- 1 Install any drivers provided with the Bluetooth adapter.
- 2 Scan the barcode below to make the reader visible to the host computer.



Link to a PC in Server Mode

- 3 Use the host computer's Bluetooth manager to "Discover new devices" and select "Balluff reader" If you receive an error message, it may be necessary to disable security on the device.
- 4 Select "connect" on the PC to link the reader to the PC. Use an RS-232 terminal program to see incoming data on the port designated by the computer's Bluetooth manager.

Linking to a PC in Client Mode (BT Master Mode)

The reader can optionally be linked in client mode to a Bluetooth-enabled PC with the serial port profile. To do this, follow these steps:

- 1 Ensure the PC or terminal can network with Bluetooth devices and that it is powered on.
- 2 Ensure that a COM port is assigned under Services within the Bluetooth setup menu.
- 3 Create a Link label that contains the address of the PC Bluetooth adapter.

3 Setup



The Bluetooth address can be found under "Properties" within in the Bluetooth setup menu.

The link label is a Code 128 function 3 label with the following format:

<FN3 char>LnkB<12 character Bluetooth address>

4 Scan the link label you created in step 3.

Power Off

Shuts off power to the BT handheld until the next trigger pull. This function only applies to the BT model.



PowerOff

3.5 Interface Selection

Upon completing the physical connection between the reader and its host, proceed to [Table 1 starting on page 28](#) to select the interface type the reader is connected to (for example: RS-232, USB, etc.). Scan the appropriate barcode in that section to configure your system's correct interface type.

3.5.1 Setting the Interface

Scan the programming barcode from this section which selects the appropriate interface type matching the system the reader will be connected to. Next, proceed to the corresponding section in this manual (also listed in [Table: Available Interfaces on page 28](#)) to configure any desired settings and features associated with that interface.



Unlike some programming features and options, interface selections require that you scan only one programming barcode label. DO NOT scan an ENTER/EXIT barcode prior to reading an interface selection barcode. Some interfaces require the reader to start in the disabled state when powered up. If additional reader configuration is desired while in this state, pull the trigger and hold it for five seconds. The reader will change to a state that allows programming with barcodes.

Available Interfaces

RS-232		FEATURES
RS-232 standard interface	 Select RS232-STD	Set RS-232 Interface Features starting on page 29
 Select RS232-WN	RS-232 Wincor-Nixdorf	
RS-232 for use with OPOS/ UPOS/JavaPOS	 Select RS-232 OPOS	
 Select USB-COM-STD ^a	USB Com to simulate RS-232 standard interface	
USB-OEM		FEATURES
 Select USB-OEM	USB-OEM (can be used for OPOS/UPOS/Java-POS)	Set USB-OEM Interface Features starting on page 53

a. Download the correct USB Com driver from www.balluff.com

KEYBOARD	FEATURES
 Select USB Alternate Keyboard	USB Keyboard with alternate key encoding

3.6 Customizing Configuration Settings

3.6.1 Configure Interface Settings

If after reading the interface barcode from the previous table, your installation requires you to select options to further customize your reader, turn to the appropriate section for your interface type in ["Configuration Parameters" starting on page 19](#).

- ["RS-232 Interface" on page 33](#)
- ["RS-232/USB-Com Interfaces" on page 37](#)
- ["Keyboard Settings" on page 45](#)

3

Setup

3.6.2 Global Interface Features

See ["Global Interface Features" on page 32](#) for settings configurable by all interface types.

3.6.3 Configuring Other Features

If your installation requires different programming than the standard factory default settings, the following sections of this manual allow configuration of non-interface-specific settings you might require:

Data Format

Data Format offers options to control the messages sent to the Host system.

Reading Parameters

Reading Parameters include programming for reading, beeper and LED indicators and other universal settings.

Symbology-Specific Parameters

1D Symbologies

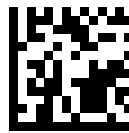
Includes options concerning the barcode label types (symbologies). These settings allow you to enable/disable symbologies, set label lengths, require check digit, etc.

2D Symbologies

Includes options concerning the barcode label types (symbologies). These settings allow you to enable/disable symbologies, set label lengths, require check digit, etc.

3.6.4 Software Version Transmission

The software version of the device can be transmitted over the RS-232 and Keyboard interfaces by reading the following label.



Transmit Software Version

3.6.5 Resetting the Product Configuration to Defaults

Restore Custom Defaults

If you aren't sure what programming options are in your imager, or you've changed some options and want to restore the Custom Default Configuration that may have been saved in the reader, scan the Restore Custom Default Configuration barcode below. This will restore the custom configuration for the currently active interface.



Custom defaults are based on the interface type. Configure the imager for the correct interface before reading this label.



Restore Custom Default Configuration

Restore Factory Configuration

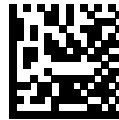
If you want to restore the Factory Configuration for your imager, scan either the Restore USA Factory Configuration barcode or the Restore EU Factory Configuration barcode below. Both labels restore the reader configuration to the factory settings, including the interface type.



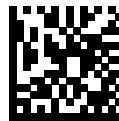
CAUTION

Reading either of the “Restore Factory Configuration” commands below will result in the loss of any custom configuration settings for your device. Use ["Restore Custom Default Configuration"](#) above if you want to restore your custom configuration settings.

The USA label restores Label IDs to those historically used in the USA. The EU label restores Label IDs to those historically used in Europe. The Label ID sets for USA and EU are shown in the ["Label ID Control"](#) on [page 61](#) of this manual.



Restore USA Factory Configuration



Restore EU Factory Configuration

The programming items listed in the following sections show the factory default settings for each of the menu commands.



4 Configuration Using Barcodes

4 Configuration Using Barcodes

This and following sections provide programming barcodes to configure your reader by changing the default settings. For details about additional methods of programming, see "[Configuration Methods](#)" on page 16.



You must first enable your reader to read barcodes in order to use this section. If you have not done this, go to [Unpacking starting on page 21](#) and complete the appropriate procedure.

4.1 Configuration Parameters

Once the reader is set up, you can change the default parameters to meet your application needs. Refer to "[The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features.](#)" on page 264 for initial configuration in order to set the default values and select the interface for your application.

The following configuration parameters are divided into logical groups, making it easy to find the desired function based on its reference group.

Interface Configuration:

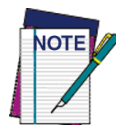
- "[RS-232/USB-Com Interfaces](#)" on page 37
- "[Keyboard Settings](#)" on page 45

Parameters common to all interface applications:

- "[Data Format](#)" on page 56 gives options to control the messages sent to the Host system.
- "[Reading Parameters](#)" on page 69 control various operating modes and indicators status functioning.

Symbology-specific parameters:

- "[1D Symbologies](#)" on page 87 provides configuration of a personalized mix of 1D codes, code families and their options.
- "[2D Symbologies](#)" on page 177 provides configuration of a personalized mix of 2D codes, code families and their options.



You must first enable your reader to read barcodes in order to use this section. If you have not done this, go to "[Unpacking](#)" on page 21 and complete the appropriate procedure.

To program features:

- 1 Scan the ENTER/EXIT PROGRAMMING barcode, available at the top of each programming page, when applicable.
- 2 Scan the barcode to set the desired programming feature. You may need to cover unused barcodes on the page, and possibly the facing page, to ensure that the reader reads only the barcode you intend to scan.
- 3 If additional input parameters are needed, go to [Appendix Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), and scan the appropriate characters from the keypad.



Additional information about many features can be found in the "References" chapter.

If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

- 4 Complete the programming sequence by reading the ENTER/EXIT PROGRAMMING barcode to exit Programming Mode.

For more detailed descriptions, programming information and examples for setting selected configuration items, see ["References" on page 223](#).



By default, the handheld will decode barcode labels only when they are close to the center of the aiming pattern. This allows the handheld to accurately target labels when they are placed close together, such as on a pick sheet. See ["Pick Mode" on page 78](#).

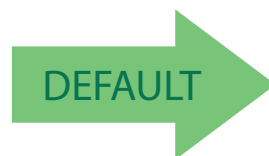
Global Interface Features

The following interface features are configurable by all interface types.

Host Commands — Obey/Ignore

This option specifies whether the reader will obey or ignore host commands. When set to ignore, the reader will ignore all host commands except for those necessary for:

- service mode
- flash programming mode
- keeping the interface active
- transmission of labels.



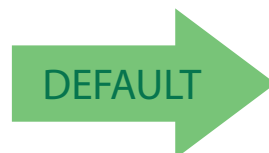
Host Commands = Obey
 (Do Not Ignore Host Commands)



Host Commands = Ignore

USB Suspend Mode

This setting enables/disables the ability of USB interfaces to enter suspend mode.



USB Suspend Mode = Disable



USB Suspend Mode = Enable



4 Configuration Using Barcodes

4 Configuration Using Barcodes

4.2 RS-232 Interface

"Baud Rate" on page 34
"Data Bits" on page 35
"Stop Bits" on page 35
"Parity" on page 36
"Handshaking Control" on page 36

Use the programming barcodes in this section if modifications to the standard RS-232 interface settings are necessary to meet your system's requirements. Additional settings which apply to both the RS-232 and USB interfaces are available in the next section, ["RS-232/USB-Com Interfaces" on page 37](#).

Reference Appendix B The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features. for a listing of standard factory settings.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Baud Rate [See page 224](#) for information on this feature.



Baud Rate = 1200



Baud Rate = 2400



Baud Rate = 4800



Baud Rate = 9600



Baud Rate = 19,200



Baud Rate = 38,400



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Baud Rate = 57,600



Baud Rate = 115,200

Data Bits

This parameter allows the reader to interface with devices requiring a 7-bit or 8-bit ASCII protocol for sending and receiving data.



7 Data Bits

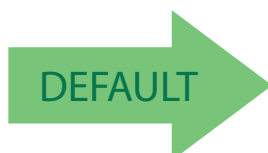


8 Data Bits



Stop Bits

Set the number of stop bits to match host device requirements. [See page 224](#) for more information on this feature.



1 Stop Bit



2 Stop Bits



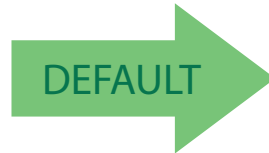
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Parity

This feature specifies parity required for sending and receiving data. Select the parity type according to host device requirements. [See page 224](#) for more information.



Parity = None



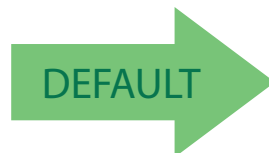
Parity = Even



Parity = Odd

Handshaking Control

[See page 224](#) for more information about this feature.



Handshaking Control = RTS



Handshaking Control = RTS/CTS



Handshaking Control = RTS/XON/XOFF



Handshaking Control = RTS On/CTS



Handshaking Control = RTS/CTS Scan Control



4 Configuration Using Barcodes

4.3 RS-232/USB-Com Interfaces

"Intercharacter Delay" on page 38
"Beep On ASCII BEL" on page 38
"Beep On Not on File" on page 39
"ACK NAK Options" on page 39
"ACK Character" on page 40
"NAK Character" on page 40
"ACK NAK Timeout Value" on page 41
"ACK NAK Retry Count" on page 42
"ACK NAK Error Handling" on page 42
"Indicate Transmission Failure" on page 43
"Disable Character" on page 43
"Enable Character" on page 44

The programming barcodes in this chapter allow modifications to the standard RS-232 and USB-Com interfaces. Reference [Appendix B](#), The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features. for a listing of standard factory settings.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Intercharacter Delay

This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay.

[See page 225](#) for more information.



Intercharacter Delay = No Delay



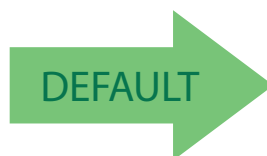
Select Intercharacter Delay Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix D](#), Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad. representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



00 = No Intercharacter Delay

Beep On ASCII BEL

When this parameter is enabled, the reader issues a beep when a <BEL> character is detected on the RS-232 serial line. <BEL> is issued to gain a user's attention to an illegal entry or other important event.



Beep On ASCII BEL = Disable



DEFAULT



Beep On ASCII BEL = Enable



Enter/Exit Programming Mode

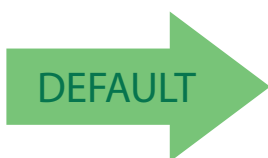
4 Configuration Using Barcodes

Beep On Not on File

This option enables/disables the action of the reader to sound a three beep sequence upon receiving a Not-On-File (NOF) host command.



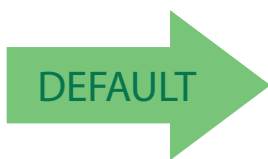
Beep On Not On File = Disable



Beep On Not On File = Enable

ACK NAK Options

This enables/disables the ability of the reader to support the RS-232 ACK/NAK protocol. [See page 226](#) for more information.



ACK/NAK Protocol = Disable ACK/NAK



ACK/NAK Protocol =
Enable for label transmission



ACK/NAK Protocol =
Enable for host-command acknowledge



ACK/NAK Protocol = Enable for label transmission and host-command acknowledge



4

Configuration Using Barcodes

ACK Character

This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected. [See page 226](#) for more information.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.



Select ACK Character Setting

DEFAULT

0x06 'ACK' Character

NAK Character

This setting specifies an ASCII character or hex value to be used as the NAK character. ASCII characters or any hex value from 0 to 0xFF can be selected. [See page 227](#) for more information.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.



Select NAK Character Setting

DEFAULT

0x15 'NAK' Character



Enter/Exit Programming Mode

4 Configuration Using Barcodes

ACK NAK Timeout Value

This option specifies the amount of time the reader waits for an ACK character from the host following label transmission. The selectable timeout range is 200 milliseconds to 15,000ms (15 seconds) in 200ms increments. A selection of 0 disables the timeout.

[See page 228](#) for more information on setting this feature.



Select ACK NAK Timeout Value Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix D](#). Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad. representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

01 ACK NAK Timeout value is 200ms



Enter/Exit Programming Mode

4

Configuration Using Barcodes

ACK NAK Retry Count

This feature specifies the number of times the reader retries a label transmission due to a retry condition. The selectable range is from 1 to 254 retries. A selection of 0 disables the count, and a selection of 255 specifies unlimited retries. [See page 229](#) for more information.



Select ACK NAK Retry Count Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix D](#), Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad. representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

003 = 3 Retries

ACK NAK Error Handling

This feature specifies the method the reader uses to handle receive errors detected while waiting for an ACK character from the host.

DEFAULT



ACK NAK Error Handling =
Ignore Errors Detected



ACK NAK Error Handling =
Process Error as Valid ACK Character



ACK NAK Error Handling =
Process Error as Valid NAK Character



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Indicate Transmission Failure

This option enables/disables the reader's ability to sound an error beep to indicate a transmission failure while in ACK/NAK mode



Indicate Transmission Failure =
Disable Indication



Indicate Transmission Failure =
Enable Indication



Disable Character

Specifies the value of the RS-232 host command used to disable the reader. ASCII characters or any hex value from 0 to 0xFF can be selected.

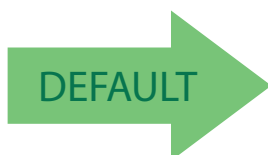


Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.

[See page 230](#) for more information on setting this feature.



Select Disable Character Setting



0x44 = Disable Character is 'D'



4

Configuration Using Barcodes

Enable Character

Specifies the value of the RS-232 host command used to enable the reader. ASCII characters or any hex value from 0 to 0xFF can be selected.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits](#) has been set as 7 Data Bits.

See [page 231](#) in “References” for more information on setting this feature.



Select Enable Character Setting

DEFAULT

0x45 = Enable Character is 'E'



4 Configuration Using Barcodes

4 Configuration Using Barcodes

4.4 Keyboard Settings

"Country Mode" on page 46
"Send Control Characters" on page 49
"Intercode Delay" on page 49
"Intercode Delay" on page 49
"Caps Lock State" on page 50
"Numlock" on page 50
"USB Keyboard Speed" on page 51
"USB Keyboard Numeric Keypad" on page 52

Use the programming barcodes in this chapter to select options for USB Keyboard. Reference Appendix B, The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features. for a listing of standard factory settings. Information about control character emulation which applies to keyboard interfaces is listed in Appendix B, Appendix E: Scancode Tables.



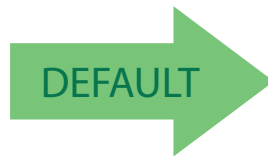
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Country Mode

This feature specifies the country/language supported by the keyboard. Several languages are supported:



Country Mode = U.S.



Country Mode = Belgium



Country Mode = Britain



Country Mode = Croatia

Supports only the interfaces listed in the Country Mode feature description.

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = Czech Republic



Country Mode = Denmark

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = France



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = French Canadian



Country Mode = Germany

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = Hungary



Country Mode = Italy

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = Japanese 106-key



Country Mode = Lithuanian

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = Norway



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Country Mode = Poland

Supports only the interfaces listed in the Country Mode feature description.

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = Portugal



Country Mode = Romania

Supports only the interfaces listed in the Country Mode feature description.

Supports only the interfaces listed in the Country Mode feature description.



Country Mode = Slovakia



Country Mode = Spain



Country Mode = Sweden



Country Mode = Switzerland

Supports only the interfaces listed in the Country Mode feature description.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Send Control Characters

This feature specifies how the reader transmits ASCII control characters to the host. Reference [Appendix E, Appendix E: Scancode Tables](#) for more information about control characters.

Options are as follows:

Control Character 00

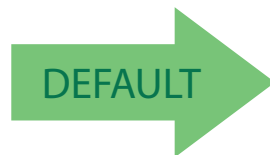
Characters from 00 to 0x1F are sent as control character Ctrl+Keys, special keys are located from 0x80 to 0xA1.

Control Character 01

Characters from 00 to 0x1F are sent as control character Ctrl+Shift, special keys are located from 0x80 to 0xA1.

Control Character 02

Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (see "[Microsoft Windows Codepage 1252](#)" on page 293).



Wedge Send Control Characters = 00



Wedge Send Control Characters = 01



Wedge Send Control Characters = 02

Intercode Delay

Specifies the delay between labels transmitted to the host for this interface. The selectable range for this feature is from 0 to 99 seconds.

See [page 225](#) in "References" for detailed information and examples for setting this feature.



Set Intercode Delay

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix D, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) representing your desired character(s). End by reading the ENTER/EXIT barcode again.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

00 = No Wedge Intercode Delay

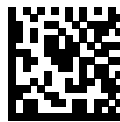
Caps Lock State

This option specifies the format in which the reader sends character data. This does not apply when an alternate key encoding keyboard is selected.

DEFAULT



Caps Lock State = Caps Lock OFF



Caps Lock State = Caps Lock ON



Caps Lock State = AUTO Caps Lock Enable

Numlock

This option specifies the setting of the NUMLOCK key.

DEFAULT



Numlock = NUMLOCK key unchanged



Numlock = Numlock key toggled



Enter/Exit Programming Mode

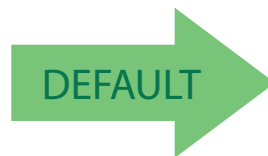
4 Configuration Using Barcodes

USB Keyboard Speed

This option specifies the USB poll rate for a USB keyboard.



This feature applies ONLY to the USB Keyboard interface.



USB Keyboard Speed = 1ms



USB Keyboard Speed = 2ms



USB Keyboard Speed = 3ms



USB Keyboard Speed = 4ms



USB Keyboard Speed = 5ms



USB Keyboard Speed = 6ms



Enter/Exit Programming Mode

4 Configuration Using Barcodes



USB Keyboard Speed = 7ms



USB Keyboard Speed = 8ms



USB Keyboard Speed = 9ms



USB Keyboard Speed = 10ms

USB Keyboard
Numeric Keypad

This option Controls whether numeric characters will be sent using standard keys or the numeric keypad.



Standard Keys



Numeric Keypad



4 Configuration Using Barcodes

4 Configuration Using Barcodes

4.5 USB-OEM Interface

"USB-OEM Device Usage" on page 54
"USB Interface Options" on page 54

Feature settings for USB interfaces differ depending upon which host type the reader will be connected with. Use the feature settings in this chapter to specifically configure for the USB-OEM interface. Other USB interfaces are included in the appropriate chapter for their host type.

Reference [The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features.](#) for a listing of standard factory settings.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

USB-OEM Device Usage

The USB-OEM protocol allows for the reader to be identified as one of two different types of barcode readers. Depending on what other readers you may already have connected to a USB-OEM POS, you may need to change this setting to enable all devices to communicate.

Options are:

- ▶ Table Top Reader
- ▶ Handheld Reader



It may be necessary to switch device usage when connecting two readers/ readers of the same type to a POS system.



USB-OEM Device Usage = Table Top Reader

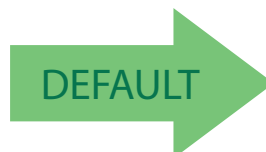


USB-OEM Device Usage = Handheld Reader



USB Interface Options

This feature provides for an interface-specific control mechanism.



Obey Reader Configuration Host Commands



Ignore Reader Configuration Host Commands



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Transmit Labels in Code 39 Format

This feature enable/disables translation to Code 39 before transmitting label data to a USB-OEM host. Only the symbology identifier is modified for the translation. The data is not converted to Code 39 or verified to be valid for Code 39.

Options are:

IBM Standard Format

Send labels in standard IBM format.

Mixed IBM Standard and Code 39 Format

Code 39 Format

Translate the following symbologies to Code 39:

- USB-OEM: Code128, Code 93, and Codabar



Transmit Labels in Code 39 Format =
IBM Standard Format



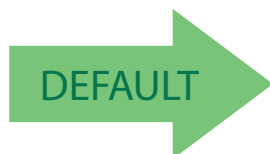
Transmit Labels in Code 39 Format =
Mixed IBM Standard and Code 39 format



Transmit Labels in Code 39 Format =
All Code 39 Format

Interface Options

This feature provides for an interface-specific control mechanism.



Obey Reader Configuration Host Commands



Ignore Reader Configuration Host Commands



4 Configuration Using Barcodes

4 Configuration Using Barcodes

4.6 Data Format

"Global Prefix/Suffix" on page 57
"Global AIM ID" on page 58
"Label ID" on page 60 - "Label ID: Pre-Loaded Sets" on page 61 - "Individually Set Label ID" on page 61 - "Label ID Control" on page 61 - "Label ID Symbology Selection – 1D Symbologies" on page 62 - "Label ID Symbology Selection – 2D Symbologies" on page 66
"Case Conversion" on page 67
"Character Conversion" on page 68



CAUTION

It is not recommended to use these features with IBM interfaces.

The features in this chapter can be used to build specific user-defined data into a message string. See "References" starting [on page 233](#) for more detailed instructions on setting these features.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

4.6.1 Global Prefix/ Suffix

This option sets up to 20 characters each from the set of ASCII characters or any hex value from 00 to FF. The characters may be added as a prefix (in a position before the barcode data, also called a header) and/or as a suffix (in a position following the barcode data, also called a footer). See [page 234](#) for more detailed instructions on setting this feature.

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above to place the unit in Programming Mode, then the “Set Global Prefix” or “Set Global Suffix,” barcode followed by the digits (in hex) from the Alphanumeric characters in [Appendix D, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#), representing your desired character(s). If less than the expected string of 20 characters are selected, scan the ENTER/EXIT barcode to terminate the string. Exit programming mode by reading the ENTER/EXIT barcode again.



Set Global Prefix



Set Global Suffix

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

No Global Prefix
Global Suffix = 0x0D (CR)



4 Configuration Using Barcodes

4.6.2 Global AIM ID

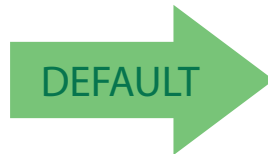


This feature enables/disables addition of AIM IDs for all symbology types.

AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with readed barcode data. See table below for a listing of AIM IDs.

AIM label identifiers consist of three characters as follows:

- A close brace character (ASCII '['), followed by...
- A code character (see some samples in the table below), followed by...
- A modifier character (the modifier character is symbol dependent).



Global AIM ID = Disable



Global AIM ID = Enable

AIM IDs

Tag Name	AIM ID code character	AIM ID code ASCII value
ABC CODABAR	X	58
ANKER PLESSEY	N	4E
AZTEC	z	7A
CHINA SENSIBLE CODE	X	58
CODABAR	F	46
CODE11	H	48
CODE128	C	43
CODE32	A	41
CODE39	A	41
CODE39 CIP	X	58
CODE39 DANISH PPT	X	58
CODE39 LAPOSTE	X	58
CODE39 PZN	X	58
CODE93	G	47
DATABAR 14	e	65
DATABAR 14 COMPOSITE	e	65



4

Configuration Using Barcodes

Tag Name	AIM ID code character	AIM ID code ASCII value
DATABAR EXPANDED	e	65
DATABAR EXPANDED COMPOSITE	e	65
DATABAR LIMITED	e	65
DATABAR LIMITED COMPOSITE	e	65
DATA MATRIX	d	64
EAN128	C	43
EAN128 COMPOSITE	C	43
EAN13	E	45
EAN13 P2	E	45
EAN13 P5	E	45
EAN13 COMPOSITE	E	45
EAN8	E	45
EAN8 P2	E	45
EAN8 P5	E	45
EAN8 COMPOSITE	E	45
FOLLET 2OF5	X	58
I2OF5	I	49
IATA INDUSTRIAL 2OF5	X	58
INDUSTRIAL 2OF5	X	58
ISBN	X	58
ISBT128 CONCAT	X	58
ISSN	X	58
MAXICODE	U	55
MICRO QR	Q	51
MICRO PDF	L	4C
MSI	M	4D
PDF417	L	4C
PLESSEY	P	50
POSTAL AUSTRALIAN	X	58
POSTAL IMB	X	58
POSTAL JAPANESE	X	58
POSTAL KIX	X	58
POSTAL PLANET	X	58
POSTAL PORTUGAL	X	58
POSTAL POSTNET BB	X	58
POSTAL ROYAL MAIL	X	58



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Tag Name	AIM ID code character	AIM ID code ASCII value
POSTAL SWEDISH	X	58
POSTNET	X	58
QR CODE	Q	51
S25	S	53
TRIOPTIC	X	58
UPCA	E	45
UPCA P2	E	45
UPCA P5	E	45
UPCA COMPOSITE	E	45
UPCE	E	45
UPCE P2	E	45
UPCE P5	E	45
UPCE COMPOSITE	E	45

Set AIM ID Individually for GS1-128

This feature configures a Label ID individually for the GS1-128 symbology and the programming for this works the same way as Label ID. See ["Label ID: Set Individually Per Symbology" on page 238](#) for detailed instructions on setting this feature.



Set AIM ID Individually for GS1-128 = Disable



Set AIM ID Individually for GS1-128 = Enable



4.6.3 Label ID

A Label ID is a customizable code of up to three ASCII characters (convert to Hex using the ASCII Chart on the inside back cover of this manual), used to identify a barcode symbology type. It can be appended previous to or following the transmitted barcode data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs or individually per symbology (see ["Individually Set Label ID" on page 61](#)). If you wish to program the reader to always include an industry standard label identifier for ALL symbology types, see the previous feature ["Global AIM ID" on page 58](#).

See ["Label ID" on page 236](#) of "References" for more information on setting this feature.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Label ID: Pre-Loaded Sets

The reader supports two pre-loaded sets of Label IDs. See ["Label ID: Pre-loaded Sets" on page 236](#) for details on the USA set and EU set.



When changing from one Label ID set to another, all other reader configuration settings, including the host interface type, will be erased and set to the standard factory defaults. Any custom configuration or custom defaults will be lost.



Label ID Pre-loaded Set = USA Set



Label ID Pre-loaded Set = EU Set

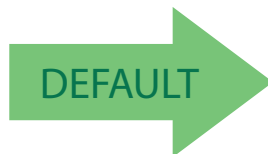


Individually Set Label ID

This feature configures a Label ID individually for a single symbology. To set, first define whether you want it as a prefix or suffix by reading a label below. Then turn to ["Label ID Symbology Selection – 1D Symbologies" on page 62](#) to select the symbology you want to set, followed by up to 3 characters from the ASCII Chart at the back of this manual. See ["Label ID: Set Individually Per Symbology" on page 238](#) for detailed instructions on setting this feature.

Label ID Control

This option controls whether a Label ID is disabled, or sent as a prefix or suffix for a given symbology type.



Label ID Transmission = Disable



Label ID Transmission = Enable as Prefix



Label ID Transmission = Enable as Suffix



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Label ID Symbology Selection — 1D Symbologies

This option selects the symbology for which a Label ID is to be configured. See ["Label ID" on page 60 or page 238](#) in "References" for more detailed instructions.



If less than the expected string of 3 characters are selected, scan the ENTER/EXIT barcode twice to accept the selection and exit Programming Mode.



Set ABC Codabar Label ID Character(s)



Set Code 32 Pharmacode Label ID Character(s)



Set Anker Plessey Label ID Character(s)



Set Code 93 Label ID Character(s)



Set Australian Postal Code Label ID Character(s)



Set Concatenated ISBT 128 Label ID Character(s)



Set Codabar Label ID Character(s)



Set Danish PPT Label ID Character(s)



Set Code 11 Label ID Character(s)



Set EAN 13 Label ID Character(s)



Set Code 128 Label ID Character(s)



Set EAN 13 Composite Label ID Character(s)



Set Code 39 Label ID Character(s)



Set EAN 13 P2 Label ID Character(s)



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Set Code 39 CIP Label ID Character(s)



Set EAN 13 P5 Label ID Character(s)



Set EAN 8 Label ID Character(s)



Set GS1 DataBar Expanded Composite
Label ID Character(s)



Set EAN 8 Composite Label ID Character(s)



Set GS1-128 Label ID Character(s)



Set EAN 8 P2 Label ID Character(s)



Set GS1-128 Composite Label ID Character(s)



Set EAN 8 P5 Label ID Character(s)



Set GSI DataBar Limited Label ID Character(s)



Set Follett 2 of 5 Label ID Character(s)



GSI DataBar Limited Composite Label ID
Character(s)



Set GS1 DataBar 14 Label ID Character(s)



Set GTIN 2 Label ID Character(s)



Set GS1 DataBar 14 Composite Label ID Char-
acter(s)



Set GTIN 5 Label ID Character(s)



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Set GS1 DataBar Expanded Label ID Character(s)



Set GTIN 8 Label ID Character(s)



Set IATA Industrial 2 of 5 Label ID Character(s)



Set LaPoste Code 39 Label ID Character(s)



Set IMB Postal Code Label ID Character(s)



Set MSI Label ID Character(s)



Set Industrial 2 of 5 Label ID Character(s)



Set Planet Postal Code Label ID Character(s)



Set Interleaved 2 of 5 Label ID Character(s)



Set Plessey Label ID Character(s)



Set ISBN Label ID Character(s)



Set Portugal Postal Code Label ID Character(s)



Set ISSN Label ID Character(s)



Set Postnet Label ID Character(s)



Set Japan Postal Code Label ID Character(s)



Set Kix Postal Code Label ID Character(s)



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Set PZN Code Label ID Character(s)



Set UPC-A Composite Label ID Character(s)



Set Royal Postal Code Label ID Character(s)



Set UPC-A P2 Label ID Character(s)



Set Standard 2 of 5 Label ID Character(s)



Set UPC-A P5 Label ID Character(s)



Set Swedish Postal Code Label ID Character(s)



Set UPC-E Label ID Character(s)



Set Trioptic Code Label ID Character(s)



Set UPC-E P5 Label ID Character(s)



Set UPC-A Label ID Character(s)



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Label ID Symbology Selection — 2D Symbologies



Set Aztec Label ID Character(s)



Set Maxicode Label ID Character(s)



Set China Sensible Label ID Character(s)



Set PDF 417 Label ID Character(s)



Set Data Matrix Label ID Character(s)



Set Micro PDF 417 Label ID Character(s)



Set Micro QR Label ID Character(s)



Set QR Code Label ID Character(s)



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Advanced Formatting: User Label Edit

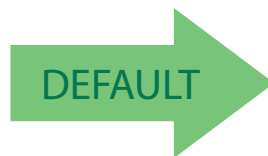
Advanced formatting is available to create user label edit scripts. [Please contact our TecSupport for further information!](#)

Case Conversion

This feature allows conversion of the case of all alphabetic characters to upper or lower case.



Case conversion affects ONLY readed barcode data, and does not affect Label ID, Prefix, Suffix, or other appended data.



Case Conversion = Disable (no case conversion)



Case Conversion = Convert to upper case



Case Conversion = Convert to lower case



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Character Conversion

Character conversion is an eight byte configuration item. The eight bytes are 4 character pairs represented in hexadecimal ASCII values. The first character in the pair is the character that will be converted. The second character in the pair is the character to convert to. If the character to convert in a pair is FF, then no conversion is done.



If less than the expected string of 16 characters are selected, scan the ENTER/EXIT barcode twice to accept the selections and exit Programming Mode.



Configure Character Conversion

DEFAULT

0xFFFFFFFFFFFFFFFF
(No character conversion)



4 Configuration Using Barcodes

4 Configuration Using Barcodes

4.7 Reading Parameters

"Double Read Timeout" on page 70
"LED and Beeper Indicators" on page 71 - "Power On Alert" on page 71 - "Good Read: When to Indicate" on page 71 - "Good Read Beep Type" on page 72 - "Good Read Beep Frequency" on page 72 - "Good Read Beep Length" on page 73 - "Good Read Beep Volume" on page 74 - "Good Read LED Duration" on page 75
"Reading Features" on page 76 - "Scan Mode" on page 76 - "Stand Mode Indication" on page 77 - "Stand Operation" on page 77 - "Pick Mode" on page 78 - "Stand Mode Sensitivity" on page 78 - "Stand Mode Illumination Off Time" on page 79 - "Reading Active Time" on page 79 - "Stand Illumination Control" on page 80 - "Flash On Time" on page 80 - "Flash Off Time" on page 81 - "Aiming Pointer" on page 81 - "Aiming Duration Timer" on page 82 - "Green Spot Duration" on page 83 - "Mobile Phone Mode" on page 83 - "Partial Label Reading Control" on page 84 - "Decode Negative Labels" on page 84
"Multiple Label Reading" on page 85 - "Multiple Labels per Frame" on page 85 - "Multiple Labels Ordering by Code Symbology" on page 86 - "Multiple Labels Ordering by Code Length" on page 86



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Double Read Timeout

Double Read Timeout prevents a double read of the same label by setting the minimum time allowed between reads of labels of the same symbology and data. If the unit reads a label and sees the same label again within the specified timeout, the second read is ignored. Double Read Timeout does not apply to scan modes that require a trigger pull for each label read.



Double Read Timeout = 0.1 Second



Double Read Timeout = 0.2 Second



Double Read Timeout = 0.3 Second



Double Read Timeout = 0.4 Second



Double Read Timeout = 0.5 Second



Double Read Timeout = 0.6 Second



Double Read Timeout = 0.7 Second



Double Read Timeout = 0.8 Second



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Double Read Timeout = 0.9 Second



Double Read Timeout = 1 Second

LED and Beeper Indicators

Power On Alert

Disables or enables the indication (from the Beeper) that the reader is receiving power.



Power On Alert = Disable (No Audible Indication)

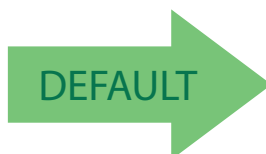


Power On Alert = Power-up Beep



Good Read: When to Indicate

This feature specifies when the reader will provide indication (beep and/or flash its green LED) upon successfully reading a barcode.



Indicate Good Read = After Decode



Indicate Good Read = After Transmit



Indicate Good Read =
After CTS goes inactive then active



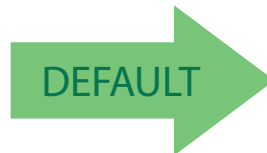
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Good Read Beep Type

Specifies whether the good read beep has a mono or bitonal beep sound.



Good Read Beep Type = Mono



Good Read Beep Type = Bitonal

Good Read Beep Frequency

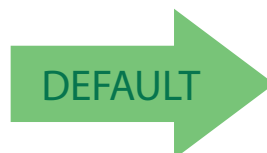
Adjusts the good read beep to sound at a selectable low, medium or high frequency, selectable from the list below. (Controls the beeper's pitch/tone.)



Good Read Beep Frequency = Low



Good Read Beep Frequency = Medium



Good Read Beep Frequency = High

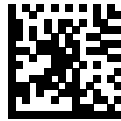


Enter/Exit Programming Mode

4

Configuration Using Barcodes

Good Read Beep Length



Good Read Beep Length = 80 msec



Good Read Beep Length = 60 msec



Good Read Beep Length = 100 msec



Good Read Beep Length = 120 msec



Good Read Beep Length = 140 msec



Good Read Beep Length = 160 msec



Good Read Beep Length = 180 msec



Good Read Beep Length = 200 msec



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Good Read Beep Volume

Selects the beeper volume (loudness) upon a good read beep. There are three selectable volume levels.



Good Read Beep Volume = Beeper Off



Good Read Beep Volume = Low



Good Read Beep Volume = Medium



Good Read Beep Volume = High





Enter/Exit Programming Mode

4

Configuration Using Barcodes

Good Read LED Duration

This feature specifies the amount of time that the Good Read LED remains on following a good read. The good read LED on time can be set within a range of 100 milliseconds to 25,500 milliseconds (0.1 to 25.5 seconds) in 100ms increments. A setting of 00 keeps the LED on until the next trigger pull.

See page 242 in "References" for detailed instructions and examples for setting this feature.



Good Read LED Duration Setting =
Keep LED on until next trigger pull



Select Good Read LED Duration Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix D, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

**003 = Good Read LED
stays on for 300 ms.**



Indicators are dimmed during sleep.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Reading Features

Scan Mode

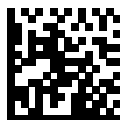
Selects the reader's scan operating mode. See [page 243](#) in "References" for descriptions.



Scan Mode = Trigger Single



Scan Mode = Trigger Hold Multiple



Scan Mode = Trigger Pulse Multiple



Scan Mode = Flashing



Scan Mode = Always On



Scan Mode = Stand Mode



Options concerning Stand Mode behavior are available at the following feature, "[Stand Operation](#)" on [page 77](#).



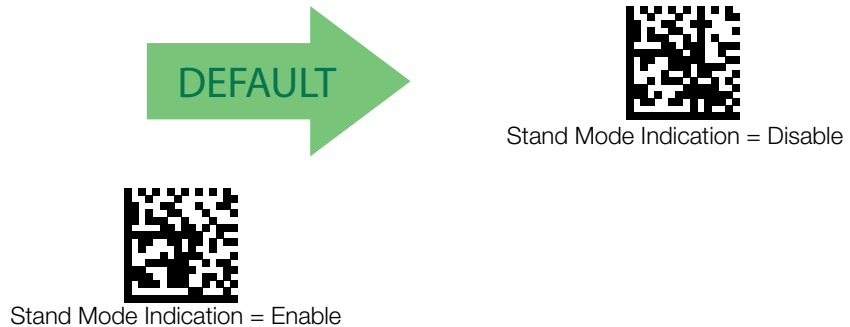
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Stand Mode Indication

This operation is useful for indicating when the reader is in Stand Mode. If enabled, the blue indicator will blink when Stand Mode reading is active. If the reader is removed from its Stand support or from the Base Station (cordless models) and switches out of Stand Mode into Triggered Mode, blinking will stop until Stand Mode is active again.



Stand Operation

Specifies the behavior of the reader when stationary in a stand. There are two conditions which cause the reader to switch to Stand Mode:

- 1 The reader is manually configured to switch to Stand Mode or when inserted into the special Stand support which automatically enables the Stand Mode.
- 2 The reader is placed into the cradle of the base station (cordless models only).

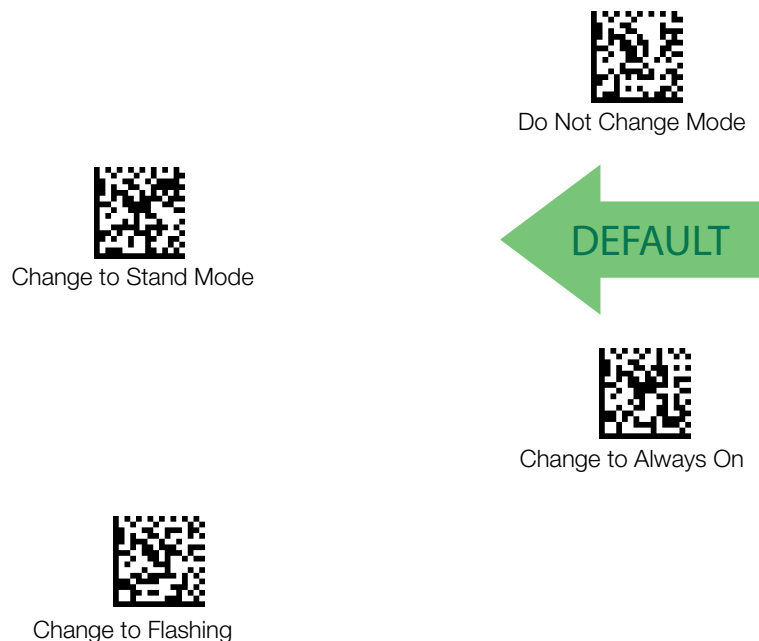
Below are further options concerning Stand Operation.

Ignore Autorecognition: Disables mode switching when the reader is placed in a stand.

Change to Stand Mode: Automatically switches the reader to Stand Mode when the reader is placed in the stand.

Change to Flashing: Automatically switches the reader to Flash Mode when the reader is placed in the stand.

Change to Always On: Automatically switches the reader to Always On mode when the reader is placed in the stand.





Enter/Exit Programming Mode

4

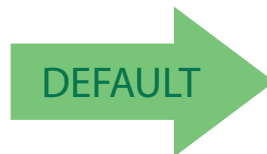
Configuration Using Barcodes

Pick Mode

Specifies the ability of the reader to decode labels only when they are close to the center of the aiming pattern. This allows the reader to accurately target labels when they are placed close together, such as on a pick sheet.



This feature is not compatible with Multiple Labels Reading in a Volume.



Pick Mode = Disable



Pick Mode = Enable

Stand Mode Sensitivity

Sets the sensitivity level for stand mode wakeup. Choices are low, medium and high.



Stand Mode Sensitivity = Low



Stand Mode Sensitivity = Medium



Stand Mode Sensitivity = High



Enter/Exit Programming Mode

4

Configuration Using Barcodes

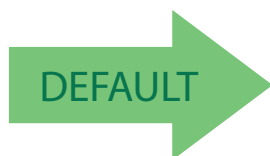
Stand Mode Illumination Off Time

Specifies the amount of time reader illumination stays off after pulling the trigger when in Stand Mode. The configurable range is 01 to 32 by 01 in increments of 500ms (500ms to 16 seconds). See [page 244](#) in "References" for a description of this feature.



Select Stand Mode Time Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18](#), Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad. representing your desired character(s). End by reading the ENTER/EXIT barcode again.



04 = 2 Seconds

Reading Active Time

This setting specifies the amount of time that the reader stays in scan ON state once the state is entered. The range for this setting is from 1 to 255 seconds in 1-second increments. See [page 245](#) in "References" for further description of this feature.



Reading Active Time = 3 seconds



Reading Active Time = 5 seconds



Reading Active Time = 8 seconds



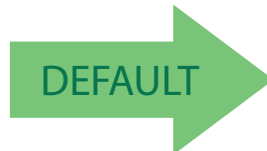
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Stand Illumination Control

Controls the illumination status while the reading mode is stand mode and the reader is attempting to detect objects.



Stand Illumination Control = OFF



Stand Illumination Control = ON



Stand Illumination Control = Dim

Flash On Time

This feature specifies the ON time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See [page 247](#) in "References" for detailed information on setting this feature.



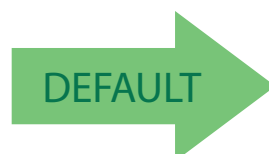
Select Flash ON Time Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18](#), Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad. representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



10 = Flash is ON for 1 Second



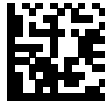
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Flash Off Time

This feature specifies the OFF time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments. See [page 248](#) in "References" for detailed information on setting this feature.



Select Flash OFF Time Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18](#), [Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#), representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

06 = Flash is OFF for 600ms

Aiming Pointer

Enables/disables the aiming pointer for all symbologies.



Aiming Pointer = Disable



Aiming Pointer = Enable

DEFAULT



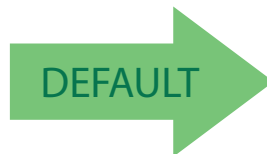
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Aiming Duration Timer

Specifies the frame of time the aiming pointer remains on after decoding a label, when in trigger single mode. The range for this setting is from 1 to 255 seconds in 1-second increments. See [page 246](#) in “References” for a description of this feature.



Aiming Off After Decoding



Set Aiming Duration Timer

To configure, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18](#), [Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#), representing your desired character(s). End by reading the ENTER/EXIT barcode.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Green Spot Duration

Specifies the duration of the good read pointer beam after a good read.



Green Spot Duration =
Disable (Green Spot is Off)



Green Spot Duration = Short (300 msec)



Green Spot Duration = Medium (500 msec)



Green Spot Duration = Long (800 msec)

Mobile Phone Mode

This mode is useful for reading barcodes displayed on a mobile phone.



Mobile Phone Mode = Disable



Mobile Phone Mode = Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Partial Label Reading Control

Enable/Disable to ignore partial labels to be read within the boundary of the field of view.



Partial Label Reading Control = Disable



Partial Label Reading Control = Enable

Decode Negative Labels

Enable/Disable the ability to decode a negative labels (white on black) for all symbologies. When this feature is enabled, you will be unable to read normally-printed labels or programming labels in this manual. Scan the "Disable" barcode below to return the reader to its default for this feature. To set decoding for only 2D codes, go to ["2D Normal/Inverse Symbol Control" on page 179](#).

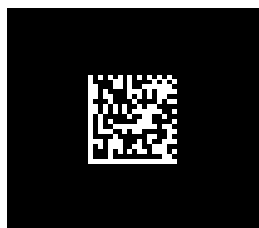


Unlike some programming features and options, Decode Negative label selections require that you scan only one programming barcode label. DO NOT scan an ENTER/EXIT barcode prior to reading a Decode Negative label barcode.



CAUTION

When this feature is enabled, you will be unable to read other programming labels in this manual.



Decode Negative Label = Disable



DEFAULT



Decode Negative Label = Enable



4

Configuration Using Barcodes

Multiple Label Reading

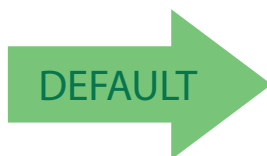
In standard (default) mode, when the reader's aiming system is activated (by a trigger pull, motion or other method depending on the mode), it then acquires and processes each image in the area in front of it (the Volume). In this case, the reader stops processing the image once it decodes a label. If several labels are present in the volume, only the first label encountered is decoded and sent.

When Multiple Reading Mode is enabled, the reader keeps on processing the image until all the labels present are decoded. The reader then sorts the data from all the barcodes (if configured to do so) before transmitting it.

Multiple Labels per Frame

Specifies the ability of the reader to decode and transmit a set of code labels in a specific volume and in a single frame of time. When in Multiple Labels per Frame the reader beeps and turns on the good read LED indication for each code read in a frame.

When Multiple Labels Mode is enabled, ISBT pairing, ABC Codabar pairing, and composites are not allowed.



Multiple Labels per Frame = Disable



Multiple Labels per Frame = Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Multiple Labels Ordering by Code Symbology

This feature allows you to specify the order multiple labels are transmitted by symbology type, when Multiple Labels per Frame is enabled. See [page 249](#) in “References” for detailed information on setting this feature.



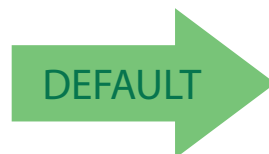
Select Symbolologies for Multiple Labels
Ordering

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits From the alphanumeric characters In Appendix d, keypad representing your desired Character(s). end by reading the enter/exit barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



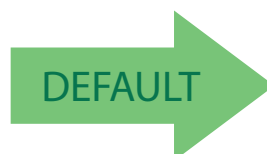
CANCEL



000000000000 = Random order

Multiple Labels Ordering by Code Length

Specifies the transmission ordering by code length, when Multiple Labels per Frame is enabled.



Multiple Labels Ordering = Disable



Transmit Increasing Length Order



Transmit Decreasing Length Order



4 Configuration Using Barcodes

4 Configuration Using Barcodes

4.8 1D Symbolologies 1D Code Selection

The reader supports the following 1D symbolologies (barcode types). See "2D Symbolologies" starting on page 177 for 2D barcodes. Symbology-dependent options are included in each chapter.

- Disable All Symbolologies, page 88	- GS1-128, page 123
- Code EAN/UPC, page 89	- Code ISBT 128, page 124
- UPC-E, page 92	- Interleaved 2 of 5 (I 2 of 5), page 127
- GTIN Formatting, page 95	- Interleaved 2 of 5 CIP HR, page 132
- EAN 13 (Jan 13), page 96	- Follett 2 of 5, page 132
- ISSN, page 98	- Standard 2 of 5, page 133
- EAN 8 (Jan 8), page 99	- Industrial 2 of 5, page 137
- UPC/EAN Global Settings, page 101	- Code IATA, page 141
- Add-Ons, page 103	- Codabar, page 142
- Code 39, page 109	- ABC Codabar, page 148
- Trioptic Code, page 114	- Code 11, page 151
- Code 32 (Ital Pharmaceutical Code), page 114	- GS1 DataBar™ Omnidirectional, page 155
- Code 39 CIP (French Pharmaceutical), page 116	- GS1 DataBar™ Expanded, page 157
- Code 39 Danish PPT, page 116	- GS1 DataBar™ Limited, page 162
- Code 39 LaPoste, page 117	- Code 93, page 163
- Code 39 PZN, page 117	- MSI, page 168
- Code 128, page 118	- Plessey, page 173

Default settings are indicated at each feature/option with a green arrow. Also reference Appendix 16, The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features. for a listing of the most widely used set of standard factory settings. That section also provides space to record any custom settings needed or implemented for your system.

To set most features:

- 1 Scan the ENTER/EXIT PROGRAMMING barcode at the top of applicable programming pages.
- 2 Scan the correct barcode to set the desired programming feature or parameter. You may need to cover unused barcodes on the page, and possibly the facing page, to ensure that the reader reads only the barcode you intend to scan.
- 3 If additional input parameters are needed, go to [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), and scan the appropriate characters from the keypad.



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Additional information about many features can be found in the “References” chapter.

If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 4 Complete the programming sequence by reading the ENTER/EXIT PROGRAMMING barcode to exit Programming Mode.

Disable All Symbolologies

Use this feature to disable all symbolologies.

- 1 Scan the ENTER/EXIT PROGRAMMING Mode barcode.
- 2 Scan the Disable All Symbolologies barcode.
- 3 Complete the programming sequence by reading the ENTER/EXIT PROGRAMMING barcode.



Disable All Symbolologies



This does not disable the reading of programming labels.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code EAN/UPC

Coupon Control

This feature is used to control the reader's method of processing coupon labels.



Coupon Control = Allow all coupon barcodes
to be decoded



Coupon Control = Enable only UPCA coupon
decoding



Coupon Control = Enable only GS1 DataBar™
coupon decoding



Enter/Exit Programming Mode

4

Configuration Using Barcodes

UPC-A

The following options apply to the UPC-A symbology.

UPC-A Enable/Disable

When disabled, the reader will not read UPC-A barcodes.



UPC-A = Disable



UPC-A = Enable



UPC-A Check Character Transmission

Enable this option to transmit the check character along with UPC-A barcode data.



UPC-A Check Character Transmission = Don't
Send



UPC-A Check Character Transmission = Send





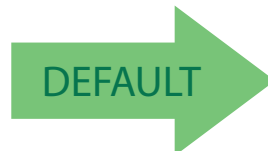
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Expand UPC-A to EAN-13

Expands UPC-A data to the EAN-13 data format. Selecting this feature also changes the symbol-ogy ID to match those required for EAN-13.



UPC-A to EAN-13 = Don't Expand



UPC-A to EAN-13 = Expand

UPC-A Number System Character Transmission

This feature enables/disables transmission of the UPC-A number system character.



UPC-A Number System Character = Do not
transmit



UPC-A Number System Character = Transmit





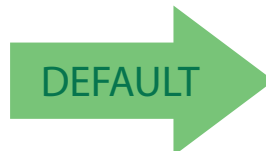
Enter/Exit Programming Mode

4

Configuration Using Barcodes

UPC-A 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.



EAN-13 2D Component =
Disable (2D component not required)



EAN-13 2D Component = 2D component must
be decoded

UPC-E

The following options apply to the UPC-E symbology.

UPC-E Enable/Disable

When disabled, the reader will not read UPC-E barcodes.



UPC-E = Disable



UPC-E = Enable





Enter/Exit Programming Mode

4

Configuration Using Barcodes

UPC-E Check Character Transmission

Enable this option to transmit the check character along with UPC-E barcode data.



UPC-E Check Character Transmission =
Don't Send



UPC-E Check Character Transmission = Send

←
DEFAULT

UPC-E 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label for this symbology is decoded.



UPC-E 2D Component =
Disable (2D component not required)

→
DEFAULT



UPC-E 2D Component =
2D component must be decoded



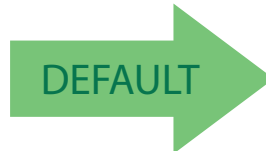
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Expand UPC-E to EAN-13

Expands UPC-E data to the EAN-13 data format. Selecting this feature also changes the symbol-
ogy ID to match those required for EAN-13.



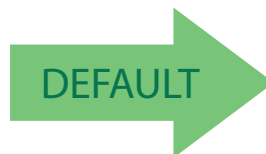
UPC-E to EAN-13 = Don't Expand



UPC-E to EAN-13 = Expand

Expand UPC-E to UPC-A

Expands UPC-E data to the UPC-A data format.



UPC-E to UPC-A = Don't Expand



UPC-E to UPC-A = Expand



Enter/Exit Programming Mode

4

Configuration Using Barcodes

UPC-E Number System Character Transmission

This feature enables/disables transmission of the UPC-E system number character.



UPC-E Number System Character = Do not transmit



UPC-E Number System Character = Transmit

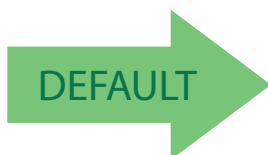


GTIN Formatting

This feature enables/disables the ability to convert UPC-E, UPC-A, EAN 8, and EAN 13 labels into the GTIN 14-character format.



If add-on information is present on the base label prior to the conversion taking place, the add-on information will be appended to the converted GTIN label.



GTIN Formatting = Disable



GTIN Formatting = Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

EAN 13 (Jan 13) The following options apply to the EAN 13 (Jan 13) symbology.

EAN 13 Enable/Disable

When disabled, the reader will not read EAN 13/JAN 13 barcodes.



EAN 13 = Disable



EAN 13 = Enable



EAN 13 Check Character Transmission

Enable this option to transmit the check character along with EAN 13 barcode data.



EAN 13 Check Character Transmission =
Don't Send



EAN 13 Check Character Transmission = Send





Enter/Exit Programming Mode

4

Configuration Using Barcodes

EAN-13 Flag 1 Character

Enables/disables transmission of an EAN/JAN13 Flag1 character. The Flag 1 character is the first character of the label.



EAN-13 Flag 1 Char = Don't transmit



EAN-13 Flag 1 Char = Transmit

←
DEFAULT

EAN-13 ISBN Conversion

This option enables/disables conversion of EAN 13/JAN 13 Bookland labels starting with 978 to ISBN labels.

→
DEFAULT



EAN-13 ISBN Conversion = Disable



EAN-13 ISBN Conversion = Convert to ISBN



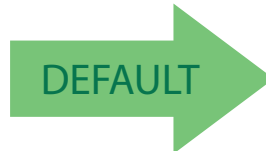
Enter/Exit Programming Mode

4

Configuration Using Barcodes

EAN-13 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.



EAN-13 2D Component =
Disable (2D component not required)



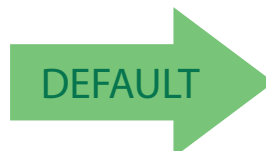
EAN-13 2D Component =
2D component must be decoded

ISSN

The following options apply to the ISSN symbology.

ISSN Enable/Disable

Enables/disables conversion of EAN/JAN13 Bookland labels starting with 977 to ISSN labels.



ISSN = Disable



ISSN = Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

EAN 8 (Jan 8) The following options apply to the EAN 8 (Jan 8) symbology.

EAN 8 Enable/Disable

When disabled, the reader will not read EAN 8/JAN 8 barcodes.



EAN 8 = Disable



EAN 8 = Enable



EAN 8 Check Character Transmission

Enable this option to transmit the check character along with EAN 8 barcode data.



EAN 8 Check Character Transmission =
Don't Send



EAN 8 Check Character Transmission = Send





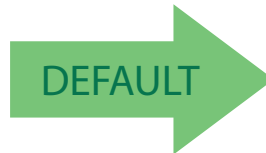
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Expand EAN 8 to EAN 13

Enable this option to expand EAN 8/JAN 8 labels to EAN 13/JAN 13.



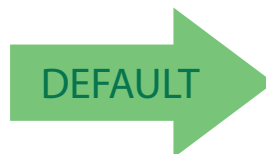
Expand EAN 8 to EAN 13 = Disable



Expand EAN 8 to EAN 13 = Enable

EAN 8 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label for this symbology is decoded.



EAN 8 2D Component =
Disable (2D component not required)



EAN 8 2D Component =
2D component must be decoded



Enter/Exit Programming Mode

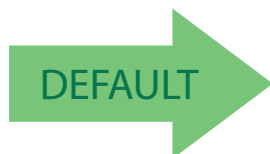
4 Configuration Using Barcodes

UPC/EAN Global Settings

This section provides configuration settings for UPC-A, UPC-E, EAN 13 and EAN 8 symbologies, and affects all of these unless otherwise marked for each feature description.

UPC/EAN Price Weight Check

This feature enables/disables calculation and verification of price/weight check digits.



Price Weight Check = Disabled



Price Weight Check =
4-digit price-weight check



Price Weight Check =
5-digit price-weight check



Price Weight Check =
European 4-digit price-weight check



Price Weight Check =
European 5-digit price-weight check



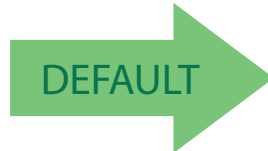
Enter/Exit Programming Mode

4

Configuration Using Barcodes

UPC/EAN Quiet Zones

This feature specifies the number of quiet zones for UPC/EAN labels. Quiet zones are blank areas at the ends of a barcode, typically 10 times the width of the narrowest bar or space in the label. The property applies to all EAN-UPC symbologies globally and to the ADDONS.



UPC/EAN Quiet Zones = Two Modules



UPC/EAN Quiet Zones = Three Modules



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Add-Ons

Contact Customer Support for advanced programming of optional and conditional add-ons.

Optional Add-ons

The reader can be enabled to optionally read the following add-ons (supplementals):



If a UPC/EAN base label and an add-on are both decoded, the reader will transmit the base label and add-on. If a UPC/EAN base label is decoded without an add-on, the base label will be transmitted without an add-on. Conditional add-on settings (if enabled) are considered by the reader before optional add-on settings.

DEFAULT



Optional Add-Ons = Disable P2



Optional Add-Ons = Enable P2

DEFAULT



Optional Add-Ons = Disable P5



Optional Add-Ons = Enable P5

Cordless models only:

DEFAULT



Optional Add-Ons = Disable GS1-128



Optional Add-Ons = Enable GS1-128



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Optional Add-On Timer

This option sets the time the reader will look for an add-on when an add-on fragment has been seen and optional add-ons are enabled. (Also see "[Optional GS1-128 Add-On Timer](#)" on page 106.)



Optional Add-on Timer = 10ms



Optional Add-on Timer = 20ms



Optional Add-on Timer = 30ms



Optional Add-on Timer = 40ms



Optional Add-on Timer = 50ms



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Optional Add-on Timer = 70ms



Optional Add-on Timer = 60ms



Optional Add-on Timer = 100ms



Optional Add-on Timer = 120ms



Optional Add-on Timer = 140ms



Optional Add-on Timer = 160ms



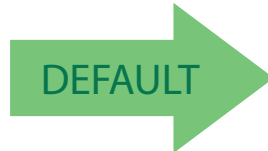
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Optional GS1-128 Add-On Timer

This option sets the timer expiration value to read the added part after reading the linear EAN/UPC part. For UPC/EAN add-ons other than those of that type, see ["Optional Add-On Timer"](#) on page 104.



Optional GS1-128 Add-On Timer = Disable



Optional GS1-128 Add-On Timer = 10ms



Optional GS1-128 Add-On Timer = 20ms



Optional GS1-128 Add-On Timer = 30ms



Optional GS1-128 Add-On Timer = 40ms



Optional GS1-128 Add-On Timer = 50ms



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Optional GS1-128 Add-On Timer = 60ms



Optional GS1-128 Add-On Timer = 70ms



Optional GS1-128 Add-On Timer = 100ms



Optional GS1-128 Add-On Timer = 120ms



Optional GS1-128 Add-On Timer = 140ms



Optional GS1-128 Add-On Timer = 160ms



Enter/Exit Programming Mode

4

Configuration Using Barcodes



Optional GS1-128 Add-On Timer = 180ms



Optional GS1-128 Add-On Timer = 200ms



Optional GS1-128 Add-On Timer = 220ms



Optional GS1-128 Add-On Timer = 240ms



Optional GS1-128 Add-On Timer = 260ms



Optional GS1-128 Add-On Timer = 280ms



Optional GS1-128 Add-On Timer = 300ms



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Code 39 The following options apply to the Code 39 symbology.

Code 39 Enable/Disable



Code 39 = Enable



Code 39 = Disable

← **DEFAULT**

Code 39 Check Character Calculation

Enable this option to enables/disables calculation and verification of an optional Code 39 check character. When disabled, any check character in the label is treated as a data character



Code 39 Check Character Calculation =
Don't Calculate



Code 39 Check Character Calculation =
Calculate Std Check

← **DEFAULT**



Code 39 Check Character Calculation =
Calculate Mod 7 Check



Code 39 Check Character Calculation =
Enable Italian Post Check



Code 39 Check Character Calculation =
Enable Daimler Chrysler Check



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 39 Check Character Transmission

Enable this option to transmit the check character along with Code 39 barcode data.



Code 39 Check Character Transmission =
Don't Send

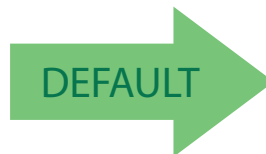


Code 39 Check Character Transmission = Send



Code 39 Start/Stop Character Transmission

Enable this option to enable/disable transmission of Code 39 start and stop characters



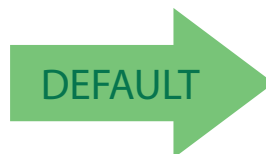
Code 39 Start/Stop Character Transmission =
Don't Transmit



Code 39 Start/Stop Character Transmission =
Transmit

Code 39 Full ASCII

Enables/disables the translation of Code 39 characters to Code 39 full-ASCII characters.



Code 39 Full ASCII = Disable



Code 39 Full ASCII = Enable



4 Configuration Using Barcodes

Code 39 Quiet Zones

This feature specifies the number of quiet zones for Code 39 labels. Quiet zones are blank areas at the ends of a barcode, typically 10 times the width of the narrowest bar or space in the label.



Code 39 Quiet Zones =
Quiet Zones on two sides



Code 39 Quiet Zones =
Small Quiet Zones on two sides

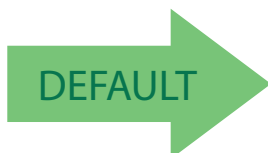


Code 39 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 39 symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Code 39 Length Control = Variable Length



Code 39 Length Control = Fixed Length



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 39 Set Length 1

This feature specifies one of the barcode lengths for [Code 39 Length Control on page 111](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 111](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 111](#) Mode. Length includes the barcode's data characters only. The length can be set from 0 to 50 characters.

[Table Code 39 Length 1 Setting Examples](#) provides examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

Code 39 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 Characters	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 39 LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

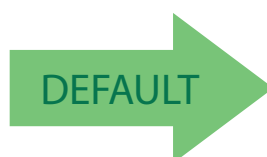


Select Code 39 Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



02 = Length 1 is 2 Characters



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Code 39 Set Length 2

This feature specifies one of the barcode lengths for [Code 39 Length Control on page 111](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 111](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 111](#) Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.

[Table Code 39 Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

Code 39 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 39 LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING .MODE				



Select Code 39 Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Trioptic Code

The following options apply to the Trioptic symbology.

Trioptic Code Enable/Disable



Trioptic Code = Disable



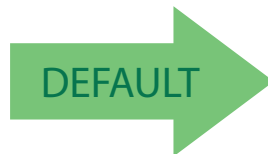
Trioptic Code = Enable

Code 32 (Ital Pharmaceutical Code)

The following options apply to the Code 32 (Italian Pharmaceutical Code) symbology.

Code 32 Enable/Disable

When disabled, the reader will not read Code 32 barcodes.



Code 32 = Disable



Code 32 = Enable

Code 32 Feature Setting Exceptions



The following features are set for Code 32 by using these Code 39 settings:

"Code 39 Quiet Zones" on page 111

"Code 39 Length Control" on page 111

"Trioptic Code" on page 114



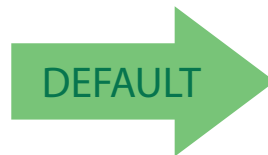
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 32 Check Char Transmission

Enable this option to transmit the check character along with Code 32 barcode data.



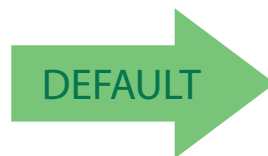
Code 32 Check Character Transmission =
Don't Send



Code 32 Check Character Transmission = Send

Code 32 Start/Stop Character Transmission

This option enables/disables transmission of Code 32 start and stop characters



Code 32 Start/Stop Character Transmission =
Don't Transmit



Code 32 Start/Stop Character Transmission =
Transmit



Enter/Exit Programming Mode

4

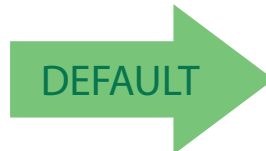
Configuration Using Barcodes

Code 39 CIP (French Pharmaceutical)

The following options apply to the Code 39 CIP symbology.

Code 39 CIP Enable/Disable

Enables/Disables ability of the reader to decode Code 39 CIP labels.



Code 39 CIP = Disable



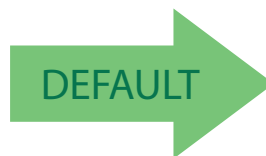
Code 39 CIP = Enable

Code 39 Danish PPT

The following options apply to the Code 39 Danish PPT symbology.

Code 39 Danish PPT Enable/Disable

Enables/Disables AIM ID for Code 39 Danish PPT Codes.



Code 39 Danish PPT = Disable



Code 39 Danish PPT = Enable



Enter/Exit Programming Mode

4

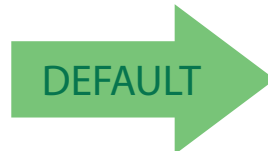
Configuration Using Barcodes

Code 39 LaPoste

The following options apply to the Code 39 LaPoste symbology.

Code 39 LaPoste Enable/Disable

Enables/disables the ability of the reader to decode Code39 La Poste labels.



Code 39 LaPoste = Disable



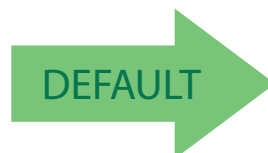
Code 39 LaPoste = Enable

Code 39 PZN

The following options apply to the Code 39 PZN symbology.

Code 39 PZN Enable/Disable

Enables/disables the ability of the reader to decode Code39 PZN labels.



Code 39 PZN = Disable



Code 39 PZN = Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 128

The following options apply to the Code 128 symbology.

Code 128 Enable/Disable

When disabled, the reader will not read Code 128 barcodes.



Code 128 = Disable



Code 128 = Enable

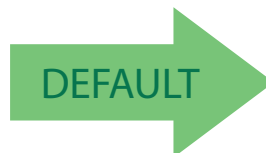


Expand Code 128 to Code 39

This feature enables/disables expansion of Code 128 labels to Code 39 labels.



Code 128 to Code 39 = Don't Expand



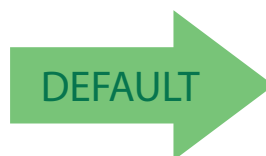
Code 128 to Code 39 = Expand

Code 128 Check Character Transmission

Enable this option to transmit the check character along with Code 128 barcode data.



Code 128 Check Character Transmission =
Don't Send



Code 128 Check Character Transmission =
Send



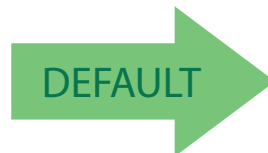
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 128 Function Character Transmission

Enables/disables transmission of Code128 function characters 1, 2, 3, and 4.



Code 128 Function Character Transmission =
Don't Send



Code 128 Function Character Transmission =
Send

Code 128 Quiet Zones

This feature specifies the number of quiet zones for Code 128 labels. Quiet zones are blank areas at the ends of a barcode and are typically 10 times the width of the narrowest bar or space in the label.



Code 128 Quiet Zones = Quiet Zones on two
sides



Code 128 Quiet Zones = Small Quiet Zones on
two sides





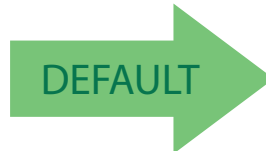
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 128 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 128 symbology. See [page 231](#) for more information.



Code 128 Length Control = Variable Length



Code 128 Length Control = Fixed Length



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Code 128 Set Length 1

Specifies one of the barcode lengths for [Code 128 Length Control on page 120](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's data characters only. The length can be set from 1 to 80 characters.

[Table Code 128 Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

Code 128 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Character	07 Characters	15 Characters	80 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 128 LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '7'	'1' and '5'	'8' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Code 128 Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

01 = Length 1 is 1 Character



4

Configuration Using Barcodes

Code 128 Set Length 2

This feature specifies one of the barcode lengths for [Code 128 Length Control on page 120](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's data characters only.

The length can be set from 1 to 80 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table Code 128 Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

Code 128 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (Ignore This Length)	07 Characters	15 Characters	80 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 128 LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'8' and '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Code 128 Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

80 = Length 2 is 80 Characters



4 Configuration Using Barcodes

GS1-128

The following options apply to the GS1-128 symbology. (Also known as USS-128, GS1-128, GTIN-128, UCC-128, EAN-128.)

GS1-128 Enable

This option enables/disables the ability of the reader to translate GS1-128 labels to the GS1-128 data format. Options are:

- Transmit GS1-128 labels in Code 128 data format.
- Transmit GS1-128 labels in GS1-128 data format.
- Do not transmit GS1-128 labels.



GS1-128 = Transmit in Code 128 data format



GS1-128 = Transmit in GS1-128 data format



GS1-128 = Do not transmit GS1-128 labels

GS1-128 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.



GS1-128 2D Component = Disable



GS1-128 2D Component = Enable



Enter/Exit Programming Mode

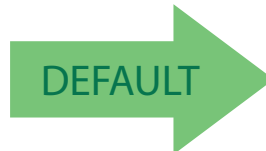
4

Configuration Using Barcodes

Code ISBT 128 The following options apply to the ISBT 128 symbology.

ISBT 128 Concatenation

Use this option to enable/disable ISBT128 concatenation of 2 labels.



ISBN 128 Concatenation = Disable



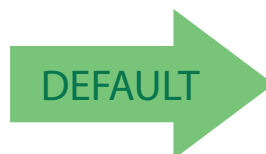
ISBN 128 Concatenation = Enable

ISBT 128 Force Concatenation

When enabled, this feature forces concatenation for ISBT.



This option is only valid when [ISBT 128 Concatenation on page 124](#) is enabled.



ISBT 128 Force Concatenation = Disable



ISBT 128 Force Concatenation = Enable



Enter/Exit Programming Mode

4

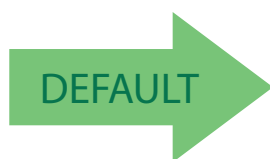
Configuration Using Barcodes

ISBT 128 Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



This option is only valid when ISBT 128 Concatenation is enabled (see ["ISBT 128 Concatenation" on page 124](#)).



ISBT 128 Concatenation Mode = Static



ISBT 128 Concatenation Mode = Dynamic



Enter/Exit Programming Mode

4

Configuration Using Barcodes

ISBT 128 Dynamic Concatenation Timeout

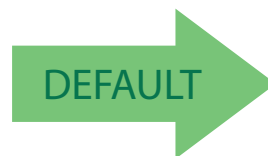
Specifies the timeout used by the ISBT 128 Dynamic Concatenation Mode.



ISBT 128 Dynamic Concatenation Timeout =
50 msec



ISBT 128 Dynamic Concatenation Timeout =
100 msec



ISBT 128 Dynamic Concatenation Timeout =
200 msec



ISBT 128 Dynamic Concatenation Timeout =
500 msec



ISBT 128 Dynamic Concatenation Timeout =
750 msec



ISBT 128 Dynamic Concatenation Timeout =
1 second



Enter/Exit Programming Mode

4

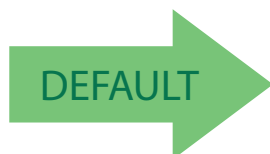
Configuration Using Barcodes

Interleaved 2 of 5 (I 2 of 5)

The following options apply to the I 2 of 5 symbology.

I 2 of 5 Enable/Disable

When disabled, the reader will not read I 2 of 5 barcodes.



I 2 of 5 = Disable



I 2 of 5 = Enable



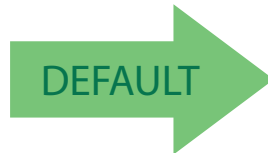
Enter/Exit Programming Mode

4

Configuration Using Barcodes

I 2 of 5 Check Character Calculation

This option enables/disables calculation and verification of an optional I 2 of 5 check character.



I 2 of 5 Check Character Calculation = Disable



I 2 of 5 Check Character Calculation =
Check Standard (Modulo 10)



I 2 of 5 Check Character Calculation =
Check German Parcel



I 2 of 5 Check Character Calculation =
Check DHL



I 2 of 5 Check Character Calculation =
Check Daimler Chrysler



I 2 of 5 Check Character Calculation =
Check Bosch



I 2 of 5 Check Character Calculation =
Italian Post



4

Configuration Using Barcodes

1 2 of 5 Check Character Transmission

Enable this option to transmit the check character along with 1 2 of 5 barcode data.



1 2 of 5 Check Character Transmission =
Don't Send



1 2 of 5 Check Character Transmission = Send



1 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the 1 2 of 5 symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



1 2 of 5 Length Control = Variable Length



1 2 of 5 Length Control = Fixed Length

1 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for [1 2 of 5 Length Control](#) on page 129. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. The length includes the barcode's check and data characters. The length can be set from 2 to 50 characters in increments of two.

[Table 2 of 5 Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

2 of 5 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	2 Characters	6 Characters	14 Characters	50 Characters
2	Pad with leading zeroes to yield two digits	02	06	14	50



Enter/Exit Programming Mode

4

Configuration Using Barcodes

STEP	ACTION	EXAMPLES			
1	Desired Setting	2 Characters	6 Characters	14 Characters	50 Characters
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT I 2 of 5 LENGTH 1 SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '2'	'0' and '6'	'1' and '4'	'5' AND '0'
6	Scan ENTER/EXIT PROGRAMMING MODE				

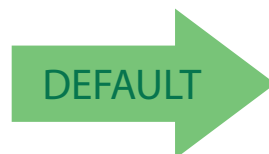


Select I 2 of 5 Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



06 = Length 1 is 6 Characters



Enter/Exit Programming Mode

4

Configuration Using Barcodes

I 2 of 5 Set Length 2

This feature specifies one of the barcode lengths for I 2 of 5 Length Control on page 129. Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. The length includes the barcode's check and data characters.

The length can be set from 2 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table . I 2 of 5 Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

. I 2 of 5 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	Ignore This Length	4 Characters	14 Characters	50 Characters
2	Pad with leading zeroes to yield two digits	00	04	14	50
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT I 2 OF 5 LENGTH 2 SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '4'	'1' and '4'	'5' AND '0'
6	Scan ENTER/EXIT PROGRAMMING MODE				



Select I 2 of 5 Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

4

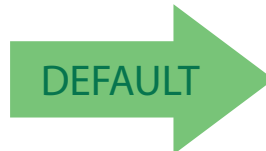
Configuration Using Barcodes

Interleaved 2 of 5 CIP HR

The following options apply to the Interleaved 2 of 5 CIP HR symbology.

Interleaved 2 of 5 CIP HR Enable/Disable

Enables/Disables ability of reader to decode Interleaved 2 of 5 CIP HR labels.



Interleaved 2 of 5 CIP HR = Disable



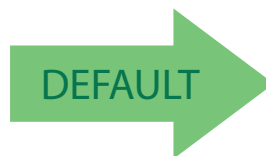
Interleaved 2 of 5 CIP HR = Enable

Follett 2 of 5

The following options apply to the Follett 2 of 5 symbology.

Follett 2 of 5 Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.



Follett 2 of 5 = Disable



Follett 2 of 5 = Enable



Enter/Exit Programming Mode

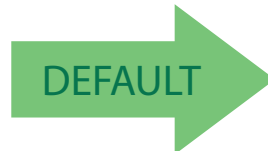
4

Configuration Using Barcodes

Standard 2 of 5 The following options apply to the Standard 2 of 5 symbology.

Standard 2 of 5 Enable/Disable

When disabled, the reader will not read Standard 2 of 5 barcodes.



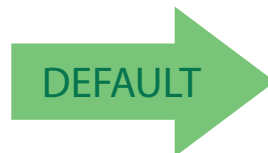
Standard 2 of 5 = Disable



Standard 2 of 5 = Enable

Standard 2 of 5 Check Character Calculation

This option enables/disables calculation and verification of an optional Standard 2 of 5 check character.



Standard 2 of 5 Check Character Calculation
= Disable



Standard 2 of 5 Check Character Calculation =
Enable



4

Configuration Using Barcodes

Standard 2 of 5 Check Character Transmission

This feature enables/disables transmission of an optional Standard 2 of 5 check character.



Standard 2 of 5 Check Character Transmission = Don't Send



Standard 2 of 5 Check Character Transmission = Send

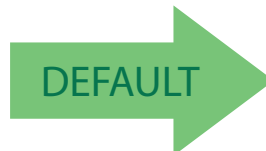


Standard 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Standard 2 of 5 symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Standard 2 of 5 Length Control = Variable Length



Standard 2 of 5 Length Control = Fixed Length



4 Configuration Using Barcodes

Standard 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for [Standard 2 of 5 Length Control on page 134](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 134](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 111](#) Mode. Length includes the barcode's check and data characters. The length can be set from 1 to 50 characters.

[Table Standard 2 of 5 Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) if you want detailed instructions on setting this feature.

Standard 2 of 5 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Character	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT STANDARD 2 OF 5 LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Standard 2 of 5 Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

08 = Length 1 is 8 Characters



4 Configuration Using Barcodes

Standard 2 of 5
Set Length 2

This feature specifies one of the barcode lengths for [Standard 2 of 5 Length Control on page 134](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 134](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 111](#) Mode. Length includes the barcode's check and data characters.

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table Standard 2 of 5 Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

Standard 2 of 5
Length 2 Setting
Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting (pad with leading zeroes)	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT STANDARD 2 OF 5 LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

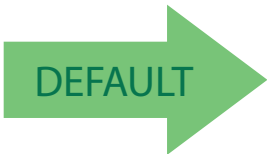


Select Standard 2 of 5 Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

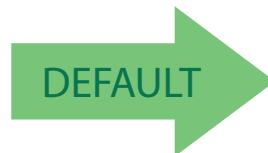
4

Configuration Using Barcodes

Industrial 2 of 5 The following options apply to the Industrial 2 of 5 symbology.

Industrial 2 of 5 Enable/Disable

Enables/Disables ability of reader to decode Industrial 2 of 5 labels.



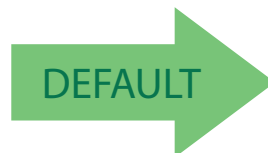
Industrial 2 of 5 = Disable



Industrial 2 of 5 = Enable

Industrial 2 of 5 Check Character Calculation

Enables/Disables calculation and verification of an optional Industrial 2 of 5 check character.



Industrial 2 of 5 Check Character Calculation
= Disable



Industrial 2 of 5 Check Character Calculation =
Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Industrial 2 of 5 Check Character Transmission

Enables/disables transmission of an Industrial 2 of 5 check character.



Industrial 2 of 5 Check Character Transmission = Disable



Industrial 2 of 5 Check Character Transmission = Enable

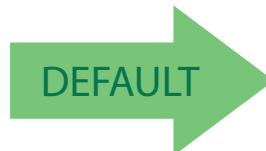


Industrial 2 of 5 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Industrial 2 of 5 symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Industrial 2 of 5 Length Control = Variable Length



Industrial 2 of 5 = Fixed Length



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Industrial 2 of 5 Set Length 1

This feature specifies one of the barcode lengths for [Industrial 2 of 5 Length Control on page 138](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 111](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 111](#) Mode. Length includes the barcode's data characters only. The length can be set from 0 to 50 characters.

[Table Industrial 2 of 5 Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) if you want detailed instructions on setting this feature.

Industrial 2 of 5 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 Characters	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT INDUSTRIAL 2 OF 5 LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Industrial 2 of 5 Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

01 = Length 1 is 1 Character



4

Configuration Using Barcodes

Industrial 2 of 5 Set Length 2

This feature specifies one of the barcode lengths for [Industrial 2 of 5 Length Control on page 138](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 111](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 111](#) Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table Industrial 2 of 5 Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

Industrial 2 of 5 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT INDUSTRIAL 2 OF 5 LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

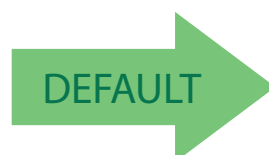


Select Industrial 2 of 5 Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

4

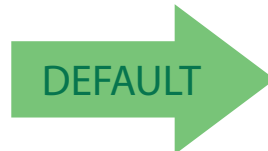
Configuration Using Barcodes

Code IATA

The following options apply to the IATA symbology.

IATA Enable/Disable

Enables/Disables the ability of the reader to decode IATA labels.



IATA = Disable



IATA = Enable

IATA Check Character Transmission

Enables/Disables calculation and verification of an optional Industrial 2 of 5 check character.



IATA Check Character Transmission = Disable



IATA Check Character Transmission = Enable





Enter/Exit Programming Mode

4

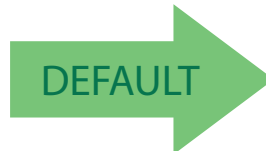
Configuration Using Barcodes

Codabar

The following options apply to the Codabar symbology.

Codabar Enable/Disable

When disabled, the reader will not read Codabar barcodes.



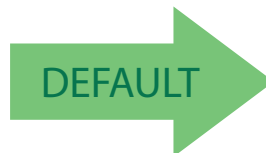
Codabar = Disable



Codabar = Enable

Codabar Check Character Calculation

Enable this option to enable/disable calculation and verification of an optional Codabar check character. When disabled, any check character in the label is treated as a data character.



Codabar Check Character Calculation =
Don't Calculate



Codabar Check Character Calculation =
Enable AIM standard check char.



Codabar Check Character Calculation =
Enable Modulo 10 check char.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Codabar Check Character Transmission

Enable this option to transmit the check character along with Codabar barcode data.



Codabar Check Character Transmission =
Don't Send



Codabar Check Character Transmission =
Send

←
DEFAULT

Codabar Start/Stop Character Transmission

Enable this option to enable/disable transmission of Codabar start and stop characters



Codabar Start/Stop Character Transmission =
Don't Transmit



Codabar Start/Stop Character Transmission =
Transmit

←
DEFAULT



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Codabar Start/Stop Character Set

This option specifies the format of transmitted Codabar start/stop characters



Codabar Check Character Set = ABCD/TN*E



Codabar Check Character Set = ABCD/ABCD



Codabar Check Character Set = abcd/tn*e



Codabar Check Character Set = abcd/abcd



Codabar Start/Stop Character Match

When enabled, this option requires that start and stop characters match.



Codabar Start/Stop Character Match = Don't Require Match



Codabar Start/Stop Character Match = Require Match



4

Configuration Using Barcodes

Codabar Quiet Zones

Specifies the number of quiet zones for Codabar labels. Quiet zones are blank areas at the ends of a barcode and are typically 10 times the width of the narrowest bar or space in the label.



Codabar Quiet Zones =
Quiet Zones on two sides



Codabar Quiet Zones =
Small Quiet Zones on two sides

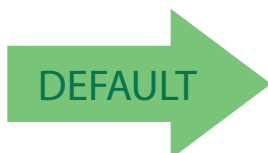


Codabar Length Control

This feature specifies either variable length decoding or fixed length decoding for the Codabar symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Codabar Length Control = Variable Length



Codabar Length Control = Fixed Length



4

Configuration Using Barcodes

Codabar Set Length 1

This feature specifies one of the barcode lengths for [Codabar Length Control on page 145](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's start, stop, check and data characters. The length must include at least one data character. The length can be set from 3 to 50 characters.

[Table Codabar Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

Codabar Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting (and pad with leading zeroes)	03 Characters	09 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODABAR LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/ characters from a keypad.	'0' and '3'	'0' and '9'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

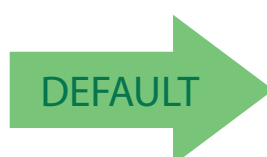


Select Codabar Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



03 = Length 1 is 3 Characters



4

Configuration Using Barcodes

Codabar Set Length 2

This feature specifies one of the barcode lengths for [Codabar Length Control on page 145](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. The length includes the barcode's start, stop, check and data characters. The length must include at least one data character.

The length can be set from 3 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table Codabar Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

Codabar Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting (and pad with leading zeroes)	00 Ignore This Length	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODABAR LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Codabar Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

4

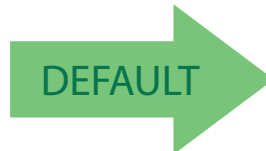
Configuration Using Barcodes

ABC Codabar

The following options apply to the ABC Codabar symbology.

ABC Codabar Enable/Disable

Enables/Disables ability of reader to decode ABC Codabar labels.



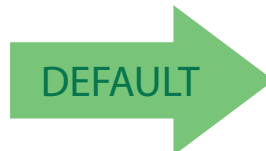
ABC Codabar = Disable



ABC Codabar = Enable

ABC Codabar Concatenation Mode

Specifies the concatenation mode between Static and Dynamic.



ABC Codabar Concatenation Mode = Static



ABC Codabar Concatenation Mode = Dynamic



Enter/Exit Programming Mode

4

Configuration Using Barcodes

ABC Codabar Dynamic Concatenation Timeout

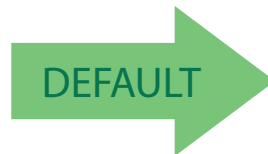
Specifies the timeout in 10-millisecond ticks used by the ABC Codabar Dynamic Concatenation Mode.



ABC Codabar Dynamic Concatenation Timeout = 50 msec



ABC Codabar Dynamic Concatenation Timeout = 100 msec



ABC Codabar Dynamic Concatenation Timeout = 200 msec



ABC Codabar Dynamic Concatenation Timeout = 500 msec



ABC Codabar Dynamic Concatenation Timeout = 750 msec



ABC Codabar Dynamic Concatenation Timeout = 1 Second



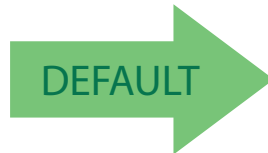
Enter/Exit Programming Mode

4

Configuration Using Barcodes

ABC Codabar Force Concatenation

Forces labels starting or ending with D to be concatenated.



ABC Codabar Force Concatenation = Disable



ABC Codabar Force Concatenation = Enable



Enter/Exit Programming Mode

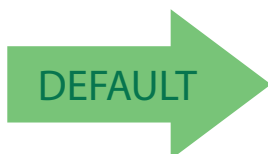
4 Configuration Using Barcodes

Code 11

The following options apply to the Code 11 symbology.

Code 11 Enable/Disable

When disabled, the reader will not read Code 11 barcodes.



Code 11 = Disable



Code 11 = Enable

Code 11 Check Character Calculation

This option enables/disables calculation and verification of optional Code 11 check character.



Code 11 Check Character Calculation =
Disable



Code 11 Check Character Calculation =
Check C



Code 11 Check Character Calculation =
Check K



Code 11 Check Character Calculation =
Check C and K





Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 11 Check Character Transmission

This feature enables/disables transmission of an optional Code 11 check character.



Code 11 Check Character Transmission =
Don't Send



Code 11 Check Character Transmission = Send

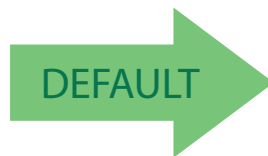


Code 11 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 11 symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Code 11 Length Control = Variable Length



Code 11 Length Control = Fixed Length



4 Configuration Using Barcodes

Code 11 Set Length 1

This feature specifies one of the barcode lengths for [Code 11 Length Control on page 152](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's check and data characters. The length can be set from 2 to 50 characters.

[Table Code 11 Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

Code 11 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting (pad with leading zeroes)	02 Characters	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 11 LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '2'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Code 11 Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

04 = Length 1 is 4 Characters



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 11 Set Length 2

This feature specifies one of the barcode lengths for [Code 11 Length Control on page 152](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's check and data characters.

The length can be set from 2 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table Code 11 Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

Code 11 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting (pad with leading zeroes)	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 11 LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' and '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Code 11 Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

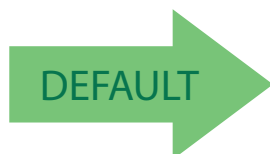
4 Configuration Using Barcodes

GS1 DataBar™ Omnidirectional

The following options apply to the GS1 DataBar™ Omnidirectional (formerly RSS-14) symbology.

GS1 DataBar™ Omnidirectional Enable/Disable

When disabled, the reader will not read GS1 DataBar™ Omnidirectional barcodes.



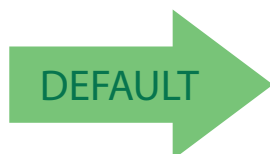
GS1 DataBar™ Omnidirectional = Disable



GS1 DataBar™ Omnidirectional = Enable

GS1 DataBar™ Omnidirectional GS1-128 Emulation

When enabled, GS1 DataBar™ Omnidirectional barcodes will be translated to the GS1-128 label data format.



GS1 DataBar™ Omnidirectional GS1-128
Emulation = Disable



GS1 DataBar™ Omnidirectional GS1-128 Emu-
lation = Enable



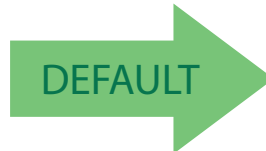
Enter/Exit Programming Mode

4

Configuration Using Barcodes

GS1 DataBar™ Omnidirectional 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label for this symbology is decoded.



GS1 DataBar™ Omnidirectional 2D Component = Disable (2D component not required)



GS1 DataBar™ Omnidirectional 2D Component = 2D component must be decoded



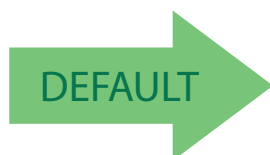
4 Configuration Using Barcodes

GS1 DataBar™ Expanded

The following options apply to the GS1 DataBar™ Expanded (formerly RSS Expanded) symbol-ogy.

GS1 DataBar™ Expanded Enable/Disable

When disabled, the reader will not read GS1 DataBar™ Expanded barcodes.



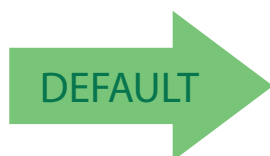
GS1 DataBar™ Expanded = Disable



GS1 DataBar™ Expanded = Enable

GS1 DataBar™ Expanded GS1-128 Emulation

When enabled, GS1 DataBar™ Expanded barcodes will be translated to the GS1-128 label data format.



GS1 DataBar™ Expanded GS1-128 Emulation = Disable



GS1 DataBar™ Expanded GS1-128 Emulation = Enable



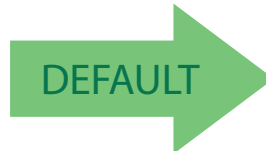
Enter/Exit Programming Mode

4

Configuration Using Barcodes

GS1 DataBar™ Expanded 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.



GS1 DataBar™ Expanded 2D Component =
Disable



GS1 DataBar™ Expanded 2D Component =
Enable



Enter/Exit Programming Mode

4

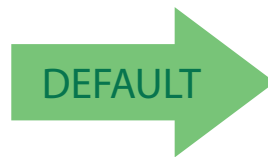
Configuration Using Barcodes

GS1 DataBar™ Expanded Length Control

This feature specifies either variable length decoding or fixed length decoding for the GS1 DataBar™ Expanded symbology.

Variable Length: For variable-length decoding, a minimum length may be set.

Fixed Length: For fixed-length decoding, two different lengths may be set.



GS1 DataBar™ Expanded Length Control =
Variable Length



GS1 DataBar™ Expanded Length Control =
Fixed Length



4 Configuration Using Barcodes

GS1 DataBar™
Expanded
Length 1 Setting
Examples

GS1 DataBar™ Expanded Set Length 1

This feature specifies one of the barcode lengths for [GS1 DataBar™ Expanded Length Control on page 159](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode’s data characters only. The length can be set from 1 to 74 characters.

[Table GS1 DataBar™ Expanded Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Character	07 Characters	52 Characters	74 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT GS1 DataBar™ EXPANDED LENGTH 1SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '7'	'5' and '2'	'7' AND '4'
5	Scan ENTER/EXIT PROGRAMMING MODE				

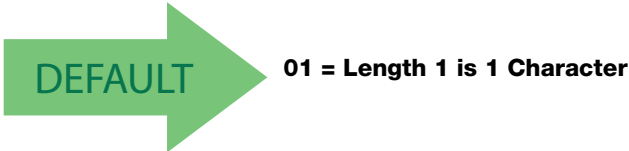


Select GS1 DataBar™ Expanded Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL





Enter/Exit Programming Mode

4 Configuration Using Barcodes

GS1 DataBar™ Expanded Set Length 2

This feature specifies one of the barcode lengths for [GS1 DataBar™ Expanded Length Control on page 159](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's data characters only. The length can be set from 1 to 74 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table GS1 DataBar™ Expanded Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

GS1 DataBar™ Expanded Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (ignore second length)	07 Characters	52 Characters	74 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT GS1 DataBar™ EXPANDED LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'5' and '2'	'7' and '4'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select GS1 DataBar™ Expanded Set Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

74 = Length 2 is 74 Characters



4

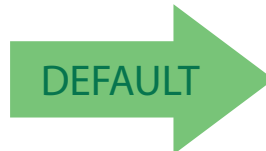
Configuration Using Barcodes

GS1 DataBar™ Limited

The following options apply to the GS1 DataBar™ Limited (formerly RSS Limited) symbology.

GS1 DataBar™ Limited Enable/Disable

When disabled, the reader will not read GS1 DataBar™ Limited barcodes.



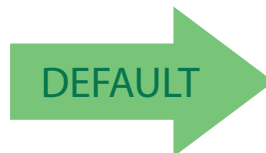
GS1 DataBar™ Limited = Disable



GS1 DataBar™ Limited = Enable

GS1 DataBar™ Limited GS1-128 Emulation

When enabled, GS1 DataBar™ Limited barcodes will be translated to the GS1-128 label data format.



GS1 DataBar™ Limited GS1-128 Emulation =
Disable



GS1 DataBar™ Limited GS1-128 Emulation =
Enable

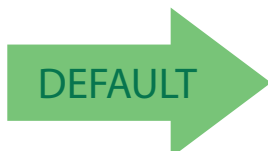


Enter/Exit Programming Mode

4 Configuration Using Barcodes

GS1 DataBar™ Limited 2D Component

This feature enables/disables a requirement that a 2D label component be decoded when a base label of this symbology is decoded.



GS1 DataBar™ Limited 2D Component =
Disable (2D component not required)



GS1 DataBar™ Limited 2D Component =
2D component must be decoded

Code 93

The following options apply to the Code 93 symbology.

Code 93 Enable/Disable

Enables/Disables ability of reader to decode Code 93 labels.



Code 93 = Disable



Code 93 = Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 93 Check Character Calculation

Enables/disables calculation and verification of an optional Code 93 check character.



Code 93 Check Character Calculation =
Disable



Code 93 Check Character Calculation =
Enable Check C



Code 93 Check Character Calculation =
Enable Check K

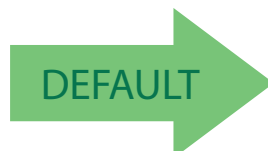


Code 93 Check Character Calculation =
Enable Check C and K



Code 93 Check Character Transmission

Enables/disables transmission of an optional Code 93 check character.



Code 93 Check Character Transmission =
Disable



Code 93 Check Character Transmission =
Enable



Enter/Exit Programming Mode

4

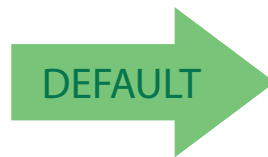
Configuration Using Barcodes

Code 93 Length Control

This feature specifies either variable length decoding or fixed length decoding for the Code 93 symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Code 93 Length Control = Variable Length



Code 93 = Fixed Length



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 93 Set Length 1

Specifies one of the barcode lengths for [Code 93 Length Control on page 165](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's data characters only. The length can be set from 01 to 50 characters.

[Table Code 93 Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

Code 93 Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Characters	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 93 LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Code 93 Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

01 = Length 1 is 1 Character



4 Configuration Using Barcodes

Code 93 Set Length 2

This feature specifies one of the barcode lengths for [Code 93 Length Control on page 165](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters. The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table CODE 93 Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

CODE 93 Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT CODE 93 LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

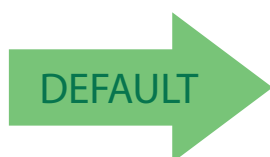


Select Code 93 Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Code 93 Quiet Zones

Enables/disables quiet zones for Code 93.



Code 93 Quiet Zones =
Quiet Zones on two sides



Code 93 Quiet Zones =
Small Quiet Zones on two sides

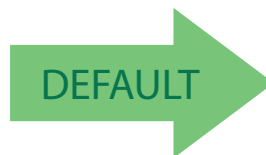


MSI

The following options apply to the MSI symbology.

MSI Enable/Disable

Enables/Disables ability of reader to decode MSI labels.



MSI = Disable



MSI = Enable



Enter/Exit Programming Mode

4

Configuration Using Barcodes

MSI Check Character Calculation

Enables/Disables calculation and verification of an optional MSI check character.



MSI Check Character Calculation = Disable



MSI Check Character Calculation =
Enable Mod10



MSI Check Character Calculation =
Enable Mod11/10



MSI Check Character Calculation =
Enable Mod10/10

MSI Check Character Transmission

Enables/disables transmission of an MSI check character.



MSI Check Character Transmission = Disable



MSI Check Character Transmission = Enable





4

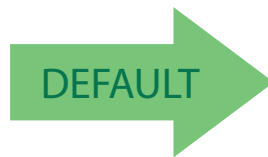
Configuration Using Barcodes

MSI Length Control

This feature specifies either variable length decoding or fixed length decoding for the MSI symbol-ogy.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



MSI Length Control = Variable Length



MSI = Fixed Length



4 Configuration Using Barcodes

MSI Set Length 1

This feature specifies one of the barcode lengths for [MSI Length Control on page 170](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's data characters only. The length can be set from 01 to 50 characters.

[Table MSI Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

MSI Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Characters	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT MSI LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18 , Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select MSI Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

01 = Length 1 is 1 Character



4

Configuration Using Barcodes

MSI Set Length 2

This feature specifies one of the barcode lengths for [MSI Length Control on page 170](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table MSI Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

MSI Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT MSI LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

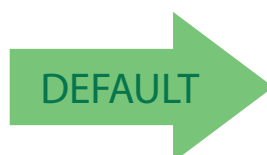


Select MSI Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters



Enter/Exit Programming Mode

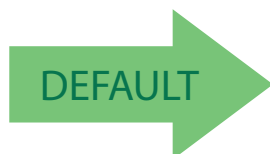
4 Configuration Using Barcodes

Plessey

The following options apply to the Plessey symbology.

Plessey Enable/Disable

Enables/Disables ability of reader to decode Plessey labels.



Plessey = Disable



Plessey = Enable

Plessey Check Character Calculation

Enables/Disables calculation and verification of an optional Plessey check character.



Plessey Check Character Calculation =
Disable



Plessey Check Character Calculation =
Enable Plessey std. check char. verification



Plessey Check Character Calculation =
Enable Anker check char. verification



Plessey Check Character Calculation =
Enable Plessey std. and Anker check char veri-
fication



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Plessey Check Character Transmission

Enables/disables transmission of an MSI check character.



Plessey Check Character Transmission =
Disable



Plessey Check Character Transmission =
Enable

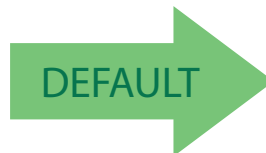


Plessey Length Control

This feature specifies either variable length decoding or fixed length decoding for the Plessey symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Plessey Length Control = Variable Length



Plessey = Fixed Length



4 Configuration Using Barcodes

Plessey Set Length 1

This feature specifies one of the barcode lengths for [Plessey Length Control on page 174](#). Length 1 is the minimum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the first fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's data characters only. The length can be set from 01 to 50 characters.

[Table Plessey Length 1 Setting Examples](#) provides some examples for setting Length 1. See [page 232](#) for detailed instructions on setting this feature.

Plessey Length 1 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	01 Characters	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT Plessey LENGTH 1 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				



Select Plessey Set Length 1 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

01 = Length 1 is 1 Character



4

Configuration Using Barcodes

Plessey Set Length 2

This feature specifies one of the barcode lengths for [Plessey Length Control on page 174](#). Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters.

The length can be set from 1 to 50 characters. A setting of 0 specifies to ignore this length (only one fixed length).

[Table Plessey Length 2 Setting Examples](#) provides examples for setting Length 2. See [page 232](#) for detailed instructions on setting this feature.

Plessey Length 2 Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	00 (Ignore This Length)	07 Characters	15 Characters	50 Characters
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SELECT PLESSEY LENGTH 2 SETTING				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'0' and '7'	'1' and '5'	'5' AND '0'
5	Scan ENTER/EXIT PROGRAMMING MODE				

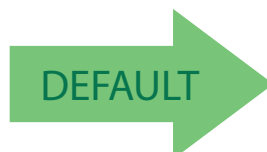


Select Plessey Length 2 Setting

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



50 = Length 2 is 50 Characters



4 Configuration Using Barcodes

4 Configuration Using Barcodes

4.9 2D Symbolologies

2D Global Features	
- 2D Maximum Decoding Time on page 178	- 2D Normal/Inverse Symbol Control on page 179
- 2D Structured Append on page 179	

The reader supports the following 2D symbolologies (barcode types). Symbology-dependent options for each symbology are included in this chapter. See "1D Code Selection" starting on page 87 for configuration of 1D barcodes.

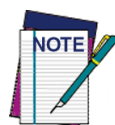
2D Symbolologies	
- Aztec Code on page 180	- Micro PDF417 on page 195
- China Sensible Code on page 183	- QR Code on page 198
- Data Matrix on page 186	- Micro QR Code on page 201
- Maxicode on page 189	- UCC Composite on page 204
- PDF417 on page 192	- Postal Code Selection on page 206

4.9.1 2D Global Features

The following features are common to all, or in some cases, most of the available 2D symbolologies. Default settings are indicated at each feature/option with a green arrow. Also reference Appendix 16, The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features. for a listing of the most widely used set of standard factory settings. That section also provides space to record any custom settings needed or implemented for your system.

To set most features:

- 1 Scan the ENTER/EXIT PROGRAMMING barcode at the top of applicable programming pages.
- 2 Scan the correct barcode to set the desired programming feature or parameter. You may need to cover unused barcodes on the page, and possibly the facing page, to ensure that the reader reads only the barcode you intend to scan.
- 3 If additional input parameters are needed, go to Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad., and scan the appropriate characters from the keypad.



Additional information about many features can be found in the "References" chapter.

If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

Complete the programming sequence by reading the ENTER/EXIT PROGRAMMING barcode to exit Programming Mode.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

2D Maximum Decoding Time

This feature specifies the maximum amount of time the software will spend attempting to decode a 2D label. The selectable range is 10 milliseconds to 2.55 milliseconds.



2D Maximum Decoding Time = 100 msec



2D Maximum Decoding Time = 200 msec



2D Maximum Decoding Time = 350 msec



2D Maximum Decoding Time = 500 msec



2D Maximum Decoding Time = 1 Second



2D Maximum Decoding Time = 2 Seconds



2D Maximum Decoding Time = 2.55 Seconds



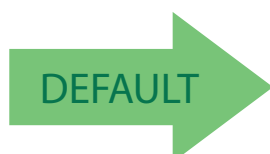
Enter/Exit Programming Mode

4 Configuration Using Barcodes

2D Structured Append

Enables/disables ability of reader to append multiple 2D Codes labels in a structured format. The structured append property is globally applied to the following symbologies, if these are enabled:

- Data Matrix
- QR Code
- Aztec
- PDF 417



Structured Append = Disable



Structured Append = Enable

2D Normal/ Inverse Symbol Control

Specifies the options available for decoding normal/negative printed 2D symbols. This configuration item applies globally to all the 2D symbologies that support that feature according to Standard AIM Specification: Data Matrix, QR, MicroQR, Aztec and Chinese Sensible Code.

To decode all symbologies, including linear symbologies, refer to ["Decode Negative Labels" on page 84D](#)



Normal/Inverse Symbol Control = Normal



Normal/Inverse Symbol Control = Inverse



Normal/Inverse Symbol Control =
Both Normal and Inverse



Enter/Exit Programming Mode

4

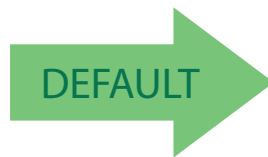
Configuration Using Barcodes

4.9.2 Symbology Selection

4.9.3 Aztec Code

Aztec Code Enable / Disable

Enables/disables the ability of the reader to decode Aztec Code labels.



Aztec Code = Disable



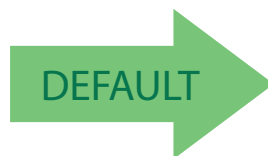
Aztec Code = Enable

Aztec Code Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Aztec Code Length Control = Variable Length



Aztec Code Length Control = Fixed Length

Aztec Code Set Length 1

Specifies one of the barcode lengths for [Aztec Code Length Control on page 180](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,832 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select Aztec Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Aztec Code Set Length 2

This feature specifies one of the barcode lengths for [Aztec Code Length Control on page 180](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,832 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select Aztec Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

Length 2 is 3,832 Characters



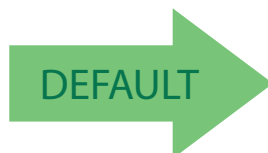
Enter/Exit Programming Mode

4 Configuration Using Barcodes

4.9.4 China Sensible Code

China Sensible Code Enable / Disable

Enables/disables the ability of the reader to decode China Sensible Code labels.



China Sensible Code = Disable



China Sensible Code = Enable

China Sensible Code Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



China Sensible Code Length Control =
Variable Length



China Sensible Code Length Control =
Fixed Length



Enter/Exit Programming Mode

4

Configuration Using Barcodes

China Sensible Code Set Length 1

Specifies one of the barcode lengths for [China Sensible Code Length Control on page 183](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,827 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



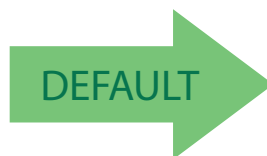
Select China Sensible Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

China Sensible Code Set Length 2

This feature specifies one of the barcode lengths for [China Sensible Code Length Control on page 183](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,827 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select China Sensible Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#), representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

Length 2 is 7,827 Characters



Enter/Exit Programming Mode

4

Configuration Using Barcodes

4.9.5 Data Matrix

Data Matrix Enable / Disable

Enables/disables ability of reader to decode Data Matrix labels.



Data Matrix = Disable



Data Matrix = Enable



Data Matrix Square/ Rectangular Style

Specifies the options available when reading Data Matrix with different form factors. Choices are:

- Square Style
- Rectangular Style
- Both Square and Rectangular Style

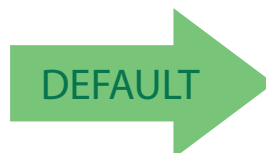
The configuration item can also be configured as a bit mask to filter one or more Data Matrix labels with different symbol size AND shape styles.



Data Matrix Dimensions Mask = Square Style



Data Matrix Dimensions Mask = Rectangular
Style



Data Matrix Dimensions Mask =
Both Square and Rectangular Style



Enter/Exit Programming Mode

4

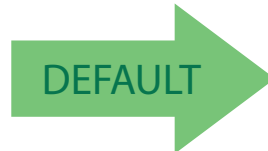
Configuration Using Barcodes

Data Matrix Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Data Matrix Length Control = Variable Length



Data Matrix Length Control = Fixed Length

Data Matrix Set Length 1

Specifies one of the barcode lengths for [Data Matrix Length Control on page 187](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,116 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



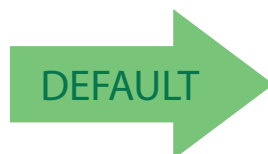
Select Data Matrix Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18](#), [Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Data Matrix Set Length 2

This feature specifies one of the barcode lengths for [Data Matrix Length Control on page 187](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 3,116 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select Data Matrix Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

Length 2 is 3,116 Characters



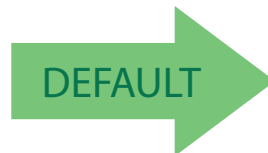
Enter/Exit Programming Mode

4 Configuration Using Barcodes

4.9.6 Maxicode

Maxicode
Enable / Disable

Enables/disables ability of reader to decode Maxicode labels.



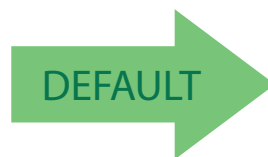
Maxicode = Disable



Maxicode = Enable

Maxicode
Primary
Message
Transmission

Enables/disables the transmission of only the Primary Message when the Secondary Message is not readable.



Maxicode Primary Message Transmission =
Disable



Maxicode Primary Message Transmission =
Enable



Enter/Exit Programming Mode

4

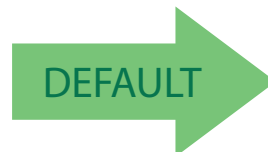
Configuration Using Barcodes

Maxicode Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Maxicode Length Control = Variable Length



Maxicode Length Control = Fixed Length

Maxicode Set Length 1

Specifies one of the barcode lengths for [Maxicode Length Control on page 190](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0145 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



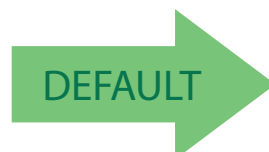
Select Maxicode Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18](#), Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad. representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Maxicode Set Length 2

This feature specifies one of the barcode lengths for [Maxicode Length Control on page 190](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0145 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select Maxicode Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#), representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

Length 2 is 0145 Characters



Enter/Exit Programming Mode

4

Configuration Using Barcodes

4.9.7 PDF417

PDF417 Enable / Disable Enables/disables the ability of the reader to decode PDF417 labels.



PDF417 = Disable



PDF417 = Enable

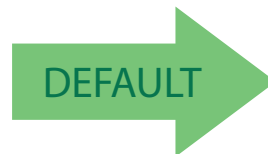


PDF417 Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



PDF417 Length Control = Variable Length



PDF417 Length Control = Fixed Length



Enter/Exit Programming Mode

4

Configuration Using Barcodes

PDF417 Set Length 1

Specifies one of the barcode lengths for [PDF417 Length Control on page 192](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's data characters only. Characters can be set from 0001 to 2,710 characters (pad with zeroes) in increments of 01. Any value greater than 2,710 will be considered to be 2,710.

See [page 232](#) for detailed instructions on setting this feature.



Select PDF417 Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

PDF417 Set Length 2

This feature specifies one of the barcode lengths for [PDF417 Length Control on page 192](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Length includes the barcode's check, data, and full-ASCII shift characters. The length does not include start/stop characters. Characters can be set from 01 to 2,710 characters (pad with zeroes) in increments of 01. Any value greater than 2,710 will be considered to be 2,710.

See [page 232](#) for detailed instructions on setting this feature.



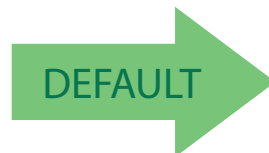
Select PDF417 Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



Length 2 is 2,710 Characters

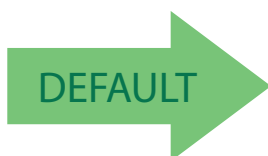


4 Configuration Using Barcodes

4.9.8 Micro PDF417

Micro PDF417 Enable / Disable

Enables/disables the ability of the reader to decode Micro PDF417 labels



Micro PDF417 = Disable



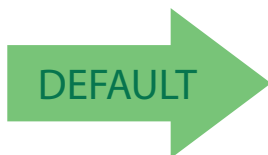
Micro PDF417 = Enable

Micro PDF417 Code 128 GS1- 128 Emulation

Specifies which AIM ID to use for MicroPDF labels when doing Code 128 or GS1-128 emulation.

Emulation choices are:

- Micro PDF AIM ID and label type
- Code 128 / EAN128 AIM Id and label type



Micro PDF417 Code 128 GS1-128 Emulation
= Micro PDF AIM ID and label type



Micro PDF417 Code 128 GS1-128 Emulation =
Code 128 / EAN128 AIM ID and label type



Enter/Exit Programming Mode

4

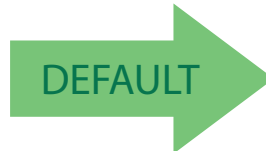
Configuration Using Barcodes

Micro PDF417 Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Micro PDF417 Length Control =
Variable Length



Micro PDF417 Length Control = Fixed Length

Micro PDF417 Set Length 1

Specifies one of the barcode lengths for [Micro PDF417 Length Control on page 196](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's data characters only. Characters can be set from 0001 to 0366 characters (pad with zeroes) in increments of 01. Any value greater than 0366 will be considered to be 0366.

See [page 232](#) for detailed instructions on setting this feature.



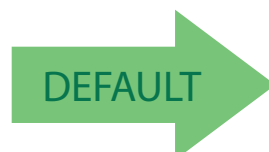
Select Micro PDF417 Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Micro PDF417 Set Length 2

This feature specifies one of the barcode lengths for [Micro PDF417 Length Control on page 196](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length includes the barcode's data characters only. Characters can be set from 0001 to 0366 characters (pad with zeroes) in increments of 01. Any value greater than 0366 will be considered to be 0366.

See [page 232](#) for detailed instructions on setting this feature



Select Micro PDF417 Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

Length 2 is 0366 Characters



Enter/Exit Programming Mode

4 Configuration Using Barcodes

4.9.9 QR Code

QR Code Enable / Disable Enables/disables the ability of the reader to decode QR Code labels



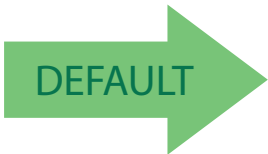
QR Code = Disable



QR Code = Enable



QR Code Length Control This feature specifies either variable length decoding or fixed length decoding for this symbology.
Variable Length: For variable length decoding, a minimum and maximum length may be set.
Fixed Length: For fixed length decoding, two different lengths may be set.



QR Code Length Control = Variable Length



QR Code Length Control = Fixed Length



Enter/Exit Programming Mode

4

Configuration Using Barcodes

QR Code Set Length 1

Specifies one of the barcode lengths for [QR Code Length Control on page 198](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,089 characters in increments of 0001 (pad with zeroes). See [page 232](#) for detailed instructions on setting this feature.



Select QR Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

QR Code Set Length 2

This feature specifies one of the barcode lengths for [QR Code Length Control on page 198](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 7,089 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select QR Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

Length 2 is 7,089 Characters



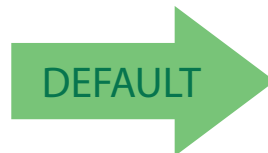
Enter/Exit Programming Mode

4 Configuration Using Barcodes

4.9.10 Micro QR Code

Micro QR Code Enable/Disable

Enables/disables the ability of the reader to decode Micro QR Code labels.



Micro QR Code = Disable



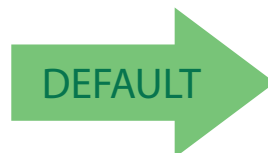
Micro QR Code = Enable

Micro QR Code Length Control

This feature specifies either variable length decoding or fixed length decoding for this symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.



Micro QR Code Length Control =
Variable Length



Micro QR Code Length Control = Fixed Length



4

Configuration Using Barcodes

Micro QR Code Set Length 1

Specifies one of the barcode lengths for [Micro QR Code Length Control on page 201](#). Length 1 is the minimum label length if in [Variable Length](#) Mode, or the first fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0035 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select Micro QR Code Length 1 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#). representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL

DEFAULT

0001 = Length 1 is 1 Character



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Micro QR Code Set Length 2

This feature specifies one of the barcode lengths for [Micro QR Code Length Control on page 201](#). Length 2 is the maximum label length if in Variable Length Mode, or the second fixed length if in Fixed Length Mode. Characters can be set from 0001 to 0035 characters in increments of 0001 (pad with zeroes).

See [page 232](#) for detailed instructions on setting this feature.



Select QR Code Length 2 Setting

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad](#), representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



DEFAULT

Length 2 is 0035 Characters



Enter/Exit Programming Mode

4

Configuration Using Barcodes

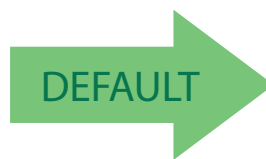
4.9.11 UCC Composite

UCC Composite Enable / Disable

Enables/disables the ability of the reader to decode the stacked part of a UCC Composite label.



This feature is not effective when Global AIM IDs are enabled (see "[Global AIM ID](#)" on page 58).



UCC Composite = Disable



UCC Composite = Enable



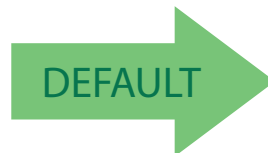
Enter/Exit Programming Mode

4

Configuration Using Barcodes

**UCC Optional
Composite
Timer**

Specifies the amount of time the system will wait for the stacked part of a UCC Composite label before transmitting the linear label without an add-on



UCC Optional Composite Timer =
Timer Disabled



UCC Optional Composite Timer = 100msec



UCC Optional Composite Timer = 200msec



UCC Optional Composite Timer = 300msec



UCC Optional Composite Timer = 400msec



UCC Optional Composite Timer = 500msec



Enter/Exit Programming Mode

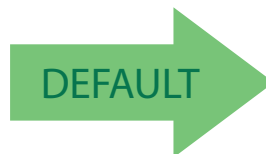
4

Configuration Using Barcodes

4.9.12 Postal Code Selection

Enables/disables the ability of the reader to decode labels of a specific postal symbology.

- Disable All Postal Codes
- Postnet
- Planet
- Royal Mail
- Kix
- Australia Post
- Japan Post
- IMB
- Sweden Post
- Portugal Post



Postal Code Selection = Enable Postnet



Postal Code Selection = Enable Royal Mail



Postal Code Selection = Enable Australia Post



Postal Code Selection = Enable IMB



Postal Code Selection = Enable Portugal Post



Postal Code Selection =
Disable All Postal Codes



Postal Code Selection = Enable Planet



Postal Code Selection = Enable Kix



Postal Code Selection = Enable Japan Post



Postal Code Selection = Enable Sweden Post



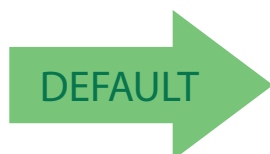
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Postnet BB Control

Controls the ability of the reader to decode B and B' fields of Postnet labels.



Postnet BB Control = Disable



Postnet BB Control = Enable



4

Configuration Using Barcodes

4 Configuration Using Barcodes

4.10 WIRELESS FEATURES

This section provides options and programming related to the reader's wireless communication features. Reference [Appendix 16](#), The most common configuration settings are listed in the "Default" column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features. for a listing of standard factory settings.

Wireless Beeper Features starting on page 209

- Good Transmission Beep on page 209
- Beep Frequency on page 209
- Beep Duration on page 210
- Beep Volume on page 211
- Disconnect Beep on page 211
- Docking Beep on page 212
- Leash Alarm on page 212

Configuration Updates starting on page 214

- Automatic Configuration Update on page 214
- Copy Configuration to Reader on page 214
- Copy Configuration to Base Station on page 214

Batch Features starting on page 215

- Batch Mode on page 215
- Send Batch on page 215
- Erase Batch Memory on page 216
- RF Batch Mode Transmit Delay on page 216

Direct Radio Autolink starting on page 217

Bluetooth-Only Features starting on page 217

- Source Radio Address Transmission on page 217
- Source Radio Address Delimiter Character on page 218
- Link Timeout on page 218
- BT Security Mode on page 219
- BT PIN Code on page 219
- Select PIN Code Length on page 220
- Set PIN Code on page 220
- BT Poll Rate on page 221
- Power Off on page 221
- Powerdown Timeout on page 222



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Wireless Beeper Features

Several options are available to configure beeper behavior for RF operation.

Good Transmission Beep

Enables/disables the Good Transmission Beep indication. When enabled, a beep occurs when a Label is correctly transmitted to the base.



Good Transmission Beep = Disable



Good Transmission Beep = Enable



Beep Frequency

Adjusts radio-specific beep indications to sound at a low, medium or high frequency, selectable from the list below (controls the beeper's pitch/tone).



Beep Frequency = Low



Beep Frequency = Medium



Beep Frequency = High



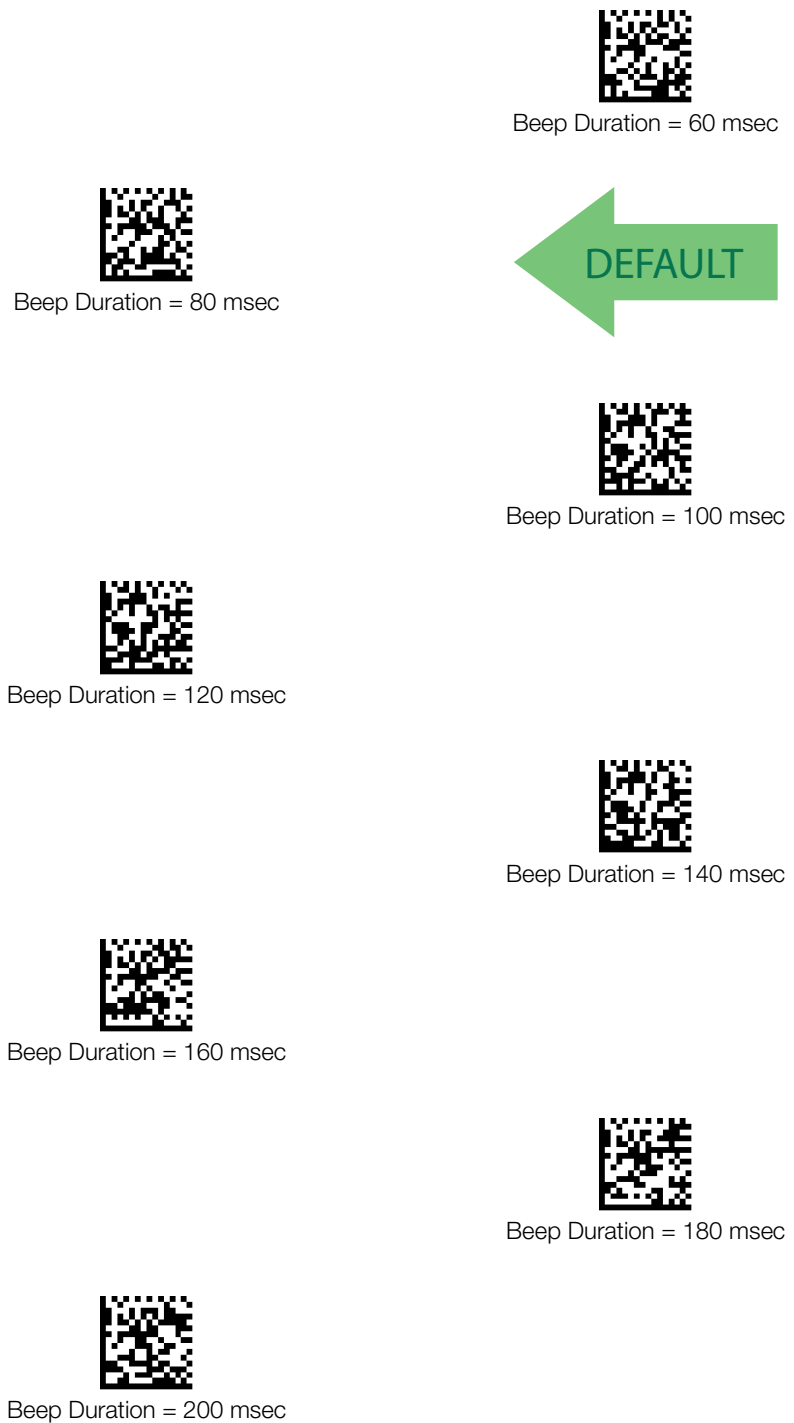
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Beep Duration

This feature controls the duration of radio-specific beep indications.





Enter/Exit Programming Mode

4 Configuration Using Barcodes

Beep Volume

Selects the beeper volume (loudness) of radio-specific beep indications. There are three selectable volume levels.



Beep Volume = Low



Beep Volume = Medium



Beep Volume = High



Disconnect Beep

Enables/disables the beep indication that a handheld has become connected or disconnected from a Base Station.



The defaults are different for the STAR and BT models.



Disconnect Beep = Disable



Disconnect Beep = Enable





Enter/Exit Programming Mode

4

Configuration Using Barcodes

Docking Beep

Enables/disables a beep indication when the handheld is placed in the Base Station.



Docking Beep = Disable



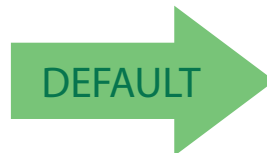
Docking Beep = Enable



Leash Alarm

This setting specifies the number of seconds to sound the Leash Mode beeps (three per second) when the handheld goes out of range. This is especially useful in instances where the reader might inadvertently have been placed in a bag or cart.

For this mode to be effective, the reader must be linked to the Base Station. If the reader is asleep or disconnected from the Base Station, there is no way for it to know where it is relative to the Base Station because communication is not active between the devices.



Leash Alarm = Disabled



Leash Alarm = 1 Second



Leash Alarm = 2 Seconds



Leash Alarm = 3 Seconds



Leash Alarm = 4 Seconds



Enter/Exit Programming Mode

4 Configuration Using Barcodes



Leash Alarm = 5 Seconds



Leash Alarm = 10 Seconds



Leash Alarm = 25 Seconds



Leash Alarm = 30 Seconds



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Configuration Updates

See [page 251](#) in “References” for detailed information and examples of these features.

Automatic Configuration Update

When this feature is enabled, a reader and its linked Base Station can automatically ensure they stay in sync with regard to application hardware and/or configuration.



Automatic Configuration Update = Disable



Automatic Configuration Update = Enable



Copy Configuration to Reader

Scan the following label to copy the current Base Station configuration to the reader. Use this method when the Auto Configuration Update feature is disabled and you want a one-time configuration update to be performed on the reader.



Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this barcode.



Copy Configuration to Reader

Copy Configuration to Base Station

Scan the following label to copy the current reader configuration to the Base Station. Use this method when the Auto Configuration Update feature is disabled and you want a one-time configuration update to be performed on the Base Station.



Copy Configuration to Base Station



Do not scan an ENTER/EXIT PROGRAMMING MODE label with this barcode.



Enter/Exit Programming Mode

4

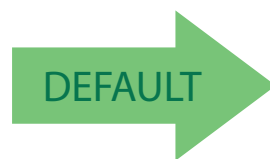
Configuration Using Barcodes

Batch Features

Batch Mode

This option specifies whether to store labels in the handheld while disconnected from the base. Options are as follows:

- Disabled — The handheld will not store/batch labels.
- Automatic — The handheld will store labels to RAM when the handheld goes out of range and is disconnected from the remote device.
- Manual — The handheld will always store labels to Flash memory. The user must manually send the stored labels to the remote device using a special "batch send" label.



Batch Mode = Disabled



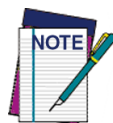
Batch Mode = Automatic



Batch Mode = Manual

Send Batch

When the reader is configured in Manual Batch Mode, use the following barcode to initiate sending of labels stored in batch memory.



Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this barcode.



Send Batch



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Erase Batch Memory

When the reader is configured in Manual Batch Mode, use the following barcode to erase any labels stored in batch memory.



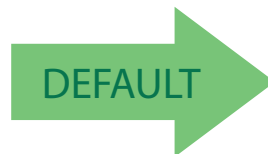
Do not scan an ENTER/EXIT PROGRAMMING MODE label in conjunction with this barcode.



Erase Batch Memory

RF Batch Mode Transmit Delay

Specifies the delay in 10 msec increments between transmitting labels stored in batch memory.



RF Batch Mode Transmit Delay = No Delay



RF Batch Mode Transmit Delay = 50 mS



RF Batch Mode Transmit Delay = 100 mS



RF Batch Mode Transmit Delay = 0.5 seconds



RF Batch Mode Transmit Delay = 1 second



RF Batch Mode Transmit Delay = 2.5 seconds



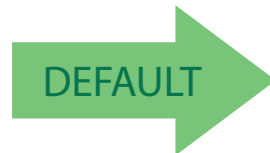
Enter/Exit Programming Mode

4

Configuration Using Barcodes

Direct Radio Autolink

This feature enables/disables the ability to link a wireless handheld to a base station without reading the Unlink label first.



Direct Radio Link = Unlink Label Required



Direct Radio Link = Automatic Unlinking

4.10.1 Bluetooth-Only Features

The features following in this section are valid only for QuickScan Bluetooth models. Also reference the Setup section for instructions on [Linking a BT Reader to a PC, starting on page 26](#).

RF Address Stamping

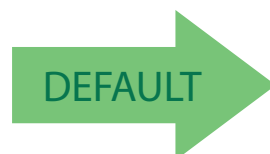
These features allow configuration of source radio data inclusion.

Source Radio Address Transmission

Enables/disables the ability of source radio address information to be transmitted to the host and, if so, at what position with respect to the label data. See [page 251](#) in “References” for detailed information and examples for setting this feature.



When included as a prefix, the source-radio ID is displayed after all label formatting has been applied. The 6 byte hex address is sent as 12 ascii characters, i.e., an address of 00 06 66 00 1A ED will be sent as (shown in hex):
30 30 30 36 36 36 30 30 31 41 45 44



Source Radio Address Transmission = Do Not Include



Source Radio Address Transmission = Prefix



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Source Radio Address Delimiter Character

This option specifies the delimiter character to be placed between the label data and radio address when address stamping is enabled.



This feature only applies if "Source Radio Address Transmission" on page 217 is enabled.



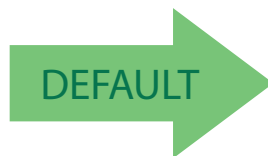
Set Source Radio Address Delimiter Character

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



00 = No Delimiter Character

Link Timeout

This feature specifies the wait time in one-second ticks for response from the remote. The selectable timeout range is 01 to 40 (01-0x28) seconds in one second increments.

See [page 228](#) for more information on setting this feature.



Set Link Timeout

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) representing your desired character(s). End by reading the ENTER/EXIT barcode again.

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



CANCEL



4

Configuration Using Barcodes

DEFAULT

02 Link Timeout value is 2 seconds

BT Security Features

On the BT system, it is possible to set a (configurable) PIN code to authenticate/connect BT devices, and encrypt the data.

The BT PIN code can be enabled and configured by reading the barcodes in the following sections.



If you are using a BT reader directly connected to a host through a BT dongle, verify that the reader and the BT driver used by the dongle share the same PIN code and the same security level. Otherwise the connection cannot be established.

Follow these steps to set the PIN code for a reader:

- 1 Enable [BT Security Mode](#) by reading the “Enable” barcode below.
- 2 Select a PIN code length of either 4 or 16 characters by reading the appropriate barcode in [“Select PIN Code Length”](#) on page 220.
- 3 Scan the relevant barcode from [“Set PIN Code”](#) on page 220, then scan the desired alphanumeric characters from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) to set the PIN code.

See [page 253](#) in “References” for more detailed information and examples for this feature.

BT Security Mode

This feature enables/disables authentication and encryption of the BT link. Use the feature [“BT PIN Code”](#) on page 219 to specify the length and digits in the PIN code used to authenticate the BT Link.



Changing the security mode setting will unlink the devices. If the Automatic Configuration Update is set to the default “Enabled” setting, the devices must only be relinked.

Do not use this setting if AUTOMATIC CONFIGURATION UPDATE is set to “Disabled”! Please check if this setting is set to “Enabled” before going on.

DEFAULT



BT Security Mode = Disable



BT Security Mode = Enable

BT PIN Code

After enabling Security Mode (see [“BT Security Mode”](#) on page 219), specify whether you want to set a 4-digit or a 16-digit PIN Code. See [page 253](#) for detailed information and examples for setting this feature.

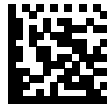


Enter/Exit Programming Mode

4

Configuration Using Barcodes

Select PIN Code Length



Select 4-character BT PIN Code



DEFAULT



Select 16-character BT PIN Code

Set PIN Code

Determine the desired characters for the PIN code, then convert to hexadecimal using the [on page 294](#) on the inside back cover of this manual. See [page 253](#) for detailed information and examples for setting this feature.



Set 4-character BT PIN Code

To configure this feature, scan the ENTER/EXIT PROGRAMMING MODE barcode above, then the barcode at left followed by the digits from the Alphanumeric characters in [Appendix 18](#), Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad, representing your desired character(s). End by reading the ENTER/EXIT barcode again.



Set 16-character BT PIN Code



CANCEL

Make a mistake? Scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.



DEFAULT

31323334 = Default PIN Code is 1234



Enter/Exit Programming Mode

4 Configuration Using Barcodes

Other BT Features

BT Poll Rate

This feature specifies the time between BT polls.



BT Poll Rate = Maximum BT Poll Rate



BT Poll Rate = 20 ms



BT Poll Rate = 100 ms



BT Poll Rate = 10 ms



BT Poll Rate = 50 ms



BT Poll Rate = 200 ms

Power Off

See [“Power Off” on page 27](#) for information about this BT feature.



Enter/Exit Programming Mode

4

Configuration Using Barcodes

Powerdown Timeout

The Powerdown Timeout feature sets the time for automatically switching the unit off when the imager has been idle.



Powerdown Timeout = Disable



Powerdown Timeout = 10 minutes



Powerdown Timeout = 20 minutes



Powerdown Timeout = 30 minutes



Powerdown Timeout = 60 Minutes (1 Hour)



Powerdown Timeout = 120 Minutes (2 Hours)

5 References

5 References

This section contains explanations and examples of selected barcode features. See [Configuration Using Barcodes, starting on page 31](#) for the actual barcode labels used to configure the reader.

RS-232 Parameters starting on page 224 - RS-232 on page 224 - RS-232/USB COM Parameters on page 225
Symbologies starting on page 231 Set Length on page 231
Data Editing starting on page 233 - Global Prefix/Suffix on page 234 - Global AIM ID on page 235 - Label ID on page 236 - Character Conversion on page 241
Reading Parameters starting on page 242 - Good Read LED Duration on page 242
Reading Features starting on page 243 - Scan Mode on page 243 - Stand Mode Off Time on page 244 - Reading Active Time on page 245 - Aiming Duration Time on page 246 - Flash On Time on page 247 - Flash Off Time on page 248 - Multiple Labels Ordering by Code Symbology on page 249
RF Features starting on page 251 - Automatic Configuration Update on page 251 - RF Address Stamping on page 252 BT Features on page 253 - BT Pin Code on page 253

5

References

5.1 RS-232 Parameters

5.1.1 RS-232

Baud Rate	Baud rate is the number of bits of data transmitted per second. Set the reader's baud rate to match the baud rate setting of the host device. With an improper baud rate setting, data may not reach the host correctly.
Stop Bits	The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream. The number of stop bits selected (one or two) depends on the number the receiving terminal is programmed to accommodate. Set the number of stop bits to match host device requirements.
Parity	This feature specifies parity required for sending and receiving data. A parity check bit is the most significant bit of each ASCII coded character. Select the parity type according to host device requirements. - Select None when no parity bit is required. - Select Odd parity and the parity bit value is set to 0 or 1, based on data, to ensure that an odd number of 1 bits are contained in the coded character. - Select Even parity and the parity bit value is set to 0 or 1, based on data, to ensure that an even number of 1 bits are contained in the coded character.
Handshaking Control	The data interface consists of an RS-232 port designed to operate either with or without the hardware handshaking lines, <i>Request to Send</i> (RTS), and <i>Clear to Send</i> (CTS). Handshaking Control includes the following options: - RTS — RTS is asserted during transmissions. CTS is ignored. - RTS/CTS — RTS is asserted during transmissions. CTS gates transmissions. - RTS/XON/XOFF — RTS is asserted during transmissions. CTS is ignored. XON and XOFF gate transmissions. - RTS On/CTS — RTS is always asserted. CTS gates transmissions. RTS/CTS Scan Control — RTS is asserted during transmissions. CTS gates transmissions and controls enable and disable state of reader.

5 References

5.1.2 RS-232/USB COM Parameters

Intercharacter Delay

This parameter specifies the intercharacter delay between the end of one character and the beginning of the next. The delay can be set within a range of zero (0) to 990 milliseconds in 10ms increments. A setting of zero specifies no delay.

To set the delay:

- 1 Determine the desired setting in milliseconds.
- 2 Divide the desired setting by 10 (setting is in 10ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
- 3 Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Go to [page 38](#) and scan the barcode: SELECT INTERCHARACTER DELAY SETTING.
- 5 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit.

This completes the procedure. See [Table Intercharacter Delay Setting Examples](#) for some examples of how to set this feature.

Intercharacter Delay Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	50ms	150ms	600ms	850ms
2	Divide by 10 (pad with leading zeroes to yield two-digits)	05	15	60	85
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT INTERCHARACTER DELAY SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '5'	'5' and '0'	'6' and '0'	'8' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

References

ACK NAK Options

This enables/disables the ability of the reader to support the RS-232 ACK/NAK protocol. When configured, the reader and/or host sends an "ACK" when it receives data properly, and sends "NAK" when the data is in error.

Options are:

- Disable
- Enable for label transmission — The reader expects an ACK/NAK response from the host when a label is sent.
- Enable for host-command acknowledge — The reader will respond with ACK/NAK when the host sends a command.
- Enable for label transmission and host-command acknowledge

ACK Character

This setting specifies an ASCII character or hex value to be used as the ACK character. ASCII characters or any hex value from 0 to 0xFF can be selected.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits on page 35](#) has been set as 7 Data Bits.

- 1 Determine the desired character or value.
- 2 Use the [on page 294](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
- 3 Go to [page 40](#) and scan ENTER/EXIT PROGRAMMING MODE to enter Programming Mode.
- 4 Scan the barcode: SELECT ACK CHARACTER SETTING.
- 5 Scan the appropriate two alphanumeric characters from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the desired character/value in [step 1](#) above. The second character will cause a two-beep indication.
- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit.

See [Table ACK Character Setting Examples](#) for some examples of how to set this feature.

ACK Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Character/ Value	ACK	\$	@	>
2	Hex equivalent from on page 294	0x06	0x24	0x40	0x3E
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT ACK CHARACTER SETTING				
5	Scan Two Characters from Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '6'	'2' and '4'	'4' and '0'	'3' AND 'E'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

References

NAK Character

This setting specifies an ASCII character or hex value to be used as the NAK character. ASCII characters or any hex value from 0 to 0xFF can be selected.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits on page 35](#) has been set as 7 Data Bits.

To set this feature:

- 1 Determine the desired character or value.
- 2 Use the on the inside back cover of this manual to find the hex equivalent for the desired character/value.
- 3 Go to [page 40](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT NAK CHARACTER SETTING.
- 5 Scan the appropriate two alphanumeric characters from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table NAK Character Setting Examples](#) for some examples of how to set this feature.

NAK Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Character/Value	NAK	\$	@	>
2	Hex equivalent from	0x15	0x24	0x40	0x3E
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT NAK CHARACTER SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'1' and '5'	'2' and '4'	'4' and '0'	'3' AND 'E'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

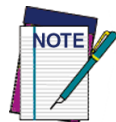
References

ACK NAK Timeout Value

This option specifies the amount of time the reader waits for an ACK character from the host following label transmission. The selectable timeout range is 200 milliseconds to 15,000ms (15 seconds) in 200ms increments. A selection of 0 disables the timeout.

To set this value:

- 1 Determine the desired setting in milliseconds.
- 2 Divide the desired setting by 200 (setting is in 200ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
- 3 Go to [page 41](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT ACK NAK TIMEOUT VALUE SETTING.
- 5 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table ACK NAK Timeout Value Setting Examples](#) for some examples of how to set this feature.

ACK NAK Timeout Value Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	200ms	1,000ms (1 sec.)	5200ms (5.2 sec.)	15,000ms (15 sec.)
2	Divide by 200	01	05	26	75
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT ACK NAK TIMEOUT VALUE SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '5'	'2' and '6'	'7' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

References

ACK NAK Retry Count

This feature specifies the number of times the reader retries a label transmission due to a retry condition. The selectable range is from 1 to 254 retries. A selection of 0 disables the count, and a selection of 255 specifies unlimited retries.

To set this feature:

- 1 Determine the desired setting.
- 2 Pad the number with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
- 3 Go to [page 42](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT ACK NAK RETRY COUNT SETTING.
- 5 Scan the appropriate three digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the number which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table ACK NAK Retry Count Setting Examples](#) for some examples of how to set this feature.

ACK NAK Retry Count Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	Disable Retry Count	3 Retries	54 Retries	Unlimited Retries
2	Pad with leading zero(es)	000	003	054	255
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT ACK NAK RETRY COUNT SETTING				
5	Scan Three Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0', '0' and '0'	'0', '0' and '3'	'0', '5' and '4'	'2', '5' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

References

Disable Character

Specifies the value of the RS-232 host command used to disable the reader. ASCII characters or any hex value from 0 to 0xFF can be selected.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits on page 35](#) has been set as 7 Data Bits.

To set the value:

- 1 Determine the desired character or value. A setting of 0xFF indicates the Disable Character is not used (not available).
- 2 Use the on the inside back cover of this manual to find the hex equivalent for the desired character/value.
- 3 Go to [page 43](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT DISABLE CHARACTER SETTING.
- 5 Scan the appropriate two alphanumeric characters from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the desired character/value in step 1 above. The second character will cause a two-beep indication.
- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Disable Character Setting Examples](#) for some examples of how to set this feature.

Disable Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired character/value	'd'	'j'	'D'	Disable Command Not Used
2	Hex equivalent from	0x64	0x7D	0x44	0xFF
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT DISABLE CHARACTER VALUE SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'6' and '4'	'7' and 'D'	'4' and '4'	'F' AND 'F'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5 References

Enable Character

Specifies the value of the RS-232 host command used to enable the reader. ASCII characters or any hex value from 0 to 0xFF can be selected.



Setting to previously defined characters such as XON, XOFF, or host commands conflicts with normal operation of these characters. 8-bit data is not recognized when the option [Data Bits on page 35](#) has been set as 7 Data Bits.

To set this feature:

Determine the desired character or value. A setting of 0xFF indicates the Enable Character is not used (not available).

- 1 Determine the desired character or value.
- 2 Use the [on page 294](#) on the inside back cover of this manual to find the hex equivalent for the desired character/value.
- 3 Go to [page 44](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT ENABLE CHARACTER SETTING.
- 5 Scan the appropriate two alphanumeric characters from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the desired character/value in step 2 above. The second character will cause a two-beep indication.
- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Enable Character Setting Examples](#) for some examples of how to set this feature.

Enable Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired character/value	'e'	'}'	'E'	Enable Command Not Used
2	Hex equivalent from	0x65	0x7D	0x45	0xFF
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT ENABLE CHARACTER VALUE SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'6' and '5'	'7' and 'D'	'4' and '5'	'F' AND 'F'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5.2 Symbologies

5.2.1 Set Length

Length Control allows you to select either variable length decoding or fixed length decoding for the specified symbology.

Variable Length: For variable length decoding, a minimum and maximum length may be set.

Fixed Length: For fixed length decoding, two different lengths may be set.

Set Length 1

This feature specifies one of the barcode lengths for Length Control. Length 1 is the minimum label length if in Variable Length Mode, or the first fixed length if in Fixed Length Mode. Length includes the barcode's data characters only.

The number of characters that can be set varies, depending on the symbology. Reference the page for your selected symbology to see specific variables.

- 1 Determine the desired character length (varies depending on symbology). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
- 2 Go to the Set Length page for your selected symbology and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 3 Scan the barcode to SELECT LENGTH 1 SETTING for your selected symbology.
- 4 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 5 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Prog Mode.

Set Length 2

This feature allows you to set one of the barcode lengths for the specified symbology. Length 2 is the maximum label length if in [Variable Length: For variable length decoding, a minimum and maximum length may be set. on page 231](#) Mode, or the second fixed length if in [Fixed Length: For fixed length decoding, two different lengths may be set. on page 231](#) Mode. See the page for the specific symbology for parameters.

The length that can be set varies depending on the symbology. A setting of 0 specifies to ignore this length (only one fixed length).

Follow these instructions to set this feature:

- 1 Determine the desired character length (from 1 to 50 — or 0 to ignore this length). Pad the number with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
- 2 Go to the Set Length page for your selected symbology and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 3 Scan the barcode to SELECT LENGTH 2 SETTING for your selected symbology.
- 4 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) that represent the length setting which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake, before the last character scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 5 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.
This completes the procedure.

5 References

5.3 Data Editing

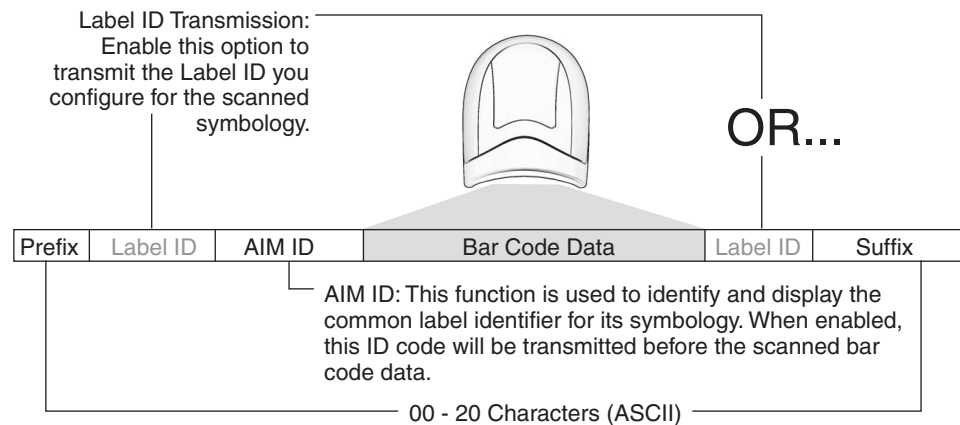


It is not recommended to use these features with IBM interfaces.

When a barcode is read, additional information can be sent to the host computer along with the barcode data. This combination of barcode data and supplementary user-defined data is called a “message string.” The Data Editing features can be used to build specific user-defined data into a message string.

There are several types of selectable data characters that can be sent before and after readed data. You can specify if they should be sent with all symbologies, or only with specific symbologies. Figure 1: shows the available elements you can add to a message string:

Figure 1: Breakdown of a Message String



Additional advanced editing is available. Please contact Technical Support (as described on [page 15](#)) for more information.

Please Keep In Mind...

- Modifying a message string is not a mandatory requirement. Data editing is a sophisticated feature allowing highly customizable output for advanced users. Factory default settings for data editing is typically set to NONE.
- A prefix or suffix may be applied only to a specified symbology (reference [1D Code Selection, starting on page 87](#)) or across all symbologies (set via the Global features in this chapter).
- You can add any character from the [on page 294](#) (from 00-FF) on the inside back cover of this manual as a prefix, suffix or Label ID.
- Enter prefixes and suffixes in the order in which you want them to appear on the output.

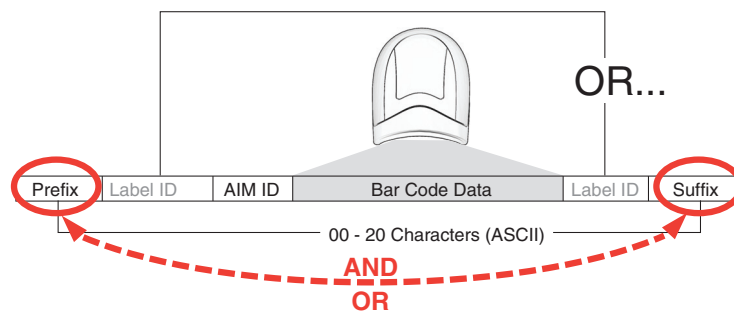
5

References

5.3.1 Global Prefix/ Suffix

Up to 20 ASCII characters may be added as a prefix (in a position before the barcode data) and/or as a suffix (in a position following the barcode data) as indicated in Figure 2:.

Figure 2: Prefix and Suffix Positions



Example: Setting a Prefix

In this example, we'll set a prefix for all symbologies.

- 1 Determine which ASCII character(s) are to be added to readed barcode data. In this example, we'll add a dollar sign ('\$') as a prefix.
- 2 Go to [page 57](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode, then scan the SET GLOBAL PREFIX barcode.
- 3 Reference the [on page 294](#) on the inside back cover of this manual to find the hex value assigned to the desired character. The corresponding hex number for the '\$' character is 24. To enter this selection code, scan the '2' and '4' barcodes from [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad..](#)



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 4 If less than the expected string of 20 characters are selected, scan the ENTER/EXIT barcode to terminate the string.
- 5 Scan the ENTER/EXIT barcode once again to exit Programming Mode.
- 6 The resulting message string would appear as follows:
 Readed barcode data: **12345**
 Resulting message string output: **\$12345**

5 References

5.3.2 Global AIM ID



This feature enables/disables addition of AIM IDs for all symbology types.

AIM label identifiers (as opposed to custom characters you select yourself as with label identifiers) can be included with readed barcode data. AIM label identifiers consist of three characters as follows:

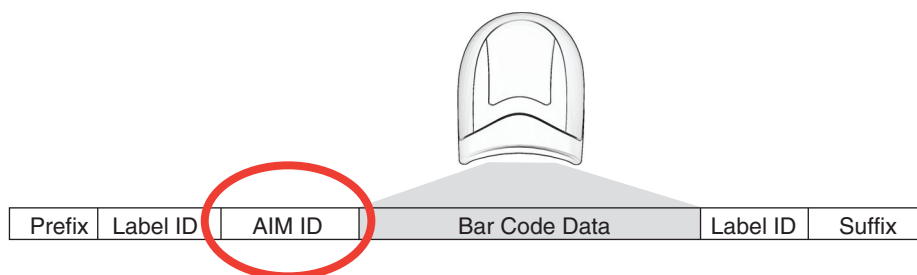
- A close brace character (ASCII '['), followed by...
- A code character (see the table below), followed by...
- A modifier character (the modifier character is symbol dependent).

SYMBOLGY	CHAR	SYMBOLGY	CHAR
UPC/EAN	E ^a	Code 128/GS1-128	C
Code 39 and Code 32	A	DataBar Omnidirectional, DataBar Expanded	e
Codabar	F	Standard 2 of 5	S
Interleaved 2 of 5	I	ISBN	x ^b
Code 93	G	Code 11	H

a. UPC-A and UPC-E labels are converted to EAN 13 when adding AIM IDs.

b. ISBN (X with a 0 modifier character)

Figure 3: AIM ID



5

References

5.3.3 Label ID

A Label ID is a customizable code of up to three ASCII characters (each can be one of hex 0x01-0xFF), used to identify a barcode (symbology) type. It can be appended previous to or following the transmitted barcode data depending upon how this option is enabled. This feature provides options for configuring custom Label IDs as a pre-loaded set (see "Label ID: Pre-loaded Sets" below) or individually per symbology (see "[Label ID: Set Individually Per Symbology](#)" on page 238). If you wish to program the reader to always include an industry standard label identifier for ALL symbology types, see "[Global AIM ID](#)" on page 58.

Label ID: Pre-loaded Sets

The reader supports two pre-loaded sets of Label IDs. shows the USA and the EU sets.



CAUTION

When changing from one Label ID set to another, all other reader configuration settings, including the host interface type, will be erased and set to the standard factory defaults. Any custom configuration or custom defaults will be lost.

Label ID Pre-loaded Sets

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
ABC CODABAR	S	530000	S	530000
ANKER PLESSEY	o	6F0000	o	6F0000
AZTEC	Az	417A00	!	210000
CHINA SENSIBLE CODE	\$S	245300	\$S	245300
CODABAR	%	250000	R	520000
CODE11	CE	434500	b	620000
CODE128	#	230000	T	540000
CODE32	A	410000	X	580000
CODE39	*	2A0000	V	560000
CODE39 CIP	Y	590000	Y	590000
CODE39 DANISH PPT	\$Y	245900	\$Y	245900
CODE39 LAPOSTE	\$a	246100	\$a	246100
CODE39 PZN	\$Z	245A00	\$Z	245A00
CODE93	&	260000	U	550000
CODE NW7	\$N			
DATABAR 14	R4	523400	u	750000
DATABAR 14 COMPOSITE	R4	523400	c	523400
DATABAR EXPANDED	RX	525800	t	740000
DATABAR EXPANDED COMPOSITE	RX	525800	d	525800
DATABAR LIMITED	RL	524C00	v	760000
DATABAR LIMITED COMPOSITE	RL	524C00	i	524C00
DATA MATRIX	Dm	446D00	w	770000
EAN128		000000	k	6B0000

5 References

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
EAN128 COMPOSITE		000000	\$E	244500
EAN13	F	460000	B	420000
EAN13 P2	F	460000	L	4C0000
EAN13 P5	F	460000	M	4D0000
EAN13 COMPOSITE	F	460000	\$F	244600
EAN8	FF	464600	A	410000
EAN8 P2	FF	464600	J	4A0000
EAN8 P5	FF	464600	K	4B0000
EAN8 COMPOSITE	FF	464600	\$G	244700
FOLLET 2OF5	O	4F0000	O	4F0000
GTIN	G	470000	\$A	244100
GTIN2	G2	473200	\$B	244200
GTIN5	G5	473500	\$C	244300
I2OF5	i	690000	N	4E0000
I2OF5 CIP HR	e			
IATA INDUSTRIAL 2OF5	IA	494100	&	260000
INDUSTRIAL 2OF5	W	570000	W	570000
ISBN	I	490000	@	400000
ISBT128 CONCAT	f	660000	f	660000
ISSN	n	6E0000	n	6E0000
MATRIX 2OF5	g			
MAXICODE	MC	4D4300	x	780000
MICRO QR	\$Q	245100	\$Q	245100
MICRO PDF	mP	6D5000	8	380000
MSI	@	400000	Z	5A0000
PDF417	P	500000	r	720000
PLESSEY	a	610000	a	610000
POSTAL AUSTRALIAN	\$K	244B00	\$K	244B00
POSTAL IMB	\$V	245600	\$V	245600
POSTAL JAPANESE	\$R	245200	\$R	245200
POSTAL KIX	\$U	245500	\$U	245500
POSTAL PLANET	\$W	245700	\$W	245700
POSTAL PORTUGAL	\$P	245000	\$P	245000
POSTAL POSTNET BB	\$L	244C00	\$L	244C00

5

References

Symbology	USA Label ID set		EU Label ID set	
	Default Character	Default ASCII	Default Character	Default ASCII
POSTAL ROYAL MAIL	\$M	244D00	\$M	244D00
POSTAL SWEDISH	\$X	245800	\$X	245800
POSTNET	1	310000	1	310000
QR CODE	QR	515200	y	790000
S25	s	730000	P	500000
TRIOPTIC	\$T	245400	\$T	245400
UPCA	A	410000	C	430000
UPCA P2	A	410000	F	460000
UPCA P5	A	410000	G	470000
UPCA COMPOSITE	A	410000	\$H	244800
UPCE	E	450000	D	440000
UPCE P2	E	450000	H	480000
UPCE P5	E	450000	I	490000
UPCE COMPOSITE	E	450000	\$J	244A00

Label ID: Set Individually Per Symbology

To configure a Label ID individually for a single symbology:

- 1 Go to [page 61](#) and scan the ENTER/EXIT barcode.
- 2 Select Label ID position as either BEFORE (Enable as Prefix) or AFTER (Enable as suffix) by reading the appropriate barcode in the section "[Label ID Control](#)" on page 61. Reference Figure 4: for Label ID positioning options if multiple identification features are enabled.
- 3 Scan a barcode to select the symbology for which you wish to configure a custom Label ID from the section "[Label ID Symbology Selection – 1D Symbologies](#)" on page 62.
- 4 Determine the desired character(s) (you may choose up to three) which will represent the Label ID for the selected symbology.
- 5 Turn to the [on page 294](#) on the inside back cover of this manual and find the equivalent hex digits associated with your choice of Label ID. For example, if you wish to select an equal sign (=) as a Label ID, the chart indicates its associated hex characters as 3D. Turn to [Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad., starting on page 281](#) and scan the barcodes representing the hex characters determined. For the example given, the characters '3' and 'D' would be read. More examples of Label ID settings are provided in [Table Label ID Examples](#).



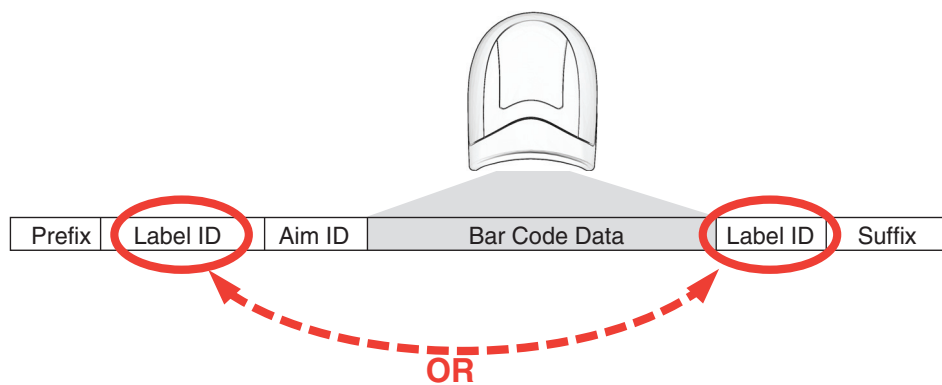
If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT barcode to exit Label ID entry.
- 7 Scan the ENTER/EXIT barcode once again to exit Programming Mode.

This completes the steps to configure a Label ID for a given symbology.

5 References

Figure 4: Label ID Position Options



5

References

Label ID
Examples

STEP	ACTION	EXAMPLES			
1.	Scan the ENTER/EXIT barcode	(Reader enters Programming Mode)			
2.	Determine placement of the Label ID characters BEFORE or AFTER with regard to readed data using Label ID Control, starting on page 61	Enable as Prefix	Enable as Suffix	Enable as Prefix	Enable as Suffix
3.	Scan the barcode selecting the symbology type you wish to designate label ID characters for using Label ID Symbology Selection – 1D Symbologies, starting on page 62.	DataBar Omnidirectional	Code 39	Interleaved 2 of 5	Code 32
4.	Custom Label ID example (desired characters):	D B *	= C 3	+	P H
5.	Find hex equivalents from the (inside back cover), then scan in these digits/characters using the barcodes in the section: Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad., starting on page 281. If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.	44 42 2A	3D 43 33	2B	50 48
6.	Scan the ENTER/EXIT barcode	(Reader exits Label ID entry)			
7.	Scan the ENTER/EXIT barcode once again	(Reader exits Programming Mode)			
Result:		DB*[bar code data]	[bar code data]=C3	+ [bar code data]	[bar code data]PH

5.3.4 Character Conversion

Character conversion is an eight byte configuration item. The eight bytes are 4 character pairs represented in hexadecimal ASCII values. The first character in the pair is the character that will be converted. The second character in the pair is the character to convert to. If the character to convert in a pair is FF, then no conversion is done.

For example, if you have the character conversion configuration item set to the following:
41423132FFFFFFFF

The first pair is 4142 or AB (41 hex is an ASCII capital A, 42 hex is an ASCII capital B) and the second pair is 3132 or 12 (31 hex is an ASCII 1, 32 is an ASCII 2). The other two pairs are FFFF and FFFF.

With the label, AB12BA21, it would look as follows after the character conversion: BB22BB22.

The A characters were converted to B characters and the 1 characters were converted to 2 characters. Nothing is done with the last two character pairs, since they are all FF.

To set Character Conversion:

- 1 Go to [page 68](#) and scan the ENTER/EXIT barcode.
- 2 Scan the “Configure Character Conversion” barcode.
- 3 Determine the desired string. Sixteen positions must be determined as in the above example. Next, turn to the [on the inside back cover of this manual](#) and find the equivalent hex digits needed to fulfill the string.
- 4 Turn to [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) and scan the barcodes representing the hex characters determined in the previous step.
- 5 Scan the ENTER/EXIT barcode to exit Programming Mode.



If less than the expected string of 16 characters are selected, scan the ENTER/EXIT barcode twice to accept the selections and exit Programming Mode.

5

References

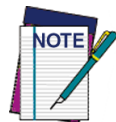
5.4 Reading Parameters

5.4.1 Good Read LED Duration

This feature specifies the amount of time that the Good Read LED remains on following a good read. The good read LED on time can be set within a range of 10 milliseconds to 2,550 milliseconds (0.001 to 2.55 seconds) in 100ms increments.

Follow these instructions to set this feature:

- 1 Determine the desired setting in milliseconds. A setting of 0 means that the good read LED stays on until the next time the trigger is pulled.
- 2 Divide the desired setting by 10 (setting is in 100ms increments). Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 000, 20 = 020, etc.
- 3 Go to [page 75](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT GOOD READ LED DURATION SETTING.
- 5 Scan the appropriate three digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Good Read LED Duration Setting Examples](#) for some examples of how to set this feature.

Good Read LED Duration Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	Good Read LED stays on until next trigger pull (00)	20ms	150ms	2550ms (2.55 sec.)
2	Divide by 10 (and pad with leading zeroes)	000	002	015	255
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT GOOD READ LED DURATION SETTING				
5	Scan Three Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0', '0' and '0'	'0', '0' and '2'	'0', '1' and '5'	'2', '5' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

References

5.5 Reading Features

5.5.1 Scan Mode

This mode is associated with typical handheld reader operation. Selects the scan operating mode for the reader. The following selections are valid for all models:

Trigger Single: When the trigger is pulled, reading is activated until one of the following occurs:

- [Reading Active Time on page 245](#) has elapsed
- a label has been read
- the trigger is released

Trigger Hold Multiple: When the trigger is pulled, reading starts and the product scans until the trigger is released or [Reading Active Time on page 245](#) has elapsed. Reading a label does not disable reading. [Double Read Timeout on page 70](#) prevents undesired multiple reads of the same label while in this mode.

Trigger Pulse Multiple: When the trigger is pulled, continuous reading is activated until [Reading Active Time on page 245](#) has elapsed or the trigger has been released and pulled again. [Double Read Timeout on page 70](#) prevents undesired multiple reads of the same label while in this mode.

Flashing: The reader flashes on and off regardless of the trigger status. Flash rate is controlled by [Flash On Time on page 80](#) and [Flash Off Time on page 81](#). When Flash is ON the imager reads continuously; when Flash is OFF reading is deactivated.

Always On: No trigger pull is required to read a barcode. Reading is continually on. If the trigger is pulled, the reader acts as if it is in Trigger Single Mode. [Double Read Timeout on page 70](#) prevents undesired multiple reads of the same label while in this mode.

Stand Mode: No trigger pull is required to read a barcode. Reading is turned on automatically when an item is placed in the reader's field of view. If the trigger is pulled, the reader acts as if it in single read mode. [Double Read Timeout on page 70](#) prevents undesired multiple reads while in this mode.

5

References

5.5.2 Stand Mode Off Time

This feature specifies the amount of time reader illumination stays off after pulling the trigger when in Stand Mode. The configurable range is 01 to 32 by 01 in increments of 500ms (500ms to 16 seconds).

Follow these instructions to set this feature:

- 1 Determine the desired setting.
- 2 Pad the result with leading zeroes to yield two digits. For example: 2 = 02, 5 = 05, 20 = 20, etc.
- 3 Go to [page 79](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: Set Stand Mode Illuminator Off Time.
- 5 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the setting which was determined in the steps above. You will hear a two-beep indication after the last character.
- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Stand Mode Off Time](#) for some examples of how to set this feature.

Stand Mode Off Time

STEP	ACTION	EXAMPLES			
1	Desired Setting	500 ms	1 Second	5.5 Seconds	16 Seconds
2	Pad leading zero	01	02	11	32
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT STAND MODE OFF TIME				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '1'	'0' and '2'	'1' and '1'	'3' and '2'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5 References

5.5.3 Reading Active Time

This setting specifies the amount of time that the reader stays in scan ON state once the state is entered. The range for this setting is from 1 to 255 seconds in 1-second increments.

Follow these instructions to set this feature:

- 1 Determine the desired setting.
- 2 Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
- 3 Go to [page 79](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT READING ACTIVE TIME SETTING.
- 5 Scan the appropriate three digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Reading Active Time Setting Examples](#) for some examples of how to set this feature.

Reading Active Time Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	1 Second	90 Sec. (1.5 min.)	180 Sec. (3 min.)	255 Seconds (4.25 min.)
2	Pad leading zero(es)	001	090	180	255
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT READING ACTIVE TIME SETTING				
5	Scan Three Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0', '0' and '1'	'0', '9' and '0'	'1', '8' and '0'	'2', '5' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

References

5.5.4 Aiming Duration Time

Specifies the frame of time the aiming pointer remains on after decoding a label, when in trigger single mode. The range for this setting is from 1 to 255 seconds in 1-second increments.

Follow these instructions to set this feature:

- 1 Determine the desired setting.
- 2 Pad the result with leading zeroes to yield three digits. For example: 0 = 000, 5 = 005, 20 = 020, etc.
- 3 Go to [page 82](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT AIMING DURATION TIME SETTING.
- 5 Scan the appropriate three digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Aiming Duration Time Setting Examples](#) for some examples of how to set this feature.

Aiming Duration Time Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	1 Second	90 Sec. (1.5 min.)	180 Sec. (3 min.)	255 Seconds (4.25 min.)
2	Pad leading zero(es)	001	090	180	255
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT AIMING DURATION TIME SETTING				
5	Scan Three Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0', '0' and '1'	'0', '9' and '0'	'1', '8' and '0'	'2', '5' and '5'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5 References

5.5.5 Flash On Time

This feature specifies the ON time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments.

Follow these instructions to set this feature.

- 1 Determine the desired setting in milliseconds.
- 2 Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
- 3 Go to [page 80](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT FLASH ON TIME SETTING.
- 5 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#) representing the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Flash On Time Setting Examples](#) for examples of how to set this feature.

Flash On Time Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	500ms	1,000ms (1 sec.)	5200ms (5.2 sec.)	9,900ms (9.9 sec.)
2	Divide by 100 (and pad with leading zeroes to yield two digits)	05	10	52	99
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT FLASH ON TIME SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '5'	'1' and '0'	'5' and '2'	'9' and '9'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5

References

5.5.6 Flash Off Time

This feature specifies the OFF time for the indicator LED while in Flash Mode. The selectable range is 100 to 9,900 milliseconds (0.1 to 9.9 seconds), in 100 millisecond increments.

Follow these instructions to set this feature.

- 1 Determine the desired setting in milliseconds.
- 2 Divide the desired setting by 100 (setting is in 100ms increments). Pad the result with leading zeroes to yield two digits. For example: 0 = 00, 5 = 05, 20 = 20, etc.
- 3 Go to [page 81](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: SELECT FLASH OFF TIME SETTING.
- 5 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the duration which was determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 6 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Flash Off Time Setting Examples](#) for some examples of how to set this feature.

Flash Off Time
Setting
Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	500ms	1,000ms (1 sec.)	5200ms (5.2 sec.)	9,900ms (9.9 sec.)
2	Divide by 100 (and pad with leading zeroes to yield two digits)	05	10	52	99
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT FLASH OFF TIME SETTING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '5'	'1' and '0'	'5' and '2'	'9' and '9'
6	Scan ENTER/EXIT PROGRAMMING MODE				

5 References

5.5.7 Multiple Labels Ordering by Code Symbology

This feature Specifies the transmission ordering by symbology type, when Multiple Labels per Frame is enabled. Up to six symbologies can be selected. Zeroes must be added to pad the string to 12 characters if not using all six symbologies.

The labels are ordered first as specified in the output mask. Labels present in the volume but not specified will be transmitted as unspecified symbologies in random order as allowed by the reading time sequence. For each label decoded in the volume the reader signals the standard beeper and LED indications.

To specify the symbology order:

- 1 Determine the symbologies and order you want to specify.
- 2 Use [Table on page 250](#) to find the hex values for up to six symbologies.
- 3 Go to [page 86](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 4 Scan the barcode: "SELECT SYMBOLOGIES FOR MULTIPLE LABELS ORDERING".
- 5 Scan the appropriate two alphanumeric characters from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the desired character/value in step 2 above.
- 6 Scan zeroes if needed to make a 12-character string.
- 7 When finished, scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.

This completes the procedure. See [Table Multiple Labels Ordering by Code Symbology Examples](#) for some examples of how to set this feature.

Multiple Labels Ordering by Code Symbology Examples

STEP	ACTION	EXAMPLES			
1	Desired symbology	Code 39	Data Matrix	Code 128	Aztec
2	Hex equivalent from on page 294	24	0E	0C	4E
3	Scan ENTER/EXIT PROGRAMMING MODE				
4	Scan SELECT SYMBOLOGIES FOR MULTIPLE LABELS ORDERING				
5	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'2' and '4'	'0' and 'E'	'0' and 'C'	'4' and 'E'
	RESULT	0x240E0C4E0000			
6	Scan ENTER/EXIT PROGRAMMING MODE				

[Table on page 250](#) shows the hex value associated with each symbology.

5

References

Symbology Hex Values

Hex Value	Symbology ID	Hex Value	Symbology ID
00	Don't care	2C	GTIN5
01	UPC-A	2D	GTIN8
02	UPC-E	2E	S2OF5
03	EAN8	2F	PDF417
04	EAN13	30	CODE11
05	UPC2	31	IATA
06	UPC5	32	MICRO_PDF
07	C128_ADDON	33	GS1 DataBar_LIM_ID
0A	EAN128	34	GS1 DataBar_LIM_COMP
0B	C128_PROGRAMMING_LABEL	35	GS1 DataBar_Omnidirectional_COMP
0C	CODE128	36	GS1 DataBar_EXP_COMP
0D	FNC3_C128_LABEL	37	GENERIC_DATA
0E	DATA MATRIX	38	CC_A
0F	MAXICODE	39	CC_B
10	QRCODE	3A	CC_C
11	Reserved	3B	LABELIMAGE
12	Reserved	3C	CAPTURE_IMAGE_LABEL
13	CODE49	3D	Reserved
14	UPC-E2	3E	M2OF5
15	UPC-E5	3F	D2OF5
16	Reserved	40	PLESSEY65
17	UPC-A2	42	ISSN
18	UPC-A5	43	ISBT
19	Reserved	44	Reserved
1A	EAN82	45	TIMER_EXPIRED_EVENT

5 References

Hex Value	Symbology ID	Hex Value	Symbology ID
1B	EAN85	46	FOLLETT_2OF5
1C	Reserved	47	Reserved
1D	EAN132	48	Reserved
1E	EAN135	49	CODE39_CIP
1F	EAN138	4A	ABC_CODABAR
20	ISBN_ID	4B	I2OF5_CIP
21	TWO_LABEL_PAIR	4C	C2OF5
22	I2OF5	4D	IND2OF5
23	CODABAR	4E	AZTEC
24	CODE39	4F	UPC-E_COMP
25	PHARMAC39	50	UPC-A_COMP
26	MSI_PLESSEY	51	EAN8_COMP
27	CODE93	52	EAN13_COMP
28	RSS_EXP_ID	53	EAN128_COMP
29	RSS_14_ID	54	DATA MATRIX_PROGRAMMING_LABEL
2A	GTIN	55	LABEL_ID_MAX
2B	GTIN2	FF	INVALID_LABEL_TYPE

5.6 RF Features

5.6.1 Automatic Configuration Update

When this feature is enabled, the base station and reader will keep their configurations synchronized. If a reader's configuration is altered by reading programming labels, this change is automatically transferred and updated in a linked base station.

5

References

5.6.2 RF Address Stamping

Source Radio Address Delimiter Character

This option specifies the delimiter character to be placed between the label data and radio address when address stamping is enabled.



This feature only applies if "Source Radio Address Transmission" on page 217 is enabled.

Follow these instructions to select the delimiter character:

- 1 Determine the desired character, then find its hexadecimal equivalent on the [on page 294](#) on the inside back cover. A setting of 00 specifies no delimiter character.
- 2 Go to [page 218](#) and scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode.
- 3 Scan the barcode: SET SOURCE RADIO ADDRESS DELIMITER CHARACTER.
- 4 Scan the appropriate two digits from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), that represent the hexadecimal characters which were determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 5 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit.

Source Radio Address Delimiter Character Setting Examples

STEP	ACTION	EXAMPLES			
1	Desired Setting	No delimiter character	, (comma)	- (dash)	/ (slash)
2	Scan ENTER/EXIT PROGRAMMING MODE				
3	Scan SET SOURCE RADIO ADDRESS DELIMITER CHARACTER				
4	Scan Two Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	'0' and '0'	'2' and 'C'	'2' and 'D'	'2' AND 'F'
5	Scan ENTER/EXIT PROGRAMMING MODE				

5 References

5.6.3 BT Features

BT Pin Code

This option specifies the 4-character or 16-character pin code to be used for authentication of the BT link. To set the pin code:

- 1 Scan the ENTER/EXIT PROGRAMMING MODE barcode to enter Programming Mode, then enable "BT Security Mode" on page 219.
- 2 Specify the desired pin code length (4 or 16) by reading the appropriate barcode in "Select PIN Code Length" on page 220.
- 3 Determine the desired characters. For example, D254 or STOR12345678135M
- 4 Convert the characters to hexadecimal using the [on page 294](#) on the inside back cover of this manual.
- 5 Go to [page 219](#) and Scan the barcode: SET 4 CHAR PIN CODE or SET 16-CHAR PIN CODE.
- 6 Scan the appropriate alphanumeric characters from the keypad in [Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.](#), representing the hexadecimal entries determined in the steps above. You will hear a two-beep indication after the last character.



If you make a mistake before the last character, scan the CANCEL barcode to abort and not save the entry string. You can then start again at the beginning.

- 7 Scan the ENTER/EXIT PROGRAMMING MODE barcode to exit Programming Mode.



Changing the pin code setting will unlink the devices. If the Automatic Configuration Update is set to the default enabled setting, the devices must only be relinked.

Do not use this setting if AUTOMATIC CONFIGURATION UPDATE is set to "Disabled"! Please check this setting first before going on.

Figure 5: BT Pin Code Setting Examples

STEP	ACTION	EXAMPLES	
1	Desired Setting	D254	STOR12345678135M
2	Convert the characters to hexadecimal	44 32 35 34	53 54 4F 52 31 32 33 34 35 36 37 38 31 33 35 4D
3	Scan ENTER/EXIT PROGRAMMING MODE		
4	Scan SET BT PIN CODE		
5	Scan 8 or 32 Alphanumeric Characters From Appendix 18, Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.	44323534	53544F5231323334353637383133354D
6	Scan ENTER/EXIT PROGRAMMING MODE		

6 Appendix A: Technical Specifications

6 Appendix A: Technical Specifications

This section contains Physical and Performance Characteristics, User Environment and Regulatory information.

Item	Description	
	BVS HS-QC (cable models)	BVS HS-QB (bluetooth models)
Physical Characteristics		
Color	Black & White	
Dimensions	Height 163 mm Length 91 mm Width 41 mm	
Weight (without cable)	Approximately 5.1 ounces/145 g	Approximately 200 g (reader) 230 g (base charger)
Electrical Characteristics		
Voltage & Current	Input Voltage: 4.5 - 14.0VDC	N/A
	Operating (typical): 140mA	N/A
	Operating (max): 380mA	N/A
	Idle/standby (typical): 50mA	N/A
Battery Type	N/A	Li-Ion battery pack
Typical charge time for full charge from full discharge	N/A	6 hours with Host Power through the micro USB cable connection
	N/A	4 hours with Base and 12V external power supply adapter ^a
	N/A	Max 22 hours with Base and Host power (in this case no supply adapter is needed) ^a
Operating autonomy (continuous reading)	N/A	30,000 reads (typical)
Cradle consumption and DC input supply range	Volt 4.75-14 VDC; Power <8W ^b ; I _{max} 500mA when in host/bus powered mode ^b .	

a. Charge Times are much lower when battery is within daily typical operating condition.

b. Typical input current measured under factory default configuration.

Item	Description
Performance Characteristics	
Light Source	LEDs
Roll (Tilt) Tolerance	Up to $\pm 360^\circ$
Pitch Tolerance	$\pm 65^\circ$
Skew (Yaw) Tolerance	$\pm 60^\circ$

6 Appendix A: Technical Specifications

Item	Description
Field of View	40° Hx26° V
Print Contrast Minimum	25% minimum reflectance
Depth of Field (Typical) ^a	
Symbology	
Code 39	5mil: 0.5 - 15cm 10mil: 0 - 22cm 20mil: up to 40cm
EAN	7.5mil: 0 - 15cm 13mil: 0.5 - 35cm
PDF 417	6.6mil: 1.0 - 130cm 10mil: 0 - 21cm 15mil: 0.5 - 24cm
Data Matrix	10mil: 1.0 - 13 cm 15mil: 0 - 18cm
QR Code	10mil: 0.5 - 13cm 15mil: 0 - 18cm
Minimum Element Width	Standard Range: 1D Minimum Resolution = 4 mil PDF-417 Minimum Resolution = 5 mil Data Matrix Minimum Resolution = 7.5 mil

a. 13 mils DOF based on EAN. All other 1D codes are Code 39. All labels grade A, typical environmental light, 20°C, label inclination 10°

Item	Description
Decode Capability	1D Barcodes UPC/EAN/JAN (A, E, 13, 8); UPC/EAN/JAN (including P2 /P5); UPC/EAN/JAN (including; ISBN /Bookland & ISSN); UPC/EAN Coupons; Code 39 (including full ASCII); Code 39 Trioptic; Code39 CIP (French Pharmaceutical); LOGMARS (Code 39 w/ standard check digit enabled); Danish PPT; Code 32 (Italian Pharmacode 39); Code 128; Code 128 ISBT; Interleaved 2 of 5; Standard 2 of 5; Interleaved 2 of 5 CIP (HR); Industrial 2 of 5; Discrete 2 of 5; IATA 2of5 Air cargo code; Code 11; Codabar; ABC Codabar; Code 93; MSI; PZN; Plessey; Anker Plessey; Follett 2 of 5; GS1 DataBar Omnidirectional; GS1 DataBar Limited; GS1 DataBar Expanded; GS1 DataBar Truncated; DATABAR Expanded Coupon.
	2D / Stacked Codes The BVS HS-Q Series reader is capable of decoding the following symbologies using multiple frames (i.e. Multi-Frame Decoding): PDF-417; QR Code; Aztec; Data Matrix; Inverse Data Matrix; Data Matrix is configurable for the following parameters: Normal or Inverted; Square or Rectangular Style; Data length (1 - 3600 characters); Maxicode; QR Codes (QR and Multiple QR Codes); Aztec; Postal Codes; Australian Post; Japanese Post; KIX Post; Planet Code; Postnet; Royal Mail Code (RM45CC); Intelligent Mail Barcode (IMB); Sweden Post; Portugal Post; LaPoste A/R 39; 4-State Canada; PDF-417; Micro PDF417; GS1 Composites (1 - 12); French CIP13 ^a ; GS1 DataBar Stacked; GS1 DataBar Stacked Omnidirectional; GS1 DataBar Expanded Stacked; GS1 Databar Composites; Chinese Sensible Code; Inverted 2D codes ^b . Note: The reader can apply the Normal/Reverse Decoding Control to the following symbologies: Data Matrix, QR, Aztec and Chinese Sensible Code.
Interfaces Supported^c	RS-232, USB Com Std., USB Keyboard, USB OEM

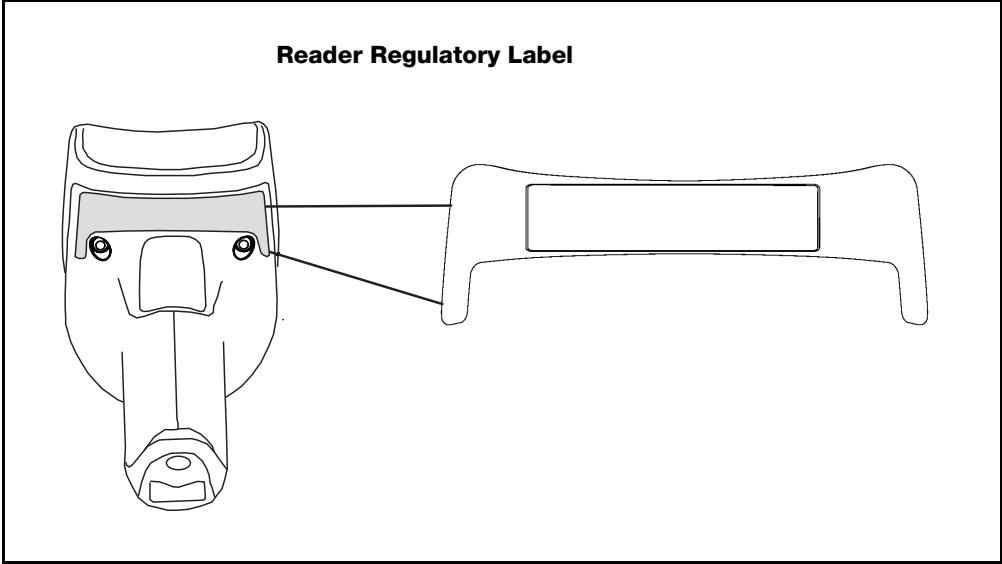
- a. It is acceptable to handle this with ULE
- b. The SW can apply the Normal/Reverse Decoding Control to the following symbologies: Datamatrix, QR, Micro QR, Aztec and Chinese Sensible Code
- c. See ["Interface Selection"](#) on page 27 for a listing of available interface sets by model type

6 Appendix A: Technical Specifications

Item	Description
User Environment	
Operating Temperature	0° to 50° C
Storage Temperature	-40° to 70 °C
Humidity	Operating: 0% to 95% relative humidity, non-condensing
Drop Specifications	Reader withstands 18 drops from 1.5 meters (5.0 feet) to concrete
Ambient Light Immunity	Up to 86,000 Lux
Contaminants Spray/ Rain/Dust/Particulates	IEC 529-IP42
ESD Level	16 KV
Regulatory	
For Regulatory approvals please refer to the chapter regulatory addendum of the specific BVS HS-Q quick guides.	

6 Appendix A: Technical Specifications

6.1 Imager Labeling Sample labels are shown here to illustrate their location only. Please view the labels on your product for actual details, as they may vary from those depicted.



CAUTION

The BVS HS Q-series Handheld Reader is not user-serviceable. Opening the case of the unit can cause internal damage and will void the warranty.

Radio Features

Radio Features	BT
Frequency Range	2400 to 2483.5 MHz
Range (in open air)	25 m



For Star Models: Max number of devices per base station = 16

6 Appendix A: Technical Specifications

6.2 Standard Cable Pinouts

[Standard Cable Pinouts: Handheld](#), [Standard Cable Pinouts: Base Station](#) and [Table Standard Cable Pinouts — Handheld \(BVS HS QC ... model\) or Base Station Side](#) provide standard pinout information for the interface cable.

Figure 1: Standard Cable Pinouts: Handheld

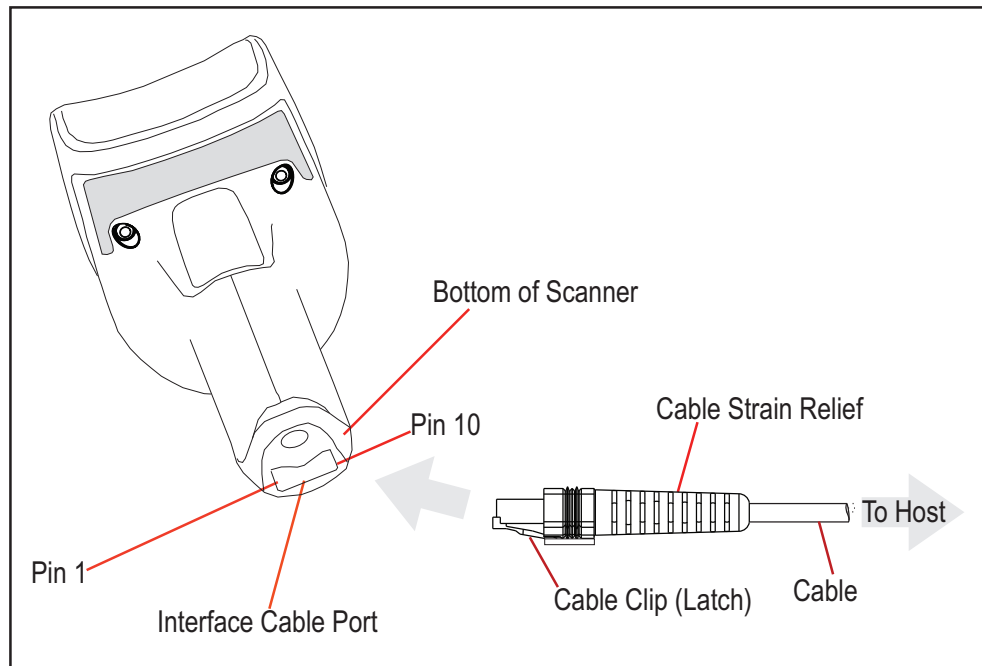
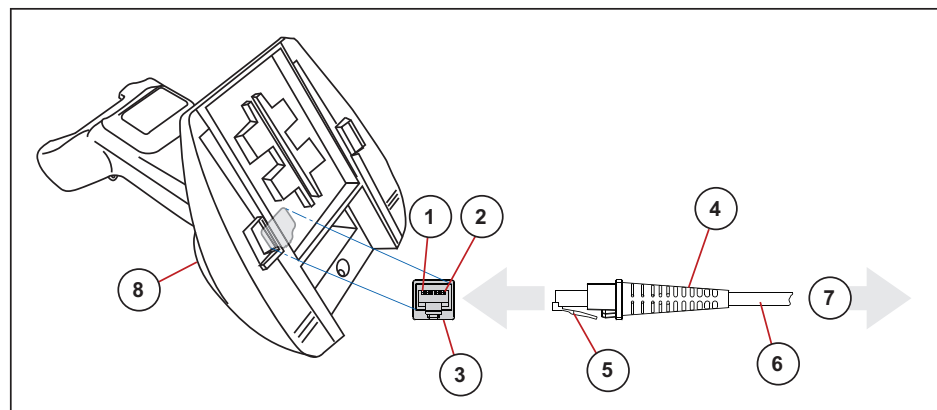


Figure 2: Standard Cable Pinouts: Base Station



The signal descriptions in [Table Standard Cable Pinouts — Handheld \(BVS HS QC ... model\) or Base Station Side](#) apply to the connector on the reader and are for reference only.

6 Appendix A: Technical Specifications

Standard Cable
 Pinouts —
 Handheld (BVS
 HS QC ... model)
 or Base Station
 Side

Pin	RS-232	OEM	USB
1	RTS (out)		
2			D+
3			D-
4	GND	GND	GND
5	RX		
6	TX		
7	VCC	VCC	VCC
8		IBM_B	
9		IBM_A	
10	CTS (in)		

6 Appendix A: Technical Specifications

- 6.3 LED and Beeper Indications** The reader's beeper sounds and its LED illuminates to indicate various functions or errors on the reader. An optional "Green Spot" also performs useful functions. The tables below list these indications. One exception to the behaviors listed in the tables is that the reader's functions are programmable, and may or may not be turned on. For example, certain indications such as the power-up beep can be disabled using programming barcode labels.

LED and Beeper Indications

INDICATION	DESCRIPTION	LED	BEEPER
Power-up Beep	The reader is in the process of powering-up.		Reader beeps four times at highest frequency and volume upon power-up.
Good Read Beep	A label has been successfully read by the reader.	LED behavior for this indication is configurable via the feature Good Read: When to Indicate on page 71	The reader will beep once at current frequency, volume, mono/bi-tonal setting and duration upon a successful label scan.
ROM Failure	There is an error in the reader's software/programming	Flashes	Reader sounds one error beep at highest volume.
Limited Reading Label Read	Indicates that a host connection is not established when the IBM or USB interface is enabled.	N/A	Reader 'chirps' six times at the highest frequency and current volume.
Reader Active Mode	The reader is active and ready to scan.	The LED is lit steadily ^a	N/A
Reader Disabled	The reader has been disabled by the host.	The LED blinks continuously	N/A
Green Spot is on continuously	While in Stand Mode or Trigger Stand Mode the green spot shall be on while in stand watch state.	N/A	N/A
Green Spot ^a flashes momentarily	Upon successful read of a label, the software shall turn the green spot on for the time specified by the configured value.	N/A	N/A
Image Capture	When ready to capture image	Blue light flashes 2 times when updating	N/A

a. Except when in sleep mode or when a [Good Read LED Duration on page 75](#) other than 00 is selected

6 Appendix A: Technical Specifications

Programming

Mode Indications

Programming Mode - The following indications ONLY occur when the reader is in Programming Mode.			
Label Programming Mode Entry	A valid programming label has been readed.	LED blinks continuously	Reader sounds four low frequency beeps.
Label Programming Mode Rejection of Label	A label has been rejected.	N/A	Reader sounds three times at lowest frequency & current volume.
Label Programming Mode Acceptance of Partial Label	In cases where multiple labels must be readed to program one feature, this indication acknowledges each portion as it is successfully readed.	N/A	Reader sounds one short beep at highest frequency & current volume.
Label Programming Mode Acceptance of Programming	Configuration option(s) have been successfully programmed via labels and the reader has exited Programming Mode.	N/A	Reader sounds one high frequency beep and 4 low frequency beeps followed by reset beeps.
Label Programming Mode Cancel Item Entry	Cancel label has been readed.	N/A	Reader sounds two times at low frequency and current volume.

6.4 Error Codes

Upon startup, if the reader sounds a long tone, this means the reader has not passed its automatic Selftest and has entered FRU (Field Replaceable Unit) isolation mode. If the reader is reset, the sequence will be repeated. The following table describes the LED flashes/beep codes associated with an error found.

NUMBER OF LED FLASHES/ BEEPS	ERROR: All Models:	CORRECTIVE ACTION
1	Configuration	Contact Helpdesk for assistance
2	Interface PCB	
6	Digital PCB	
12	Imager	

6 Appendix A: Technical Specifications

6.5 Base Station Indications (Cordless Models ONLY)

INDICATION	LEDS
Power-up Complete	Yellow LED on
Reader Disabled by the HOST or the communication with HOST is not established	Yellow LED blinking ~1Hz
Data/labels are transmitted to the HOST	Yellow LEDs turned off for 100mSec
Programming Mode	Yellow LED blinks quickly
Configuration alignment with the handheld is in progress	Red LED blinks quickly
Battery charging in progress	Red LED on
Battery charging complete	Green LED on
Battery charger error	Green LED and Red LEDs blink alternatively ~1Hz
No handheld is placed on the cradle	Red and Green LEDs off

Base Station Button Indicators



To push the button, insert a paper clip in the hole at the label in the bottom of the Base.

BUTTON PUSH EVENT	CORDLESS	RED INDICATOR(**)	GREEN INDICATOR(**)
Push at power-up	force device connection	Off	Slow blink Fast blink
< 5 sec	Paging	Off	Fast blink
> 5 sec	Unlink	Off	Slow blink

7 Appendix B: Standard Defaults

7 Appendix B: Standard Defaults

The most common configuration settings are listed in the “Default” column of the table below. Page references are also provided for feature descriptions and programming barcodes for each parameter. A column has also been provided for recording of your preferred default settings for these same configurable features.

Standard Defaults

Parameter	Default	Your Setting	Page Number
GLOBAL INTERFACE FEATURES			
Host Commands — Obey/Ignore on page 32	Obey		32
USB Suspend Mode on page 32	Disable		32
RS-232 ONLY			
Baud Rate on page 34	9600		34
Data Bits on page 35	8 Data Bits		35
Stop Bits on page 35	1 Stop Bit		35
Parity on page 36	None		36
Handshaking Control on page 36	RTS		36
RS-232/USB-COM			
Intercharacter Delay on page 38	No Delay		38
Beep On ASCII BEL on page 38	Disable		38
Beep On Not on File on page 39	Enable		39
ACK NAK Options on page 39	Disable		39
ACK Character on page 40	'ACK'		40
NAK Character on page 40	'NAK'		40
ACK NAK Timeout Value on page 41	200 ms		41
ACK NAK Retry Count on page 42	3 Retries		42
ACK NAK Error Handling on page 42	Ignore Errors Detected		42
Indicate Transmission Failure on page 43	Enable		43
Disable Character on page 43	'D'		43
Enable Character on page 44	'E'		44
USB-OEM			
USB-OEM Device Usage on page 54	Handheld		54
USB Interface Options on page 54	Ignore Reader Configuration Host Commands		54

Parameter	Default	Your Setting	Page Number
DATA FORMAT			
Global Prefix/Suffix on page 57	No Global Prefix Global Suffix = 0x0D (CR)		57
Global AIM ID on page 58	Disable		58
Set AIM ID Individually for GS1-128 on page 60	Enable		60
Label ID: Pre-Loaded Sets on page 61	EU Set		61
Individually Set Label ID on page 61	Disable		61
Case Conversion on page 67	Disable		67
Character Conversion on page 68	No Char Conversion		68
READING PARAMETERS			
on page 69Double Read Timeout on page 70	0.6 Second		69
Power On Alert on page 71	Power-up Beep		71
Good Read: When to Indicate on page 71	After Decode		71
Good Read Beep Type on page 72	Mono		72
Good Read Beep Frequency on page 72	High		72
Good Read Beep Length on page 73	80 ms		73
Good Read Beep Volume on page 74	High		74
Good Read LED Duration on page 75	300 ms		75
READING FEATURES			
Scan Mode on page 76	Trigger Single		76
Stand Mode Indication on page 77	Disable		77
Stand Operation on page 77	Switch to Stand Mode		77
Pick Mode on page 78	Disable		78
Stand Mode Sensitivity on page 78	Medium		78
Stand Mode Illumination Off Time on page 79	2 Seconds		79
Reading Active Time on page 79	5 Seconds		79
Stand Illumination Control on page 80	OFF		80
Flash On Time on page 80	10 = Flash is ON for 1 Second		80
Flash Off Time on page 81	06 = Flash is OFF for 600ms		81
Aiming Pointer on page 81	Enable		81

Parameter	Default	Your Setting	Page Number
Aiming Duration Timer on page 82	Aiming Off After Decoding		82
Green Spot Duration on page 83	300 ms		83
Mobile Phone Mode on page 83	Enable		83
Partial Label Reading Control on page 84	Enable		84
Decode Negative Labels on page 84	Disable		84
Multiple Label Reading			
Multiple Labels per Frame on page 85	Disable		85
Multiple Labels Ordering by Code Sym- bology on page 86	Random Order		86
Multiple Labels Ordering by Code Length on page 86	Disable		86
CODE SELECTION - 1D SYMBOLOGIES			
Code EAN/UPC			
Coupon Control on page 89	Enable only UPCA coupon decoding		89
UPC-A			
UPC-A Enable/Disable on page 90	Enable		90
UPC-A Check Character Transmission on page 90	Send		90
Expand UPC-A to EAN-13 on page 91	Don't Expand		91
UPC-A Number System Character Transmission on page 91	Transmit		91
UPC-A 2D Component on page 92	2D Component Not Required		92
UPC-E			
UPC-E Enable/Disable on page 92	Enable		92
UPC-E Check Character Transmission on page 93	Send		93
UPC-E 2D Component on page 93	2D Component Not Required		93
Expand UPC-E to EAN-13 on page 94	Don't Expand		94
Expand UPC-E to UPC-A on page 94	Don't Expand		94
UPC-E Number System Character Transmission on page 95	Transmit		95
GTIN			
GTIN Formatting on page 95	Disable		95

Parameter	Default	Your Setting	Page Number
EAN 13 (Jan 13)			
EAN 13 Enable/Disable on page 96	Enable		96
EAN 13 Check Character Transmission on page 96	Send		96
EAN-13 Flag 1 Character on page 97	Transmit		97
EAN-13 ISBN Conversion on page 97	Disable		97
EAN-13 2D Component on page 98	2D Component Not Required		98
ISSN			
ISSN Enable/Disable on page 98	Disable		98
EAN 8			
EAN 8 Enable/Disable on page 99	Enable		99
EAN 8 Check Character Transmission on page 99	Send		99
Expand EAN 8 to EAN 13 on page 100	Disable		100
EAN 8 2D Component on page 100	2D Component Not Required		100
UPC/EAN Global Settings			
UPC/EAN Price Weight Check on page 101	Disable		101
UPC/EAN Quiet Zones on page 102	Two Modules		102
Add-Ons			
Optional Add-ons on page 103	Disable P2, P5 and P8		103
Optional Add-On Timer on page 104	70 ms		104
Optional GS1-128 Add-On Timer on page 106	Disable		106
Code 39			
Code 39 Enable/Disable on page 109	Enable		109
Code 39 Check Character Calculation on page 109	Disable		109
Code 39 Check Character Transmission on page 110	Send		110
Code 39 Start/Stop Character Transmission on page 110	Don't Transmit		110
Code 39 Full ASCII on page 110	Disable		110
Code 39 Quiet Zones on page 111	Small Quiet Zones on two sides		111

Parameter	Default	Your Setting	Page Number
Code 39 Length Control on page 111	Variable		111
Code 39 Set Length 1 on page 112	2		112
Code 39 Set Length 2 on page 113	50		113
Trioptic Code			
Trioptic Code Enable/Disable on page 114	Disable		114
Code 32 (Italian Pharmaceutical Code)			
Code 32 Enable/Disable on page 114	Disable		114
Code 32 Check Char Transmission on page 115	Don't Send		115
Code 32 Start/Stop Character Transmission on page 115	Don't Transmit		115
Code 39 CIP (French Pharmaceutical Code)			
Code 39 CIP Enable/Disable on page 116	Disable		116
Special Codes			
Code 39 Danish PPT Enable/Disable on page 116	Disable		116
Code 39 LaPoste Enable/Disable on page 117	Disable		117
Code 39 PZN Enable/Disable on page 117	Disable		117
Code 128			
Code 128 Enable/Disable on page 118	Enable		118
Expand Code 128 to Code 39 on page 118	Don't Expand		118
Code 128 Check Character Transmission on page 118	Don't Send		118
Code 128 Function Character Transmission on page 119	Don't Send		119
Code 128 Quiet Zones on page 119	Small Quiet Zones on two sides		119
Code 128 Length Control on page 120	Variable		120
Code 128 Set Length 1 on page 121	1		121
Code 128 Set Length 2 on page 122	80		122
GS1-128			
GS1-128 Enable on page 123	Transmit in Code 128 Data Format		123
GS1-128 2D Component on page 123	Disable		123

Parameter	Default	Your Setting	Page Number
ISBT 128			
ISBT 128 Concatenation on page 124	Disable		124
ISBT 128 Force Concatenation on page 124	Disable		124
ISBT 128 Concatenation Mode on page 125	Static		125
ISBT 128 Dynamic Concatenation Time-out on page 126	200 msec		126
Interleaved 2 of 5			
I 2 of 5 Enable/Disable on page 127	Disable		127
I 2 of 5 Check Character Calculation on page 128	Disable		128
I 2 of 5 Check Character Transmission on page 129	Send		129
I 2 of 5 Length Control on page 129	Variable		129
I 2 of 5 Set Length 1 on page 129	6		129
I 2 of 5 Set Length 2 on page 131	50		131
Interleaved 2 of 5 CIP HR			
Interleaved 2 of 5 CIP HR Enable/Disable on page 132	Disable		132
Follett 2 of 5			
Follett 2 of 5 Enable/Disable on page 132	Disable		132
Standard 2 of 5			
Standard 2 of 5 Enable/Disable on page 133	Disable		133
Standard 2 of 5 Check Character Calculation on page 133	Disable		133
Standard 2 of 5 Check Character Transmission on page 134	Send		134
Standard 2 of 5 Length Control on page 134	Variable		134
Standard 2 of 5 Set Length 1 on page 135	8		135
Standard 2 of 5 Set Length 2 on page 136	50		136
Industrial 2 of 5			
Industrial 2 of 5 Enable/Disable on page 137	Disable		137

Parameter	Default	Your Setting	Page Number
Industrial 2 of 5 Check Character Calculation on page 137	Disable		137
Industrial 2 of 5 Check Character Transmission on page 138	Enable		138
Industrial 2 of 5 Length Control on page 138	Variable		138
Industrial 2 of 5 Set Length 1 on page 139	1		139
Industrial 2 of 5 Set Length 2 on page 140	50		140
Code IATA			
IATA Enable/Disable on page 141	Disable		141
IATA Check Character Transmission on page 141	Enable		141
Codabar			
Codabar Enable/Disable on page 142	Disable		142
Codabar Check Character Calculation on page 142	Don't Calculate		142
Codabar Check Character Transmission on page 143	Send		143
Codabar Start/Stop Character Transmission on page 143	Transmit		143
Codabar Start/Stop Character Set on page 144	abcd/abcd		144
Codabar Start/Stop Character Match on page 144	Don't Require Match		144
Codabar Quiet Zones on page 145	Small Quiet Zones on two sides		145
Codabar Length Control on page 145	Variable		145
Codabar Set Length 1 on page 146	3		146
Codabar Set Length 2 on page 147	50		147
ABC Codabar on page 148	Disable		148
ABC Codabar			
ABC Codabar Enable/Disable on page 148	Disable		148
ABC Codabar Concatenation Mode on page 148	Static		148
ABC Codabar Dynamic Concatenation Timeout on page 149	200 msec		149
ABC Codabar Force Concatenation on page 150	Disable		150

Parameter	Default	Your Setting	Page Number
Code 11			
Code 11 Enable/Disable on page 151	Disable		151
Code 11 Check Character Calculation on page 151	Check C and K		151
Code 11 Check Character Transmission on page 152	Send		152
Code 11 Length Control on page 152	Variable		152
Code 11 Set Length 1 on page 153	4		153
Code 11 Set Length 2 on page 154	50		154
GS1 DataBar™ Omnidirectional			
GS1 DataBar™ Omnidirectional Enable/Disable on page 155	Disable		155
GS1 DataBar™ Omnidirectional GS1-128 Emulation on page 155	Disable		155
GS1 DataBar™ Omnidirectional 2D Component on page 156	2D component not required		156
GS1 DataBar™ Expanded			
GS1 DataBar™ Expanded Enable/Disable on page 157	Disable		157
GS1 DataBar™ Expanded GS1-128 Emulation on page 157	Disable		157
GS1 DataBar™ Expanded 2D Component on page 158	2D component not required		158
GS1 DataBar™ Expanded Length Control on page 159	Variable		159
GS1 DataBar™ Expanded Set Length 1 on page 160	1		160
GS1 DataBar™ Expanded Set Length 2 on page 161	74		161
GS1 DataBar™ Limited			
GS1 DataBar™ Limited Enable/Disable on page 162	Disable		162
GS1 DataBar™ Limited GS1-128 Emulation on page 162	Disable		162
GS1 DataBar™ Limited 2D Component on page 163	2D component not required		163
Code 93			
Code 93 Enable/Disable on page 163	Disable		163
Code 93 Check Character Calculation on page 164	Enable Check C and K		164

Parameter	Default	Your Setting	Page Number
Code 93 Check Character Transmission on page 164	Disable		164
Code 93 Length Control on page 165	Variable		165
Code 93 Set Length 1 on page 166	1		166
Code 93 Set Length 2 on page 167	50		167
Code 93 Quiet Zones on page 168	Small Quiet Zones on two sides		168
MSI			
MSI Enable/Disable on page 168	Disable		168
MSI Check Character Calculation on page 169	Enable Mod10		169
MSI Check Character Transmission on page 169	Enable		169
MSI Length Control on page 170	Variable		171
MSI Set Length 1 on page 171	1		171
MSI Set Length 2 on page 172	50		172
Plessey			
Plessey Enable/Disable on page 173	Disable		173
Plessey Check Character Calculation on page 173	Enable Plessey std. check char. verification		173
Plessey Check Character Transmission on page 174	Enable		174
Plessey Length Control on page 174	Variable		174
Plessey Set Length 1 on page 175	1		175
Plessey Set Length 2 on page 176	50		176
CODE SELECTION - 2D SYMBOLOGIES			
2D Maximum Decoding Time on page 178	350msec		178
2D Structured Append on page 179	Disable		179
2D Normal/Inverse Symbol Control on page 179	Normal		179
Aztec Code Enable / Disable on page 180	Disable		180
Aztec Code Length Control on page 180	Enable		180
Aztec Code Length Control on page 180	Variable		180
Aztec Code Set Length 1 on page 180	1		180
China Sensible Code Enable / Disable on page 183	Disable		183

7 Appendix B: Standard Defaults

Parameter	Default	Your Setting	Page Number
China Sensible Code Length Control on page 183	Variable		183
China Sensible Code Set Length 1 on page 184	1		184
China Sensible Code Set Length 2 on page 185	7,827		185
Data Matrix Enable / Disable on page 186	Enable		186
Data Matrix Square/Rectangular Style on page 186	Both Square and Rectangular style		186
Data Matrix Length Control on page 187	Variable		187
Data Matrix Set Length 1 on page 187	1		187
Data Matrix Set Length 2 on page 188	3,116		188
Maxicode Enable / Disable on page 189	Disable		189
Maxicode Primary Message Transmission on page 189	Disable		189
Maxicode Length Control on page 190	Variable		190
Maxicode Set Length 1 on page 190	1		190
Maxicode Set Length 2 on page 191	0145		191
PDF417 Enable / Disable on page 192	Enable		192
PDF417 Length Control on page 192	Variable		192
PDF417 Set Length 1 on page 193	1		193
PDF417 Set Length 2 on page 194	2,710		194
Micro PDF417 Enable / Disable on page 195	Disable		195
Micro PDF417 Code 128 GS1-128 Emulation on page 195	Micro PDF AIM ID and label type		195
Micro PDF417 Length Control on page 196	Variable		196
Micro PDF417 Set Length 1 on page 196	1		196
Micro PDF417 Set Length 2 on page 197	0366		197
QR Code Enable / Disable on page 198	Enable		198
QR Code Length Control on page 198	Variable		198
QR Code Set Length 1 on page 199	1		199
QR Code Set Length 2 on page 200	7,089		200
Micro QR Code Enable/Disable on page 201	Disable		201
Micro QR Code Length Control on page 201	Variable		201

Parameter	Default	Your Setting	Page Number
Micro QR Code Set Length 1 on page 202	0001		202
Micro QR Code Set Length 2 on page 203	0035		203
UCC Composite Enable / Disable on page 204	Disable		204
UCC Optional Composite Timer on page 205	Timer Disabled		205
Postal Code Selection on page 206	Disable all Postal codes		206
Postnet BB Control on page 207	Disable		207
WIRELESS FEATURES			
Good Transmission Beep on page 209	Enable		209
Beep Frequency on page 209Beep Frequency on page 209	Low		209
Beep Duration on page 210	80 msec		210
Beep Volume on page 211	High		211
Disconnect Beep on page 211	Enable		211
Docking Beep on page 212	Enable		212
Leash Alarm on page 212	Disable		212
Automatic Configuration Update on page 214	Enable		214
Copy Configuration to Reader on page 214	N/A		214
Copy Configuration to Base Station on page 214	N/A		214
Batch Mode on page 215	Disable		215
Send Batch on page 215	N/A		215
Erase Batch Memory on page 216	N/A		216
RF Batch Mode Transmit Delay on page 216	No Delay		216
Direct Radio Autolink on page 217	Unlink Label Required		217
Features for BT Models Only			
Source Radio Address Transmission on page 217	Do not include		217
Source Radio Address Delimiter Character on page 218	No Delimiter Character		218
Link Timeout on page 218	2 Seconds		218
BT Security Features			

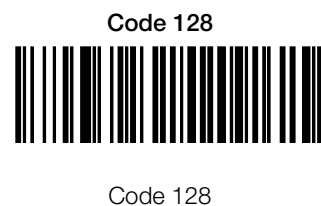
7 Appendix B: Standard Defaults

Parameter	Default	Your Setting	Page Number
BT Security Mode on page 219	Disable		219
Select PIN Code Length on page 220	4-character BT PIN Code		220
Set PIN Code on page 220	31323334 = Default Pin Code is 1234		220
BT Poll Rate on page 221	20 ms		221
Powerdown Timeout on page 222	30 minutes		222

8 Appendix C: Sample Barcodes

The sample barcodes in this appendix are typical representations for their symbology types.

1D Barcodes



8 Appendix C: Sample Barcodes

Codabar



13579

Code 93



ABCDEF

Code 11



123456789

GS1 DataBar™ (RSS)



GS1 DataBar™ variants must be enabled to read the barcodes below (see "GS1 DataBar™ Omnidirectional" on page 155).

GS1 DataBar™ Expanded Stacked



10293847560192837465019283746029478
450366523

GS1 DataBar™ Expanded



1234890hjio9900mnb

GS1 DataBar™ Limited



08672345650916

8 Appendix C: Sample Barcodes

GS1 DataBar™-14

GS1 DataBar™ Omnidirectional Truncated



55432198673467

GS1 DataBar™ Omnidirectional



Stacked

90876523412674

GS1 DataBar™ Omnidirectional Stacked



78123465709811

2D Barcodes

Aztec



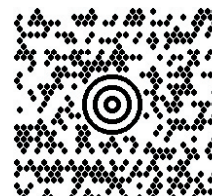
Datamatrix



China Sensible Code



MaxiCode



Test Message

PDF 417



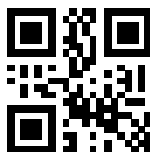
ABCabc

Micro PDF 417



BV17453

QR Code



35900G9

Micro QR Code



123456

UCC Composite

(17) 050923 (10) ABC123



(01) 0 4012345 67890 1 1

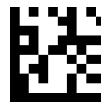
9 Appendix D: Keypad

9 Appendix D: Keypad

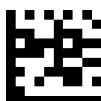
Use the barcodes in this appendix to enter numbers as you would select digits/characters from a keypad.



0



1



2



3



4



5



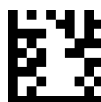
6



7



8



9



A



B



C



D



E



F

10 Appendix E: Scancode Tables

10 Appendix E: Scancode Tables

- 10.1 Control Character Emulation** Control character emulation selects from different scancode tables as listed in this appendix. Each of the control character sets below are detailed by interface type in the tables. These apply to Wedge and USB Keyboard platforms.

Control Character 00 : Characters from 00 to 0x1F are sent as control character Ctrl+Keys, special keys are located from 0x80 to 0xA1.

Control Character 01 : Characters from 00 to 0x1F are sent as control character Ctrl+Capital Key, special keys are located from 0x80 to 0xA1.

Control Character 02 : Special keys are located from 00 to 0x1F and characters from 0x80 to 0xFE are intended as an extended ASCII table (Microsoft Windows Codepage 1252 — see page 293).

- 10.1.1 Single Press and Release Keys** In the following tables, Ar↓ means Alt right pressed and Ar↑ means Alt right released and so on. Definitions for other keys are Al (Alt left), Cr (Control right) Cl (Control left) Sh (Shift). This method can be used for combining Alt, Control or Shift with other keys.

Example

Consider a Control character set to 00. If AltRight+A is required before sending a label to the host, it could be done by setting three Prefix keys in this way: 0x99 0x41 0x9A.

10 Appendix E: Scancode Tables

Interface Type, USB-Keyboard or USB-Keyboard for APPLE

Scancode Set
When Control
Character is 00
or 01

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+ A	STX C(S)+ B	ETX C(S)+ C	EOT C(S)+ D	ENQ C(S)+ E	ACK C(S)+ F	BEL C(S)+ G	BS	HT TAB	LF C(S)+ J	VT C(S)+ K	FF C(S)+ L	CR Enter	SO C(S)+ N	SI C(S)+ O
1x	DLE C(S)+ P	DC1 C(S)+ Q	DC2 C(S)+ R	DC3 C(S)+ S	DC4 C(S)+ T	NAK C(S)+ U	SYN C(S)+ V	ETB C(S)+ W	CAN C(S)+ X	EM C(S)+ Y	SUB C(S)+ Z	ESC Esc	FS C+\ [	GS C+] ,	RS C+^ _	US C(S)+ ~
2x	<u>SP</u>	<u>!</u>	<u>"</u>	<u>#</u>	<u>\$</u>	<u>%</u>	<u>&</u>	<u>'</u>	<u>(</u>	<u>)</u>	<u>*</u>	<u>±</u>	<u>·</u>	<u>=</u>	<u>~</u>	<u>/</u>
3x	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>:</u>	<u>;</u>	<u>≤</u>	<u>≡</u>	<u>≥</u>	<u>?</u>
4x	<u>@</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>	<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>O</u>
5x	<u>P</u>	<u>Q</u>	<u>R</u>	<u>S</u>	<u>T</u>	<u>U</u>	<u>V</u>	<u>W</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>[</u>	<u>\</u>	<u>]</u>	<u>^</u>	<u>-</u>
6x	<u>`</u>	<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>	<u>e</u>	<u>f</u>	<u>g</u>	<u>h</u>	<u>i</u>	<u>j</u>	<u>k</u>	<u>l</u>	<u>m</u>	<u>n</u>	<u>o</u>
7x	<u>p</u>	<u>q</u>	<u>r</u>	<u>s</u>	<u>t</u>	<u>u</u>	<u>v</u>	<u>w</u>	<u>x</u>	<u>y</u>	<u>z</u>	<u>{</u>	<u> </u>	<u>}</u>	<u>~</u>	<i>Del</i>
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Hom e	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑		‘	f	„	...	†	‡	^	%o	Š	◀	Š	◀	Œ	
Bx	°	±	²	³	´	µ	¶	·	,	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð		Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

Extended characters (sky blue) are sent through dedicated keys (when available in the selected country mode) or by using an Alt Mode sequence.

10 Appendix E: Scancode Tables

Interface Type, USB-Keyboard or USB-Keyboard for APPLE (continued)

Scancode Set
When Control
Character is 02

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter Keyp d	Enter	Ins	Pg Up
1x	Pg Dwn	Hom e	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Spac e	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{		}	~	<i>Del</i>
8x	€		‘	<i>f</i>	„	...	†	‡	^	%o	Š	<	Š	<	Œ	
9x		‘	’	“	”	•	—	—	~	™	š	>	œ		ž	ÿ
Ax	NBS P	ı	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯
Bx	°	±	²	³	´	µ	¶	·	,	¹	º	»	¼	½	¾	¿
Cx	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
Dx	Ð		Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
Ex	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
Fx	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

10 Appendix E: Scancode Tables

Interface type USB-Keybaord Alt Mode

Scancode Set
 When Control
 Character is 00
 or 01

	x0	x1	x2	x3	x4	x5	X6	x7	x8	x9	xA	xB	xC	xD	xE	Xf
0x	Alt+0 00	Alt+0 01	Alt+0 02	Alt+0 03	Alt+0 04	Alt+0 05	Alt+0 06	Alt+0 07	BS	HT TAB	Alt+0 10	Alt+0 11	Alt+0 12	CR Enter	Alt+0 14	Alt+0 15
1x	Alt+0 16	Alt+0 17	Alt+0 18	Alt+0 19	Alt+0 20	Alt+0 21	Alt+0 22	Alt+0 23	Alt+0 24	Alt+0 25	Alt+0 26	ESC Esc	Alt+0 28	Alt+0 29	Alt+0 30	Alt+0 31
2x	A+0 32	A+0 33	A+0 34	A+0 35	A+0 36	A+0 37	A+0 38	A+0 39	A+0 40	A+0 41	A+0 42	A+0 43	A+0 44	A+0 45	A+0 46	A+0 47
3x	A+0 48	A+0 49	A+0 50	A+0 51	A+0 52	A+0 53	A+0 54	A+0 55	A+0 56	A+0 57	A+0 58	A+0 59	A+0 60	A+0 61	A+0 62	A+0 63
4x	A+0 64	A+0 65	A+0 66	A+0 67	A+0 68	A+0 69	A+0 70	A+0 71	A+0 72	A+0 73	A+0 74	A+0 75	A+0 76	A+0 77	A+0 78	A+0 79
5x	A+0 80	A+0 81	A+0 82	A+0 83	A+0 84	A+0 85	A+0 86	A+0 87	A+0 88	A+0 89	A+0 90	A+0 91	A+0 92	A+0 93	A+0 94	A+0 95
6x	A+0 96	A+0 97	A+0 98	A+0 99	A+1 00	A+1 01	A+1 02	A+1 03	A+1 04	A+1 05	A+1 06	A+1 07	A+1 08	A+1 09	A+1 10	A+1 11
7x	A+1 12	A+1 13	A+1 14	A+1 15	A+1 16	A+1 17	A+1 18	A+1 19	A+1 20	A+1 21	A+1 22	A+1 23	A+1 24	A+1 25	A+1 26	A+1 27
8x	€	Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Hom e	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑	A+0 161	A+0 162	A+0 163	A+0 164	A+0 165	A+0 166	A+0 167	A+0 168	A+0 169	A+0 170	A+0 171	A+0 172	A+0 173	A+0 174	A+0 175
Bx	A+0 176	A+0 177	A+0 178	A+0 179	A+0 180	A+0 181	A+0 182	A+0 183	A+0 184	A+0 185	A+0 186	A+0 187	A+0 188	A+0 189	A+0 190	A+0 191
Cx	A+0 192	A+0 193	A+0 194	A+0 195	A+0 196	A+0 197	A+0 198	A+0 199	A+0 200	A+0 201	A+0 202	A+0 203	A+0 204	A+0 205	A+0 206	A+0 207
Dx	A+0 208	A+0 209	A+0 210	A+0 211	A+0 212	A+0 213	A+0 214	A+0 215	A+0 216	A+0 217	A+0 218	A+0 219	A+0 220	A+0 221	A+0 222	A+0 223
Ex	A+0 224	A+0 225	A+0 226	A+0 227	A+0 228	A+0 229	A+0 230	A+0 231	A+0 232	A+0 233	A+0 234	A+0 235	A+0 236	A+0 237	A+0 238	A+0 239
Fx	A+0 240	A+0 241	A+0 242	A+0 243	A+0 244	A+0 245	A+0 246	A+0 247	A+0 248	A+0 249	A+0 250	A+0 251	A+0 52	A+0 253	A+0 254	A+0 255

10 Appendix E: Scancode Tables

Interface type USB-KeyBoard Alt Mode (continued)

Scancode Set
 When Control
 Character is 02

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter Keyp d	Enter	Ins	Pg Up
1x	Pg Dwn	Hom e	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	A+0 32	A+0 33	A+0 34	A+0 35	A+0 36	A+0 37	A+0 38	A+0 39	A+0 40	A+0 41	A+0 42	A+0 43	A+0 44	A+0 45	A+0 46	A+0 47
3x	A+0 48	A+0 49	A+0 50	A+0 51	A+0 52	A+0 53	A+0 54	A+0 55	A+0 56	A+0 57	A+0 58	A+0 59	A+0 60	A+0 61	A+0 62	A+0 63
4x	A+0 64	A+0 65	A+0 66	A+0 67	A+0 68	A+0 69	A+0 70	A+0 71	A+0 72	A+0 73	A+0 74	A+0 75	A+0 76	A+0 77	A+0 78	A+0 79
5x	A+0 80	A+0 81	A+0 82	A+0 83	A+0 84	A+0 85	A+0 86	A+0 87	A+0 88	A+0 89	A+0 90	A+0 91	A+0 92	A+0 93	A+0 94	A+0 95
6x	A+0 96	A+0 97	A+0 98	A+0 99	A+1 00	A+1 01	A+1 02	A+1 03	A+1 04	A+1 05	A+1 06	A+1 07	A+1 08	A+1 09	A+1 10	A+1 11
7x	A+1 12	A+1 13	A+1 14	A+1 15	A+1 16	A+1 17	A+1 18	A+1 19	A+1 20	A+1 21	A+1 22	A+1 23	A+1 24	A+1 25	A+1 26	A+1 27
8x	A+0 128	A+0 129	A+0 130	A+0 131	A+0 132	A+0 133	A+0 134	A+0 135	A+0 136	A+0 137	A+0 138	A+0 139	A+0 140	A+0 141	A+0 142	A+0 143
9x	A+0 144	A+0 145	A+0 146	A+0 147	A+0 148	A+0 149	A+0 150	A+0 151	A+0 152	A+0 153	A+0 154	A+0 155	A+0 156	A+0 157	A+0 158	A+0 159
Ax	A+0 160	A+0 161	A+0 162	A+0 163	A+0 164	A+0 165	A+0 166	A+0 167	A+0 168	A+0 169	A+0 170	A+0 171	A+0 172	A+0 173	A+0 174	A+0 175
Bx	A+0 176	A+0 177	A+0 178	A+0 179	A+0 180	A+0 181	A+0 182	A+0 183	A+0 184	A+0 185	A+0 186	A+0 187	A+0 188	A+0 189	A+0 190	A+0 191
Cx	A+0 192	A+0 193	A+0 194	A+0 195	A+0 196	A+0 197	A+0 198	A+0 199	A+0 200	A+0 201	A+0 202	A+0 203	A+0 204	A+0 205	A+0 206	A+0 207
Dx	A+0 208	A+0 209	A+0 210	A+0 211	A+0 212	A+0 213	A+0 214	A+0 215	A+0 216	A+0 217	A+0 218	A+0 219	A+0 220	A+0 221	A+0 222	A+0 223
Ex	A+0 224	A+0 225	A+0 226	A+0 227	A+0 228	A+0 229	A+0 230	A+0 231	A+0 232	A+0 233	A+0 234	A+0 235	A+0 236	A+0 237	A+0 238	A+0 239
Fx	A+0 240	A+0 241	A+0 242	A+0 243	A+0 244	A+0 245	A+0 246	A+0 247	A+0 248	A+0 249	A+0 250	A+0 251	A+0 52	A+0 253	A+0 254	A+0 255

10 Appendix E: Scancode Tables

Digital Interface

Scancode Set
When Control
Character is 00
or 01

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+ A	STX C(S)+ B	ETX C(S)+ C	EOT C+D	ENQ C(S)+ E	ACK C(S)+ F	BEL C(S)+ G	BS	HT TAB	LF C(S)+ J	VT C(S)+ K	FF C(S)+ L	CR Enter	SO C(S)+ N	SI C(S)+ O
1x	DLE C(S)+ P	DC1 C(S)+ Q	DC2 C(S)+ R	DC3 C(S)+ S	DC4 C(S)+ T	NAK C(S)+ U	SYN C(S)+ V	ETB C(S)+ W	CAN C(S)+ X	EM C(S)+ Y	SUB C(S)+ Z	ESC Esc	FS C(S)+ \ 	GS C+]	RS C(S)+ ^	US C(S)+ _
2x	Space	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{		}	~	Del
8x		Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	F13	F14	F15	F16	↑	↓	←	→					Cl ↓	Cl ↑	

Scancode Set
When Control
Character is 02

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x					Cl ↓	Cl ↑			BS	Tab	à	S+ Tab	Enter Keyp d	Enter	Ins	
1x			←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	r	s	t	u	v	w	x	y	z	{		}	~	Del

10 Appendix E: Scancode Tables

10.2 IBM31xx 102-key Scancode Set When Control Character is 00 or 01

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+ A	STX C(S)+ B	ETX C(S)+ C	EOT C+D	ENQ C(S)+ E	ACK C(S)+ F	BEL C(S)+ G	BS	HT TAB	LF C(S)+ J	VT C(S)+ K	FF C(S)+ L	CR Enter	SO C(S)+ N	SI C(S)+ O
1x	DLE C(S)+ P	DC1 C(S)+ Q	DC2 C(S)+ R	DC3 C(S)+ S	DC4 C(S)+ T	NAK C(S)+ U	SYN C(S)+ V	ETB C(S)+ W	CAN C(S)+ X	EM C(S)+ Y	SUB C(S)+ Z	ESC Esc	FS C(S)+ \ 	GS C+]	RS C(S)+ ^	US C(S)+ _
2x	Space	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{		}		Del
8x		Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Enter	Reset	Insert	Delet e	Field -	Field +	Enter paddl e	Printl	Ar↓	Ar↑	Al↓	Al ↑	Cl ↓	Cl ↑	Cr ↓
Ax	Cr ↑															

10 Appendix E: Scancode Tables

Scancode Set
 When Control
 Character is 02

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter Keyp d	Enter	Ins	Pg Up
1x	Pg Dwn	Hom e	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Spac e	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{		}		Del

10 Appendix E: Scancode Tables

10.3 IBM XT Scancode Set When Control Character is 00 or 01

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	NULL C+@	SOH C(S)+ A	STX C(S)+ B	ETX C(S)+ C	EOT C+D	ENQ C(S)+ E	ACK C(S)+ F	BEL C(S)+ G	BS C(S)+ H	HT TAB	LF C(S)+ J	VT C(S)+ K	FF C(S)+ L	CR Enter	SO C(S)+ N	SI C(S)+ O
1x	DLE C(S)+ P	DC1 C(S)+ Q	DC2 C(S)+ R	DC3 C(S)+ S	DC4 C(S)+ T	NAK C(S)+ U	SYN C(S)+ V	ETB C(S)+ W	CAN C(S)+ X	EM C(S)+ Y	SUB C(S)+ Z	ESC Esc	FS C(S)+ \ 	GS C+]	RS C(S)+ ^	US C(S)+ _
2x	Space	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{		}		Del
8x		Sh↓	Sh↑	Ins	Ent (keyp)	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
9x	F12	Home	End	Pg Up	Pg Dwn	↑	↓	←	→	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓
Ax	Cr↑															

10 Appendix E: Scancode Tables

Scancode Set
when Control
Character 02

	X0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x	Ar↓	Ar↑	Al↓	Al↑	Cl↓	Cl↑	Cr↓	Cr↑	BS	Tab	→	S+ Tab	Enter Keyp d	Enter	Ins	Pg Up
1x	Pg Dwn	Home	←	↓	↑	F6	F1	F2	F3	F4	F5	ESC	F7	F8	F9	F10
2x	Space	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3x	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4x	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5x	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6x	‘	a	B	c	d	e	f	g	h	i	j	k	l	m	n	o
7x	p	q	R	s	t	u	v	w	x	y	z	{		}		Del

10 Appendix E: Scancode Tables

10.4 Microsoft Windows Codepage 1252

Windows-1252 is a character encoding of the Latin alphabet, used by default in the legacy components of Microsoft Windows in English and some other Western languages.

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	<u>NUL</u> 0000	<u>STX</u> 0001	<u>SOT</u> 0002	<u>ETX</u> 0003	<u>EOT</u> 0004	<u>ENQ</u> 0005	<u>ACK</u> 0006	<u>BEL</u> 0007	<u>BS</u> 0008	<u>HT</u> 0009	<u>LF</u> 000A	<u>VT</u> 000B	<u>FF</u> 000C	<u>CR</u> 000D	<u>SO</u> 000E	<u>SI</u> 000F
10	<u>DLE</u> 0010	<u>DC1</u> 0011	<u>DC2</u> 0012	<u>DC3</u> 0013	<u>DC4</u> 0014	<u>NAK</u> 0015	<u>SYN</u> 0016	<u>ETB</u> 0017	<u>CAN</u> 0018	<u>EM</u> 0019	<u>SUB</u> 001A	<u>ESC</u> 001B	<u>FS</u> 001C	<u>GS</u> 001D	<u>RS</u> 001E	<u>US</u> 001F
20	<u>SP</u> 0020	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	q	r	s	t	u	v	w	x	y	z	{		}	~	<u>DEL</u> 007F
80	€ 20AC		‚ 201A	ƒ 0192	„ 201E	… 2026	† 2020	‡ 2021	ˆ 02C6	‰ 2030	Š 0160	< 2039	Œ 0152		Ž 017D	
90		˘ 2018	˙ 2019	˚ 201C	˛ 201D	• 2022	– 2013	— 2014	˜ 02DC	™ 2122	š 0161	> 203A	œ 0153		ž 017E	ÿ 0178
A0	<u>NBSP</u> 00A0	ı 00A1	ı 00A2	£ 00A3	¤ 00A4	¥ 00A5	ı 00A6	§ 00A7	¨ 00A8	© 00A9	ª 00AA	« 00AB	¬ 00AC	– 00AD	® 00AE	¯ 00AF
B0	° 00B0	± 00B1	² 00B2	³ 00B3	´ 00B4	µ 00B5	¶ 00B6	· 00B7	¸ 00B8	¹ 00B9	º 00BA	» 00BB	¼ 00BC	½ 00BD	¾ 00BE	¿ 00BF
C0	À 00C0	Á 00C1	Â 00C2	Ã 00C3	Ä 00C4	Å 00C5	Æ 00C6	Ç 00C7	È 00C8	É 00C9	Ê 00CA	Ë 00CB	Ì 00CC	Í 00CD	Î 00CE	Ï 00CF
D0	Ð 00D0	Ñ 00D1	Ò 00D2	Ó 00D3	Ô 00D4	Õ 00D5	Ö 00D6	× 00D7	Ø 00D8	Ù 00D9	Ú 00DA	Û 00DB	Ü 00DC	Ý 00DD	Þ 00DE	ß 00DF
E0	à 00E0	á 00E1	â 00E2	ã 00E3	ä 00E4	å 00E5	æ 00E6	ç 00E7	è 00E8	é 00E9	ê 00EA	ë 00EB	ì 00EC	í 00ED	î 00EE	ï 00EF
F0	ø 00F0	ñ 00F1	ò 00F2	ó 00F3	ô 00F4	õ 00F5	ö 00F6	÷ 00F7	ø 00F8	ù 00F9	ú 00FA	û 00FB	ü 00FC	ý 00FD	þ 00FE	ÿ 00FF



ASCII Chart

ASCII Char.	Hex No.	ASCII Char.	Hex No.	ASCII Char.	Hex No.	ASCII Char.	Hex No.
NUL	00	SP	20	@	40	'	60
SOH	01	!	21	A	41	a	61
STX	02	"	22	B	42	b	62
ETX	03	#	23	C	43	c	63
EOT	04	\$	24	D	44	d	64
ENQ	05	%	25	E	45	e	65
ACK	06	&	26	F	46	f	66
BEL	07	'	27	G	47	g	67
BS	08	(	28	H	48	h	68
HT	09	)	29	I	49	i	69
LF	0A	*	2A	J	4A	j	6A
VT	0B	+	2B	K	4B	k	6B
FF	0C	,	2C	L	4C	l	6C
CR	0D	-	2D	M	4D	m	6D
SO	0E	.	2E	N	4E	n	6E
SI	0F	/	2F	O	4F	o	6F
DLE	10	0	30	P	50	p	70
DC1	11	1	31	Q	51	q	71
DC2	12	2	32	R	52	r	72
DC3	13	3	33	S	53	s	73
DC4	14	4	34	T	54	t	74
NAK	15	5	35	U	55	u	75
SYN	16	6	36	V	56	v	76
ETB	17	7	37	W	57	w	77
CAN	18	8	38	X	58	x	78
EM	19	9	39	Y	59	y	79
SUB	1A	:	3A	Z	5A	z	7A
ESC	1B	;	3B	[	5B	{	7B
FS	1C	<	3C	\	5C		7C
GS	1D	=	3D	]	5D	}	7D
RS	1E	>	3E	^	5E	~	7E
US	1F	?	3F	_	5F	DEL	7F



BVS HS-Q Series Standard Hand Held Barcode Reader

NOTES

 **www.balluff.com**

World Headquarters

Germany

Balluff GmbH
Schurwaldstraße 9
73765 Neuhausen a.d.F.
Deutschland
Tel. +49 7158 173-0
Fax +49 7158 5010
balluff@balluff.de

 www.balluff.com

Subsidiaries

USA

Balluff Inc.
8125 Holton Drive
Florence,
Kentucky 41042-0937
Phone (859) 727-2200,
1-800-543-8390
applications@balluff.com