



QC 2D Series :

QC625X

QC635x

QC715X

QC725X

QC755X

User Guide

ADVANCECODE

Disclaimer

© 2015 AdvanCode Technology Co., Ltd. All rights reserved.

Please read through the manual carefully before using the product and operate it according to the manual. It is advised that you should keep this manual for future reference.

Do not disassemble the device or remove the seal label from the device. Otherwise, AdvanCode Technology Co., Ltd. does not assume responsibility for the warranty or replacement.

All pictures in this manual are for reference only and actual product may differ. Regarding to the product modification and update, AdvanCode Technology Co., Ltd. reserves the right to make changes to any software or product to improve reliability, function, or design at any time without notice. Besides, the information contained herein is subject to change without prior notice.

The products depicted in this manual may include software copyrighted by AdvanCode Technology Co., Ltd. or a third party. The user, corporation or individual, shall not duplicate, in whole or in part, distribute, modify, decompile, disassemble, decode, reverse scannerer, rent, transfer or sublicense such software without prior written consent from the copyright holders.

This manual is copyrighted. No part of this publication may be reproduced or distributed in any form without written permission from AdvanCode.

AdvanCode Technology Co., Ltd. reserves the right to make final interpretation of the statement above.

Table Of Contents

Chapter 1 Getting Started	1
Introduction	1
About This Guide	1
Barcode Scanning	2
Barcode Programming.....	2
Factory Defaults.....	3
Custom Defaults	3
Chapter 2 Communication Interfaces	4
Power-Saving Mode	4
RS-232 Interface.....	5
Baud Rate	6
Parity Check	7
Data Bit	7
Data Bit & Parity Check	8
Stop Bit	8
USB Interface	9
USB Enumeration	9
USB HID-KBW	9
USB Country Keyboard Types	10
Beep on Unknown Character	12
Inter-Keystroke Delay	12
Convert Case.....	13
USB COM Port Emulation	13
Chapter 3 Scan Mode	14
Batch Mode.....	14
Trigger Mode	15
Decode Session Timeout	15
Level Trigger/Pulse Trigger	16

Auto Sleep	16
Sense Mode.....	17
Decode Session Timeout	17
Image Stabilization Timeout	17
Continue after Good Decode.....	18
Timeout between Decodes (Same Barcode)	18
Sensitivity.....	19
Continuous Mode.....	21
Decode Session Timeout	21
Timeout between Decodes.....	21
Cellphone Read Mode.....	22
Chapter 4 Scanning Preferences.....	23
Introduction	23
Decode Area.....	23
Whole Area Decoding.....	23
Central Area Decoding	23
Specify Central Area.....	24
Chapter 5 Illumination & Aiming.....	25
Illumination.....	25
Aiming.....	26
Chapter 6 Beep & LED Indications	27
Startup Beep.....	27
Beep after Good Decode (Non-programming Barcode)	28
Beep Type.....	28
Beep Volume	29
Beep on Unknown Character	29
Beep after Good Decode (Programming Barcode).....	30
LED Notification for Good Decode	30
Transmit NGR Message	31
Edit NGR Message.....	31

Chapter 7 Data Formatting	32
General Settings	33
Enable/Disable All Prefix/Suffix	33
Prefix Sequences.....	33
Custom Prefix	34
Enable/Disable Custom Prefix.....	34
Set Custom Prefix.....	34
AIM ID Prefix.....	35
Code ID Prefix	35
Restore All Default Code IDs.....	35
Modify Code ID	36
Custom Suffix	39
Enable/Disable Custom Suffix	39
Set Custom Suffix.....	39
Terminating Character Suffix.....	40
Enable/Disable Terminating Character Suffix	40
Set Terminating Character Suffix	41
Chapter 8 Symbologies	42
General Settings	42
Enable/Disable All Symbologies.....	42
Enable/Disable 1D Symbologies	42
Enable/Disable 2D Symbologies	42
Video Reverse	43
1D Symbologies.....	44
Code 128	44
Restore Factory Defaults.....	44
Enable/Disable Code 128.....	44
Set Length Range for Code 128	44
GS1-128 (UCC/EAN-128)	45
Restore Factory Defaults.....	45
Enable/Disable GS1-128.....	45
Set Length Range for GS1-128.....	45

AIM-128	46
Restore Factory Defaults.....	46
Enable/Disable AIM-128.....	46
Set Length Range for AIM-128	46
EAN-8	47
Restore Factory Defaults.....	47
Enable/Disable EAN-8.....	47
Transmit Check Digit.....	48
Add-On Code.....	48
Add-On Code Required.....	49
EAN-8 Extension	49
EAN-13	50
Restore Factory Defaults.....	50
Enable/Disable EAN-13.....	50
Transmit Check Digit.....	50
Add-On Code.....	51
Add-On Code Required.....	51
ISSN.....	52
Restore Factory Defaults.....	52
Enable/Disable ISSN.....	52
Add-On Code.....	53
Add-On Code Required.....	53
ISBN.....	54
Restore Factory Default	54
Enable/Disable ISBN.....	54
Set ISBN Format	54
Add-On Code.....	55
Add-On Code Required.....	55
UPC-E.....	56
Restore Factory Defaults.....	56
Enable/Disable UPC-E	56
Transmit Check Digit.....	56
Add-On Code.....	57

Add-On Code Required.....	57
Transmit System Character “0”	58
UPC-E Extension	58
UPC-A.....	59
Restore Factory Defaults.....	59
Enable/Disable UPC-A	59
Transmit Check Digit.....	59
Add-On Code.....	60
Add-On Code Required.....	60
Transmit Preamble Character “0”.....	61
Interleaved 2 of 5.....	62
Restore Factory Defaults.....	62
Enable/Disable Interleaved 2 of 5	62
Set Length Range for Interleaved 2 of 5	62
Check Digit Verification	63
ITF-14	64
ITF-6	65
Matrix 2 of 5	66
Restore Factory Defaults.....	66
Enable/Disable Matrix 2 of 5	66
Set Length Range for Matrix 2 of 5	66
Check Digit Verification	67
Industrial 2 of 5	68
Restore Factory Defaults.....	68
Enable/Disable Industrial 2 of 5	68
Set Length Range for Industrial 2 of 5	68
Check Digit Verification	69
Standard 2 of 5 (IATA 2 of 5)	70
Restore Factory Defaults.....	70
Enable/Disable Standard 25	70
Set Length Range for Standard 25	70
Check Digit Verification	71
Code 39	72

Restore Factory Defaults.....	72
Enable/Disable Code 39.....	72
Transmit Start/Stop Character	72
Set Length Range for Code 39	73
Check Digit Verification	73
Enable/Disable Code 39 Full ASCII	73
Codabar	74
Restore Factory Defaults.....	74
Enable/Disable Codabar	74
Set Length Range for Codabar	74
Check Digit Verification	75
Transmit Start/Stop Character	75
Start/Stop Character Format.....	76
Code 93	77
Restore Factory Defaults.....	77
Enable/Disable Code 93.....	77
Set Length Range for Code 93	77
Check Digit Verification	78
GS1-Databar (RSS).....	79
Restore Factory Defaults.....	79
Enable/Disable GS1 Databar	79
Transmit Application Identifier “01”	79
Code 11	80
Restore Factory Defaults.....	80
Enable/Disable Code 11.....	80
Set Length Range for Code 11	80
Transmit Check Digit.....	81
Check Digit Verification	81
Plessey	82
Restore Factory Defaults.....	82
Enable/Disable Plessey.....	82
Set Length Range for Plessey	82
Check Digit Verification	83

MSI-Plessey.....	84
Restore Factory Defaults.....	84
Enable/Disable MSI-Plessey.....	84
Set Length Range for MSI-Plessey.....	84
Transmit Check Digit.....	85
Check Digit Verification.....	85
2D Symbolologies.....	86
PDF 417.....	86
Restore Factory Defaults.....	86
Enable/Disable PDF 417.....	86
Set Length Range for PDF 417.....	86
PDF 417 Twin Code.....	87
QR Code.....	88
Restore Factory Defaults.....	88
Enable/Disable QR Code.....	88
Set Length Range for QR Code.....	88
Micro QR.....	88
QR Twin Code.....	89
Data Matrix.....	91
Restore Factory Defaults.....	91
Enable/Disable Data Matrix.....	91
Set Length Range for Data Matrix.....	91
Rectangular Barcode.....	92
Mirror Image.....	92
Data Matrix Twin Code.....	93
Chapter 9 Image Control	94
Ambient Illumination.....	94
Image Flipping.....	95
Flip.....	96
Flip Vertically.....	96
Flip Horizontally.....	96
Chapter 10 Troubleshooting	97

FAQ.....	97
Appendix	99
Appendix 1: Factory Defaults Table	99
Appendix 2: AIM ID Table.....	106
Appendix 3: Code ID Table	108
Appendix 4: ASCII Table	109
Appendix 5: Parameter Programming Examples	113
a. Program the Decode Session Timeout	113
b. Program the Time Period from Idle to Sleep.....	113
c. Program the Image Stabilization Timeout	113
d. Program the Timeout between Decodes (Same Barcode)	114
e. Program the Threshold Value of Illumination Change	114
f. Program the Timeout between Decodes.....	114
g. Program the Central Area.....	115
h. Program the Custom Prefix/Suffix	115
i. Program the Terminating Character Suffix	115
j. Program the Code ID	116
k. Program the NGR Message	116
l. Program the Length Range (Maximum/Minimum Lengths) for a Symbology	117
Appendix 6: Digit Barcodes	118
Appendix 7: Save/Cancel Barcodes.....	120



Chapter 1 Getting Started

Introduction

The ADVANCODE 2D BARCODE SCANNER armed with the computerized image recognition system, bring about a new era of 2D barcode scanner.

The ADVANCODE 2D BARCODE SCANNER advanced chip design & manufacturing, which significantly simplifies application design and delivers superior performance and solid reliability with low power consumption.

The ADVANCODE 2D BARCODE SCANNER support all mainstream 1D and standard 2D barcode symbologies (e.g., PDF417, QR Code M1/M2/Micro and Data Matrix) as well as GS1-DataBar™(RSS) (Limited/Stacked/Expanded versions). It can read barcodes on virtually any medium - paper, plastic card, mobile phones and LCD displays.

About This Guide

This guide provides programming instructions for the ADVANCODE 2D BARCODE SCANNER. Users can configure the ADVANCODE 2D BARCODE SCANNER by scanning the programming barcodes included in this manual.

The ADVANCODE 2D BARCODE SCANNER has been properly configured for most applications and can be put into use without further configuration. Users may check the **Factory Defaults Table** in **Appendix** for reference. Throughout the manual, asterisks (**) indicate factory default values.



* Exit Setup



Barcode Scanning

Powered by area-imaging technology, the ADVANCODE 2D BARCODE SCANNER features fast scanning and accurate decoding. Barcodes rotated at any angle can still be read with ease. When scanning a barcode, simply center the aiming beam or pattern projected by the ADVANCODE 2D BARCODE SCANNER over the barcode.

Barcode Programming

Scanning the **Enter Setup** barcode can enable the scanner to enter the setup mode. Then you can scan a number of programming barcodes to configure your scanner. To exit the setup mode, scan the **Exit Setup** barcode.

If the scanner has exited the setup mode, only some special programming barcodes, such as the **Enter Setup** barcode and **Restore All Factory Defaults** barcode, can be read.



Programming barcode data can be transmitted to the Host. Scan the appropriate barcode below to enable or disable the transmission of programming barcode data (i.e. the characters under programming barcode) to the Host.

Restarting the scanner will automatically disable the transmissison of programming barcode data to the Host.





Factory Defaults

Scanning the following barcode can restore the scanner to the factory defaults. See **Appendix 1: Factory Defaults Table** for more information.

Note: Use this feature with discretion.



Restore All Factory Defaults

Custom Defaults

Custom defaults make it possible to save the frequently-used settings on the scanner.

Scanning the **Save as Custom Defaults** barcode can save the current settings as custom defaults. Once custom default settings are stored, they can be recovered at any time by scanning the **Restore All Custom Defaults** barcode.

Custom defaults are stored in the non-volatile memory. Restoring the scanner to the factory defaults will not remove the custom defaults from the scanner.



Save as Custom Defaults



Restore All Custom Defaults



*** Exit Setup**



Chapter 2 Communication Interfaces

The ADVANCODE 2D BARCODE SCANNER provides a RS-232 interface and a USB interface to communicate with the host device. The host device can receive scanned data and send commands to control the scanner or to access/alter the configuration information of the scanner via the interface.

Power-Saving Mode

By default, the scanner adopts the Power-Saving Mode to conserve power. However, if this mode is selected, you can only use RS-232 communication. If the Normal Mode is selected, you can use either RS-232 or USB.



Normal Mode
(RS-232 & USB supported)



**** Power-Saving Mode**
(RS-232 supported)



*** Exit Setup**



0006010
Enter Setup

RS-232 Interface

Serial communication interface is usually used when connecting the scanner to a host device (like PC, POS). However, to ensure smooth communication and accuracy of data, you need to set communication parameters (including baud rate, parity check, data bit and stop bit) to match the host device.

The serial communication interface provided by the scanner is based on TTL-level signals. RS-232 can be used for most application architectures. For those requiring RS-232, an external conversion circuit is needed. The conversion circuit is available only to some models.



1100000
**** Serial Communication**

Default serial communication parameters are listed below. Make sure all parameters match the host requirements.

Parameter	Factory Default
Serial Communication	Standard RS-232
Baud Rate	9600
Parity Check	None
Data Bits	8
Stop Bits	1
Hardware Flow Control	None



0006000
*** Exit Setup**



0006010
Enter Setup

Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the baud rate to match the Host requirements.



0100030

**** 9600**



0100000

1200



0100050

19200



0100010

2400



0100060

38400



0100020

4800



0100070

57600



0100040

14400



0100080

115200



0006000

* Exit Setup



0006010
Enter Setup

Parity Check

When the number of data bits is set to 7, you can only select either **Even Parity** or **Odd Parity**. The **None** option will be regarded as **Even Parity** in this case.



0101000

**** None**



0101010

Even Parity



0101020

Odd Parity

Data Bit

When the number of data bits is set to 7, you can only select either **Even Parity** or **Odd Parity**.



0103020

7 Data Bits



0103030

**** 8 Data Bits**



0006000

*** Exit Setup**



0006010
Enter Setup

Data Bit & Parity Check



0105010

7 Data Bits/Even Parity



0105020

7 Data Bits/Odd Parity



0105030

** 8 Data Bits/ No Parity



0105040

8 Data Bits/Even Parity



0105050

8 Data Bits/Odd Parity

Stop Bit



0102000

** 1 Stop Bit



0102010

2 Stop Bits



0006000

* Exit Setup



USB Interface

USB Enumeration

If the scanner is connected to the Host via a USB connection, the scanner will be enumerated using S/N or "00000000" after power-up. **Enumeration using S/N** enables the Host to distinguish even between scanners of same model. **Enumeration using "00000000"** disables the Host from distinguishing between scanners of same model.

Driver installation is required for each USB device distinguished from others by the Host in the process of enumeration.



Enumeration Using S/N



**** Enumeration Using "00000000"**

USB HID-KBW

When you connect the scanner to the Host via a USB connection, you can enable the **USB HID-KBW** feature by scanning the barcode below. Then scanner's transmission will be simulated as USB keyboard input. The Host receives keystrokes on the virtual keyboard. It works on a Plug and Play basis and no driver is required.



USB HID-KBW



*** Exit Setup**



0006010
Enter Setup

USB Country Keyboard Types

Keyboard layouts vary from country to country. The default setting is U.S. keyboard.



1103001

**** U.S.**



1103002

Japan



1103003

Denmark



1103004

Finland



1103005

France



1103006

Turkey_F



1103007

Italy



1103008

Norway



0006000
*** Exit Setup**



0006010
Enter Setup



1103222

Spain



1103226

Turkey_Q



1103227

UK



1103209

Austria, Germany



1103202

Belgium



1103220

Russia



1103223

Sweden



1103218

Portugal



0006000
*** Exit Setup**



0006010
Enter Setup

Beep on Unknown Character

Due to the differences in keyboard layouts, some characters contained in barcode data may be unavailable on the selected keyboard. As a result, the scanner fails to transmit the unknown characters.

Scan the appropriate barcode below to enable or disable the emission of beep when an unknown character is detected.



1103031

Beep on Unknown Character



1103030

**** Do Not Beep on Unknown Character**

Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes.



1103050

**** No Delay**



1103051

Short Delay (20ms)



1103052

Long Delay (40ms)



0006000

*** Exit Setup**



0006010
Enter Setup

Convert Case

Scan the appropriate barcode below to convert barcode data to your desired case.



1103040

**** No Case Conversion**



1103043

Invert Upper and Lower Case Characters



1103041

Convert All to Upper Case



1103042

Convert All to Lower Case

Example: When the **Convert All to Lower Case** feature is enabled, barcode data “AbC” is transmitted as “abc”.

USB COM Port Emulation

If you connect the scanner to the Host via a USB connection, the **USB COM Port Emulation** feature allows the Host to receive data in the way as a serial port does. A driver is required for this feature.



1100060

USB COM Port Emulation



0006000

*** Exit Setup**



Chapter 3 Scan Mode

Batch Mode

If the Batch Mode is enabled, driving the TRIG pin on the host interface connector low activates a round of multiple decode sessions. This round of multiple scans continues until the active trigger signal is no longer present. Rereading the same barcode is not allowed if it was decoded previously in the same round. For good decode, the scanner transmits decoded data via communication port. To activate another round of multiple scans, the Host needs to first negate the trigger, waits 20ms or longer and then drive the TRIG pin low.





0006010
Enter Setup

Trigger Mode

If the Trigger Mode is enabled, driving the TRIG pin on the host interface connector low activates a decode session. The session continues until the barcode is decoded or decode session timeout expires or the active trigger signal is no longer present. For good decode, the scanner transmits decoded data via communication port. To activate another session, the Host needs to first negate the trigger, waits 20ms or longer and then drive the TRIG pin low.



0302000
Trigger Mode

Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1ms increments from 0ms to 3,600,000ms. The default setting is 3,000ms. To learn how to program this parameter, see **Appendix 5**.



0313000
Decode Session Timeout



0006000
* Exit Setup



0006010
Enter Setup

Level Trigger/Pulse Trigger

Level trigger: Decode session is activated and continued by constant active trigger signal. The decode session ends once the barcode is decoded or decode session timeout expires.

Pulse trigger: Decode session is activated by electric pulse of trigger signal. The decode session continues until the barcode is decoded or decode session timeout expires.



0313090

**** Level Trigger**



0313091

Pulse Trigger

Auto Sleep

Auto Sleep allows the scanner in the Trigger Mode to automatically enter the sleep or low power mode if no operation or communication is performed for a time period (user programmable). When the scanner is in the sleep mode, receiving trigger signal or communication from the Host can awake the scanner. The scanner returns to full operation within 100ms.



0313060

**** Enable Auto Sleep**



0313070

Disable Auto Sleep

The parameter below specifies how long the scanner remains idle (no operation or communication occurs) before it is put into sleep mode. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 500ms. To learn how to program this parameter, see **Appendix 5**.



0313050

Time Period from Idle to Sleep



0006000

*** Exit Setup**



Sense Mode

If the Sense Mode is enabled, the scanner activates a decode session every time it detects a change in ambient illumination. The decode session continues until the barcode is decoded or the decode session timeout expires.

Driving the TRIG pin on the host interface connector low can also activate a decode session. The decode session continues until the active trigger signal is no longer present or the barcode is decoded or the decode session timeout expires. The trigger signal needs to be negated before the scanner is able to monitor ambient illumination again.



Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. If the timeout expires or the barcode is decoded, the scanner goes back to monitoring ambient illumination. It is programmable in 1ms increments from 0ms to 3,600,000ms. The default setting is 3,000ms. To learn how to program this parameter, see **Appendix 5**.



Image Stabilization Timeout

The image stabilization timeout is programmable in 1ms increments from 0ms to 1,600ms. The default setting is 500ms. To learn how to program this parameter, see **Appendix 5**.



* Exit Setup



Continue after Good Decode

Continue after Good Decode: The scanner starts next decode session after good decode.

Pause after Good Decode: The scanner starts another round of illumination monitoring and image stabilization after good decode.



**** Pause after Good Decode**



Continue after Good Decode

Timeout between Decodes (Same Barcode)

Timeout between Decodes (Same Barcode) can avoid undesired rereading of same barcode in a given period of time.

To enable/disable the Timeout between Decodes (Same Barcode), scan the appropriate barcode below.

Enable Timeout between Decodes: Do not allow the scanner to re-read same barcode before the timeout between decodes (same barcode) expires.

Disable Timeout between Decodes: Allow the scanner to re-read same barcode.



**** Disable Timeout between Decodes**



Enable Timeout between Decodes



*** Exit Setup**



The following parameter sets the timeout between decodes for same barcode. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 1,500ms.

To learn how to program this parameter, see **Appendix 5**.



Timeout between Decodes (Same Barcode)

Sensitivity

Sensitivity specifies the degree of acuteness of the scanner's response to changes in ambient illumination. The higher the sensitivity, the lower requirement in illumination change to trigger the scanner. You can select an appropriate degree of sensitivity that fits the ambient environment.



Medium Sensitivity



Low Sensitivity



High Sensitivity



Enhanced Sensitivity



*** Exit Setup**



0006010
Enter Setup

If the above four options fail to meet your needs, you may program the threshold value of illumination change.

Illumination changes that reaches or surpasses the predefined threshold value will cause the scanner to start a decode session. The lower the threshold value, the greater the sensitivity of the scanner. The default threshold value is 2.

To learn how to program this parameter, see **Appendix 5**.



0312040
Threshold Value of Illumination Change (1-20)



0006000
*** Exit Setup**



Continuous Mode

This mode enables the scanner to scan/capture, decode and transmit over and over again.

When the scanner is operating in Continuous Mode, barcode reading can be suspended/resumed through control over the trigger signal. When barcode reading is in progress, negating the trigger signal after having maintained it for 30ms or longer will suspend barcode reading; when barcode reading is suspended, performing the same control over the trigger signal will resume barcode reading.



Continuous Mode

Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1ms increments from 0ms to 3,600,000ms. The default setting is 3,000ms. To learn how to program this parameter, see **Appendix 5**.



Decode Session Timeout

Timeout between Decodes

This parameter sets the timeout between decode sessions. When a decode session ends, next session will not happen until the timeout between decodes expires. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 1,000ms. To learn how to program this parameter, see **Appendix 5**.



Timeout between Decodes



* Exit Setup



0006010
Enter Setup

Cellphone Read Mode



0313140

****Disable Cellphone Read Mode**



0313142

Enable Cellphone Read Mode



0006000
*** Exit Setup**



Chapter 4 Scanning Preferences

Introduction

This chapter contains information as to how to adapt your scanner to various applications with preference setting. For instance, to narrow the field of view of the scanner to make sure it reads only those barcodes intended by the user.

Decode Area

Whole Area Decoding

When this option is enabled, the scanner attempts to decode barcode(s) within its field of view, from the center to the periphery, and transmits the barcode that has been first decoded.



**** Whole Area Decoding**

Central Area Decoding

The scanner attempts to decode barcode(s) within a specified central area and transmits the barcode that has been first decoded. This option allows the scanner to narrow its field of view to make sure it reads only those barcodes intended by the user. For instance, if multiple barcodes are placed closely together, central area decoding in conjunction with appropriate pre-defined central area will insure that only the desired barcode is read.



Central Area Decoding



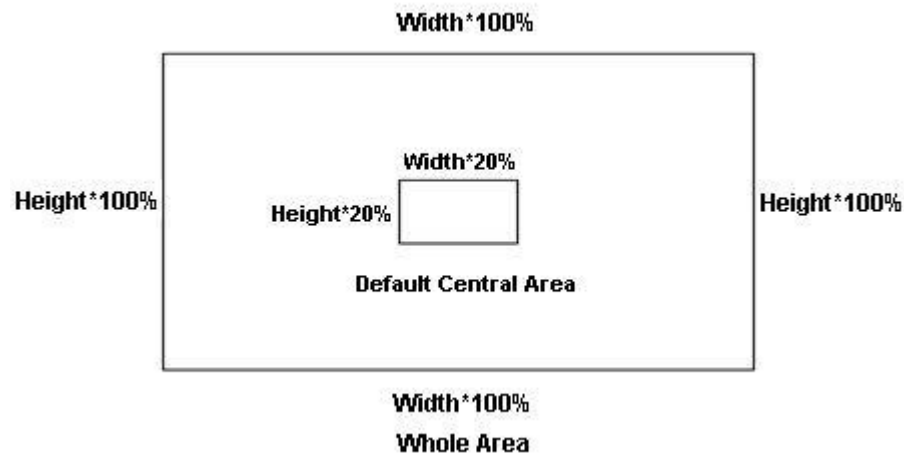
*** Exit Setup**



0006010
Enter Setup

Specify Central Area

The default central area is a (Width*20%) by (Height*20%) area in the center of the scanner's field of view, as shown in the figure below. You can define the central area by scanning the **Specify Central Area** barcode and numeric barcode(s) corresponding to a desired percentage (1-100). If Central Area Decoding is enabled by scanning the **Central Area Decoding** barcode, the scanner only reads barcodes that intersect the predefined central area.



To learn how to program this parameter, see the “**Appendix 5: Parameter Programming Examples**”.



0322020
Specify Central Area



0006000
* Exit Setup



0006010
Enter Setup

Chapter 5 Illumination & Aiming

Illumination

A couple of illumination options are provided to improve the lighting conditions during every image capture:

Normal: Illumination LEDs are turned on during image capture.

Always ON: Illumination LEDs keep ON after the scanner is powered on.

OFF: Illumination LEDs are OFF all the time.



0200000

**** Normal**



0200020

OFF



0200010

Always ON



0006000

*** Exit Setup**



0006010
Enter Setup

Aiming

When scanning/capturing image, the scanner projects an aiming pattern which allows positioning the target barcode within its field of view and thus makes decoding easier.

Normal: The scanner projects an aiming pattern only during barcode scanning/capture.

Always ON: Aiming pattern is constantly ON after the scanner is powered on.

OFF: Aiming pattern is OFF all the time.



0201000

**** Normal**



0201020

OFF



0201010

Always ON



0006000

*** Exit Setup**



0006010
Enter Setup

Chapter 6 Beep & LED Indications

Startup Beep

If startup beep is enabled, the scanner will beep after being turned on.



0204001

**** Enable Startup Beep**



0204000

Disable Startup Beep



0006000

*** Exit Setup**



Beep after Good Decode (Non-programming Barcode)

The scanner can provide a PWM output to an external driver circuit to drive a beeper after decoding a non-programming barcode. Scan the appropriate barcode below to enable or disable the emission of good decode beep. Beep type (frequency) and volume are also user programmable.



** Beep after Good Decode,Non-programming barcode



Do Not Beep after Good Decode,Non-programming barcode

Beep Type



Type 1



** Type 3



Type 2



* Exit Setup



0006010
Enter Setup

Beep Volume



0203030

**** Loud**



0203032

Low



0203031

Medium

Beep on Unknown Character

Due to the differences in keyboard layouts, some characters contained in barcode data may be unavailable on the selected keyboard (USB HID-KBW). As a result, the scanner fails to transmit the unknown characters.

Scan the appropriate barcode below to enable or disable the emission of beep when an unknown character is detected.



1103031

Beep on Unknown Character



1103030

**** Do Not Beep on Unknown Character**



0006000

*** Exit Setup**



Beep after Good Decode (Programming Barcode)



**** Beep after Good Decode, Programming Barcode**



Do Not Beep after Good Decode, Programming Barcode

LED Notification for Good Decode



**** Good Decode LED Notification ON**



Good Decode LED Notification OFF



*** Exit Setup**



0006010
Enter Setup

Transmit NGR Message

Scan a barcode below to select whether or not to transmit a user-defined NGR (Not Good Read) message when a barcode is not decoded.



0320010

Transmit NGR Message



0320000

**** Do Not Transmit NGR Message**

Edit NGR Message

To edit an NGR message, scan the **Edit NGR Message** barcode and the numeric barcodes corresponding to the ASCII values (decimal) of desired characters and then scan the **Save** barcode.

An NGR message can contain 0-7 characters (ASCII value of character: 0-255).



0320020

Edit NGR Message



0006000

*** Exit Setup**



Chapter 7 Data Formatting

In many applications, barcode data needs to be edited and distinguished from one another.

Usually AIM ID and Code ID can be used as identifiers, but in some special cases customized prefix and terminating character suffix like Carriage Return or Line Feed can also be the alternatives.

Data formatting may include:

- ✧ Append AIM ID/Code ID/custom prefix before the decoded data
- ✧ Append custom suffix after the decoded data
- ✧ Append terminating character to the end of the data

The following formats can be used when editing barcode data:

- ✧ [Code ID] + [Custom Prefix] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]
- ✧ [Custom Prefix] + [Code ID] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]





0006010
Enter Setup

General Settings

Enable/Disable All Prefix/Suffix

Disable All Prefix/Suffix: Transmit barcode data with no prefix/suffix.

Enable All Prefix/Suffix: Allow user to append Code ID prefix, AIM ID prefix, custom prefix/suffix and terminating character to the barcode data before the transmission.



0311010

Enable All Prefix/Suffix



0311000

Disable All Prefix/Suffix

Prefix Sequences



0317010

Code ID+Custom Prefix+AIM ID



0317040

** Custom Prefix+Code ID+AIM ID



0006000

* Exit Setup



Custom Prefix

Enable/Disable Custom Prefix

If custom prefix is enabled, you are allowed to append to the data a user-defined prefix that cannot exceed 10 characters.



Enable Custom Prefix



** Disable Custom Prefix

Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode and the numeric barcodes representing the hexadecimal values of a desired prefix and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of characters.

Note: A custom prefix cannot exceed 10 characters.



Set Custom Prefix

Example: Set the custom prefix to “CODE”

1. Check the hex values of “CODE” in the ASCII Table. (“CODE”: 43, 4F, 44, 45)
2. Scan the **Enter Setup** barcode.
3. Scan the **Set Custom Prefix** barcode.
4. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5”.
5. Scan the **Save** barcode.
6. Scan the **Exit Setup** barcode.



* Exit Setup



AIM ID Prefix

AIM (Automatic Identification Manufacturers) IDs and ISO/IEC 15424 standards define symbology identifiers and data carrier identifiers. (For the details, see the “**Appendix 2: AIM ID Table**” section). If AIM ID prefix is enabled, the scanner will add the symbology identifier before the scanned data after decoding.



Enable AIM ID Prefix



** Disable AIM ID Prefix

Code ID Prefix

Code ID can also be used to identify barcode type. Unlike AIM ID, Code ID is user programmable. Code ID can only consist of one or two English letters.



Enable Code ID Prefix



** Disable Code ID Prefix

Restore All Default Code IDs

For the information of default Code IDs, see the “**Appendix 3: Code ID Table**” section.



Restore All Default Code IDs



* Exit Setup



Modify Code ID

Code ID of each symbology can be programmed separately. See the following example to learn how to program a Code ID.

Example: Set the Code ID of PDF417 to “p”

1. Check the hex value of “p” in the ASCII Table. (“p”: 70)
2. Scan the **Enter Setup** barcode.
3. Scan the **Modify PDF417 Code ID** barcode.
4. Scan the numeric barcodes “7” and “0”.
5. Scan the **Save** barcode.
6. Scan the **Exit Setup** barcode.



Modify PDF417 Code ID



Modify Data Matrix Code ID



Modify QR Code Code ID



Modify Code 128 Code ID



Modify GS1-128 Code ID



Modify AIM-128 Code ID



*** Exit Setup**



0006010
Enter Setup



0004040

Modify EAN-8 Code ID



0004050

Modify EAN-13 Code ID



0004060

Modify UPC-E Code ID



0004070

Modify UPC-A Code ID



0004240

Modify ISBN Code ID



0004230

Modify ISSN Code ID



0004130

Modify Code 39 Code ID



0004170

Modify Code 93 Code ID



0004080

Modify Interleaved 2 of 5 Code ID



0004090

Modify ITF-14 Code ID



0006000

*** Exit Setup**



0006010
Enter Setup



0004100

Modify ITF-6 Code ID



0004150

Modify Codabar Code ID



0004250

Modify Industrial 25 Code ID



0004260

Modify Standard 25 Code ID



0004110

Modify Matrix 25 Code ID



0004220

Modify COOP 25 Code ID



0004280

Modify Code 11 Code ID



0004270

Modify Plessey Code ID



0004290

Modify MSI/Plessey Code ID



0004310

Modify GS1 Databar Code ID



0006000

*** Exit Setup**



Custom Suffix

Enable/Disable Custom Suffix

If custom suffix is enabled, you are allowed to append to the data a user-defined suffix that cannot exceed 10 characters.



Enable Custom Suffix



** Disable Custom Suffix

Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode and the numeric barcodes representing the hexadecimal values of a desired suffix and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of characters.

Note: A custom suffix cannot exceed 10 characters.



Set Custom Suffix

Example: Set the custom suffix to “CODE”

1. Check the hex values of “CODE” in the ASCII Table. (“CODE”: 43, 4F, 44, 45)
2. Scan the **Enter Setup** barcode.
3. Scan the **Set Custom Suffix** barcode.
4. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5”.
5. Scan the **Save** barcode.
6. Scan the **Exit Setup** barcode.



* Exit Setup



0006010
Enter Setup

Terminating Character Suffix

A terminating character can be used to mark the end of data, which means nothing can be added after it.

A terminating character suffix can contain one or two characters.

Enable/Disable Terminating Character Suffix

To enable/disable terminating character suffix, scan the appropriate barcode below.



0309010

**** Enable Terminating Character Suffix**



0309000

Disable Terminating Character Suffix



0006000

*** Exit Setup**



Set Terminating Character Suffix

The scanner provides a shortcut for setting the terminating character suffix to 0x0D or 0x0D,0x0A by scanning the following barcode.



Terminating Character 0x0D



** Terminating Character 0x0D,0x0A

To set a terminating character suffix, scan the **Set Terminating Character Suffix** barcode and the numeric barcodes representing the hexadecimal value of a desired terminating character and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of terminating characters.

Note: A terminating character suffix cannot exceed 2 characters.



Set Terminating Character Suffix

Example: Set the terminating character suffix to 0x0D

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Terminating Character Suffix** barcode.
3. Scan the numeric barcodes "0" and "D".
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode.



* Exit Setup



Chapter 8 Symbologies

General Settings

Enable/Disable All Symbologies

If the **Disable All Symbologies** feature is enabled, the scanner will not be able to read any non-programming barcodes except the programming barcodes.



Enable All Symbologies



Disable All Symbologies

Enable/Disable 1D Symbologies

If the **Disable 1D Symbologies** feature is enabled, the scanner will not be able to read any 1D barcodes.



Enable 1D Symbologies



Disable 1D Symbologies

Enable/Disable 2D Symbologies

If the **Disable 2D Symbologies** feature is enabled, the scanner will not be able to read any 2D barcodes.



Enable 2D Symbologies



Disable 2D Symbologies



* Exit Setup

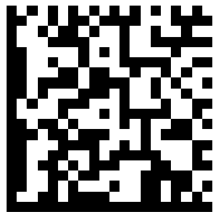


Video Reverse

Regular barcode: Dark image on a bright background.

Inverse barcode: Bright image on a dark background.

The examples of regular barcode and inverse barcode are shown below.



Regular Barcode



Inverse Barcode

Video Reverse is used to allow the scanner to read barcodes that are inverted.

Video Reverse ON: Read both regular barcodes and inverse barcodes.

Video Reverse OFF: Read regular barcodes only.

The scanner shows a slight decrease in scanning speed when Video Reverse is ON.



Video Reverse ON



**** Video Reverse OFF**



* Exit Setup



0006010
Enter Setup

1D Symbologies

Code 128

Restore Factory Defaults



0400000

Restore the Factory Defaults of Code 128

Enable/Disable Code 128



0400020

**** Enable Code 128**



0400010

Disable Code 128

Set Length Range for Code 128



0400030

Set the Minimum Length



0400040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

GS1-128 (UCC/EAN-128)

Restore Factory Defaults



0412000

Restore the Factory Defaults of GS1-128

Enable/Disable GS1-128



0412020

**** Enable GS1-128**



0412010

Disable GS1-128

Set Length Range for GS1-128



0412030

Set the Minimum Length



0412040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

AIM-128

Restore Factory Defaults



0423000

Restore the Factory Defaults of AIM-128

Enable/Disable AIM-128



0423020

**** Enable AIM-128**



0423010

Disable AIM-128

Set Length Range for AIM-128



0423030

Set the Minimum Length



0423040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

EAN-8

Restore Factory Defaults



0401000

Restore the Factory Defaults of EAN-8

Enable/Disable EAN-8



0401020

**** Enable EAN-8**



0401010

Disable EAN-8



0006000

*** Exit Setup**



Transmit Check Digit

EAN-8 is 8 digits in length with the last one as its check digit used to verify the integrity of the data.



**** Transmit EAN-8 Check Digit**



Do Not Transmit EAN-8 Check Digit

Add-On Code

An EAN-8 barcode can be augmented with a two-digit or five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.



Enable 2-Digit Add-On Code



**** Disable 2-Digit Add-On Code**



Enable 5-Digit Add-On Code



**** Disable 5-Digit Add-On Code**

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of EAN-8 barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes EAN-8 and ignores the add-on code when presented with an EAN-8 plus add-on barcode. It can also decode EAN-8 barcodes without add-on codes.



*** Exit Setup**



0006010
Enter Setup

Add-On Code Required

When **EAN-8 Add-On Code Required** is selected, the scanner will only read EAN-8 barcodes that contain add-on codes.



0401110
EAN-8 Add-On Code Required



0401120
**** EAN-8 Add-On Code Not Required**

EAN-8 Extension

Disable EAN-8 Zero Extend: Transmit EAN-8 barcodes as is.

Enable EAN-8 Zero Extend: Add five leading zeros to decoded EAN-8 barcodes to extend to 13 digits.



0401100
Enable EAN-8 Zero Extend



0401090
**** Disable EAN-8 Zero Extend**



0006000
*** Exit Setup**



0006010
Enter Setup

EAN-13

Restore Factory Defaults



0402000

Restore the Factory Defaults of EAN-13

Enable/Disable EAN-13



0402020

**** Enable EAN-13**



0402010

Disable EAN-13

Transmit Check Digit



0402040

**** Transmit EAN-13 Check Digit**



0402030

Do Not Transmit EAN-13 Check Digit



0006000

*** Exit Setup**



Add-On Code

An EAN-13 barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



Enable 2-Digit Add-On Code



**** Disable 2-Digit Add-On Code**



Enable 5-Digit Add-On Code



**** Disable 5-Digit Add-On Code**

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of EAN-13 barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes EAN-13 and ignores the add-on code when presented with an EAN-13 plus add-on barcode. It can also decode EAN-13 barcodes without add-on codes.

Add-On Code Required

When **EAN-13 Add-On Code Required** is selected, the scanner will only read EAN-13 barcodes that contain add-on codes.



EAN-13 Add-On Code Required



**** EAN-13 Add-On Code Not Required**



*** Exit Setup**



0006010
Enter Setup

ISSN

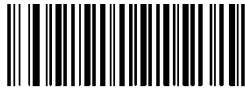
Restore Factory Defaults



0421000

Restore the Factory Defaults of ISSN

Enable/Disable ISSN



0421020

Enable ISSN



0421010

**** Disable ISSN**



0006000

*** Exit Setup**



Add-On Code

An ISSN barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



Enable 2-Digit Add-On Code



**** Disable 2-Digit Add-On Code**



Enable 5-Digit Add-On Code



**** Disable 5-Digit Add-On Code**

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of ISSN barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes ISSN and ignores the add-on code when presented with an ISSN plus add-on barcode. It can also decode ISSN barcodes without add-on codes.

Add-On Code Required

When **ISSN Add-On Code Required** is selected, the scanner will only read ISSN barcodes that contain add-on codes.



ISSN Add-On Code Required



**** ISSN Add-On Code Not Required**



*** Exit Setup**



0006010
Enter Setup

ISBN

Restore Factory Default



0416000

Restore the Factory Defaults of ISBN

Enable/Disable ISBN



0416020

**** Enable ISBN**



0416010

Disable ISBN

Set ISBN Format



0416030

****ISBN-13**



0416040

ISBN-10



0006000

*** Exit Setup**



Add-On Code

An ISBN barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



Enable 2-Digit Add-On Code



**** Disable 2-Digit Add-On Code**



Enable 5-Digit Add-On Code



**** Disable 5-Digit Add-On Code**

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of ISBN barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes ISBN and ignores the add-on code when presented with an ISBN plus add-on barcode. It can also decode ISBN barcodes without add-on codes.

Add-On Code Required

When **ISBN Add-On Code Required** is selected, the scanner will only read ISBN barcodes that contain add-on codes.



ISBN Add-On Code Required



**** ISBN Add-On Code Not Required**



*** Exit Setup**



0006010
Enter Setup

UPC-E

Restore Factory Defaults



0403000

Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E



0403020

**** Enable UPC-E**



0403010

Disable UPC-E

Transmit Check Digit



0403040

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



0403030

Do Not Transmit UPC-E Check Digit



0006000

*** Exit Setup**



Add-On Code

A UPC-E barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



Enable 2-Digit Add-On Code



Enable 2-Digit Add-On Code



Enable 5-Digit Add-On Code



**** Disable 5-Digit Add-On Code**

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of UPC-E barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes UPC-E and ignores the add-on code when presented with a UPC-E plus add-on barcode. It can also decode UPC-E barcodes without add-on codes.

Add-On Code Required

When **UPC-E Add-On Code Required** is selected, the scanner will only read UPC-E barcodes that contain add-on codes.



UPC-E Add-On Code Required



**** UPC-E Add-On Code Not Required**



*** Exit Setup**



Transmit System Character “0”

The first character of UPC-E barcode is the system character “0”.



Transmit System Character “0”



** Do Not Transmit System Character “0”

UPC-E Extension

Disable UPC-E Extend: Transmit UPC-E barcodes as is.

Enable UPC-E Extend”: Extend UPC-E barcodes to make them compatible in length to UPC-A.



Enable UPC-E Extend



** Disable UPC-E Extend



* Exit Setup



0006010
Enter Setup

UPC-A

Restore Factory Defaults



0404000

Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A



0404020

** Enable UPC-A



0404010

Disable UPC-A

Transmit Check Digit



0404040

** Transmit UPC-A Check Digit



0404030

Do Not Transmit UPC-A Check Digit



0006000

* Exit Setup



Add-On Code

A UPC-A barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



Enable 2-Digit Add-On Code



**** Disable 2-Digit Add-On Code**



Enable 5-Digit Add-On Code



**** Disable 5-Digit Add-On Code**

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of UPC-A barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes UPC-A and ignores the add-on code when presented with a UPC-A plus add-on barcode. It can also decode UPC-A barcodes without add-on codes.

Add-On Code Required

When **UPC-A Add-On Code Required** is selected, the scanner will only read UPC-A barcodes that contain add-on codes.



UPC-A Add-On Code Required



**** UPC-A Add-On Code Not Required**



*** Exit Setup**



0006010
Enter Setup

Transmit Preamble Character "0"



0404100

Transmit Preamble Character "0"



0404090

** Do not Transmit Preamble Character "0"

Note: The preamble character "0" usually does not appear in printed UPC-A barcodes.



0006000
* Exit Setup



0006010
Enter Setup

Interleaved 2 of 5

Restore Factory Defaults



0405000

Restore the Factory Defaults of Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5



0405020

**** Enable Interleaved 2 of 5**



0405010

Disable Interleaved 2 of 5

Set Length Range for Interleaved 2 of 5



0405030

Set the Minimum Length



0405040

Set the Maximum Length



0006000

*** Exit Setup**



Check Digit Verification

A check digit is optional for Interleaved 2 of 5 and can be added as the last digit. It is a calculated value used to verify the integrity of the data.

Disable: The scanner transmits Interleaved 2 of 5 barcodes as is.

Do Not Transmit Check Digit After Verification: The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Digit After Verification: The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check digit algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.



** Disable



Do Not Transmit Check Digit After Verification



Transmit Check Digit After Verification

Note: If the **Do Not Transmit Check Digit After Verification** option is enabled, Interleaved 2 of 5 barcodes with a length that is less than the configured minimum length after having the check digit excluded will not be decoded. (For example, when the **Do Not Transmit Check Digit After Verification** option is enabled and the minimum length is set to 4, Interleaved 2 of 5 barcodes with a total length of 4 characters including the check digit cannot be read.)



* Exit Setup



0006010
Enter Setup

ITF-14

ITF-14 is a special kind of Interleaved 2 of 5 with a length of 14 characters and the last character as the check character.



0405260

Restore the Factory Defaults of ITF-14



0405080

Disable ITF-14



0405090

**** Enable ITF-14 But Do Not Transmit Check Digit**



0405100

Enable ITF-14 and Transmit Check Digit

Note: It is advisable not to enable ITF-14 and Interleaved 2 of 5 at the same time.



0006000

*** Exit Setup**



0006010
Enter Setup

ITF-6

ITF-6 is a special kind of Interleaved 2 of 5 with a length of 6 characters and the last character as the check character.



0405270

Restore the Factory Defaults of ITF-6



0405110

**** Disable ITF-6**



0405120

Enable ITF-6 But Do Not Transmit Check Digit



0405130

Enable ITF-6 and Transmit Check Digit

Note: It is advisable not to enable ITF-6 and Interleaved 2 of 5 at the same time.



0006000
*** Exit Setup**



0006010
Enter Setup

Matrix 2 of 5

Restore Factory Defaults



0406000

Restore the Factory Defaults of Matrix 2 of 5

Enable/Disable Matrix 2 of 5



0406020

Enable Matrix 2 of 5



0406010

** Disable Matrix 2 of 5

Set Length Range for Matrix 2 of 5



0406030

Set the Minimum Length



0406040

Set the Maximum Length



0006000

* Exit Setup



0006010
Enter Setup

Check Digit Verification



0406050
Disable



0406060

**** Do Not Transmit Check Digit After Verification**



0406070

Transmit Check Digit After Verification



0006000
*** Exit Setup**



0006010
Enter Setup

Industrial 2 of 5

Restore Factory Defaults



0417000

Restore the Factory Defaults of Industrial 2 of 5

Enable/Disable Industrial 2 of 5



0417020

**** Enable Industrial 2 of 5**



0417010

Disable Industrial 2 of 5

Set Length Range for Industrial 2 of 5



0417030

Set the Minimum Length



0417040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

Check Digit Verification



0417050
**** Disable**



0417070
Transmit Check Digit After Verification



0417060
Do Not Transmit Check Digit After Verification



0006000
*** Exit Setup**



0006010
Enter Setup

Standard 2 of 5 (IATA 2 of 5)

Restore Factory Defaults



0418000

Restore the Factory Defaults of Standard 25

Enable/Disable Standard 25



0418020

** Enable Standard 25



0418010

Disable Standard 25

Set Length Range for Standard 25



0418030

Set the Minimum Length



0418040

Set the Maximum Length



0006000

* Exit Setup



0006010
Enter Setup

Check Digit Verification



0418050
**** Disable**



0418070
Transmit Check Digit After Verification



0418060
Do Not Transmit Check Digit After Verification



0006000
*** Exit Setup**



0006010
Enter Setup

Code 39

Restore Factory Defaults



0408000

Restore the Factory Defaults of Code 39

Enable/Disable Code 39



0408020

**** Enable Code 39**



0408010

Disable Code 39

Transmit Start/Stop Character



0408090

**** Transmit Start/Stop Character**



0408080

Do not Transmit Start/Stop Character



0006000

*** Exit Setup**



0006010
Enter Setup

Set Length Range for Code 39



0408030

Set the Minimum Length



0408040

Set the Maximum Length

Check Digit Verification



0408050

** Disable



0408070

Transmit Check Digit After Verification



0408060

Do Not Transmit Check Digit After Verification

Enable/Disable Code 39 Full ASCII

The scanner can be configured to identify all ASCII characters by scanning the appropriate barcode below.



0408110

** Enable Code 39 Full ASCII



0408100

Disable Code 39 Full ASCII



0006000

* Exit Setup



0006010
Enter Setup

Codabar

Restore Factory Defaults



0409000

Restore the Factory Defaults of Codabar

Enable/Disable Codabar



0409020

**** Enable Codabar**



0409010

Disable Codabar

Set Length Range for Codabar



0409030

Set the Minimum Length



0409040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

Check Digit Verification



0409050
**** Disable**



0409070
Transmit Check Digit After Verification



0409060
Do Not Transmit Check Digit After Verification

Transmit Start/Stop Character



0409090
**** Transmit Start/Stop Character**



0409080
Do not Transmit Start/Stop Character



0006000
*** Exit Setup**



0006010
Enter Setup

Start/Stop Character Format

You can choose your desired start/stop character format by scanning the appropriate barcode below.



0409100

**** ABCD/ABCD as the Start/Stop Character**



0409110

ABCD/TN*E as the Start/Stop Character



0409120

Start/Stop Character in Uppercase



0409130

Start/Stop Character in Lowercase



0006000

*** Exit Setup**



0006010
Enter Setup

Code 93

Restore Factory Defaults



0410000

Restore the Factory Defaults of Code 93

Enable/Disable Code 93



0410020

**** Enable Code 93**



0410010

Disable Code 93

Set Length Range for Code 93



0410030

Set the Minimum Length



0410040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

Check Digit Verification



0410050
Disable



0410060

**** Do Not Transmit Check Digit After Verification**



0410070

Transmit Check Digit After Verification



0006000
*** Exit Setup**



0006010
Enter Setup

GS1-Databar (RSS)

Restore Factory Defaults



0413000

Restore the Factory Defaults of GS1-Databar

Enable/Disable GS1 Databar



0413020

** Enable GS1-DataBar



0413010

Disable GS1-DataBar

Transmit Application Identifier "01"



0413060

** Transmit Application Identifier "01"



0413050

Do Not Transmit Application Identifier "01"



0006000

* Exit Setup



0006010
Enter Setup

Code 11

Restore Factory Defaults



0415000

Restore the Factory Defaults of Code 11

Enable/Disable Code 11



0415020

**** Enable Code 11**



0415010

Disable Code 11

Set Length Range for Code 11



0415030

Set the Minimum Length



0415040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

Transmit Check Digit



0415120

Transmit Check Digit



0415110

** Do Not Transmit Check Digit

Check Digit Verification



0415050

Disable



0415060

** One Check Digit, MOD11



0415070

Two Check Digits, MOD11/MOD11



0415080

Two Check Digits, MOD11/MOD9



0415090

One Check Digit, MOD11 (Len<=10)
Two Check Digits, MOD11/MOD11 (Len>10)



0415100

One Check Digit, MOD11 (Len<=10)
Two Check Digits, MOD11/MOD9 (Len>10)



0006000

* Exit Setup



0006010
Enter Setup

Plessey

Restore Factory Defaults



0419000

Restore the Factory Defaults of Plessey

Enable/Disable Plessey



0419020

**** Enable Plessey**



0419010

Disable Plessey

Set Length Range for Plessey



0419030

Set the Minimum Length



0419040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

Check Digit Verification



0419050
Disable



0419060

**** Do Not Transmit Check Digit After Verification**



0419070

Transmit Check Digit After Verification



0006000
*** Exit Setup**



0006010
Enter Setup

MSI-Plessey

Restore Factory Defaults



0420000

Restore the Factory Defaults of MSI-Plessey

Enable/Disable MSI-Plessey



0420020

** Enable MSI-Plessey



0420010

Disable MSI-Plessey

Set Length Range for MSI-Plessey



0420030

Set the Minimum Length



0420040

Set the Maximum Length



0006000

* Exit Setup



0006010
Enter Setup

Transmit Check Digit



0420100

Transmit Check Digit



0420090

** Do Not Transmit Check Digit

Check Digit Verification



0420050

Disable



0420060

** One Check Digit, MOD10



0420070

Two Check Digits, MOD10/MOD10



0420080

Two Check Digits, MOD10/MOD11



0006000

* Exit Setup



0006010
Enter Setup

2D Symbologies

PDF 417

Restore Factory Defaults



0501000

Restore the Factory Defaults of PDF 417

Enable/Disable PDF 417



0501020

** Enable PDF 417



0501010

Disable PDF 417

Set Length Range for PDF 417



0501030

Set the Minimum Length



0501040

Set the Maximum Length



0006000

* Exit Setup



0006010
Enter Setup

PDF 417 Twin Code

PDF417 twin code is 2 PDF417 barcodes paralleled vertically or horizontally. Two of them must have the same direction and similar specifications and be placed closely together.

There are 3 options for reading PDF417 twin codes:

Single PDF417 Only: Read either PDF417 code.

Twin PDF417 Only: Read both PDF417 codes.

Both Single & Twin: Read both PDF417 codes. If successful, transmit as twin PDF417 only. Otherwise, try single PDF417 only.



0501070
**** Single PDF417 Only**



0501080
Twin PDF417 Only



0501090
Both Single & Twin

Transmission order of twin code

Order 1: Transmit the one containing more information first.

Order 2: Transmit the one containing less information first.



0501110
**** Order 1**



0501100
Order 2



0006000
*** Exit Setup**



0006010
Enter Setup

QR Code

Restore Factory Defaults



0502000

Restore the Factory Defaults of QR Code

Enable/Disable QR Code



0502020

**** Enable QR Code**



0502010

Disable QR Code

Set Length Range for QR Code



0502030

Set the Minimum Length



0502040

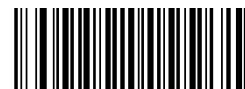
Set the Maximum Length

Micro QR



0502110

**** Enable Micro QR**



0502100

Disable Micro QR



0006000

*** Exit Setup**



0006010
Enter Setup

QR Twin Code

QR twin code is 2 QR barcodes paralleled vertically or horizontally. Two of them must have the same direction and similar specifications and be placed closely together.

There are 3 options for reading QR twin codes:

Single QR Only: Read either QR code.

Twin QR Only: Read both QR codes.

Both Single & Twin: Read both QR codes. If successful, transmit as twin QR only. Otherwise, try single QR only.



0502070

**** Single QR Only**



0502080

Twin QR Only



0502090

Both Single & Twin



0006000

*** Exit Setup**



0006010
Enter Setup

Transmission order of twin code

Order 1: Transmit the one containing more information first.

Order 2: Transmit the one containing less information first.

Order 3: If the twin code is paralleled horizontally, transmit the one on the left first; if it is paralleled vertically, transmit the one in the upper position first.



0502140

Order 1



0502130

Order 2



0502120

**** Order 3**



0006000

*** Exit Setup**



0006010
Enter Setup

Data Matrix

Restore Factory Defaults



0504000

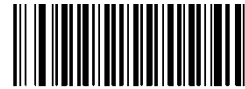
Restore the Factory Defaults of Data Matrix

Enable/Disable Data Matrix



0504020

**** Enable Data Matrix**



0504010

Disable Data Matrix

Set Length Range for Data Matrix



0504030

Set the Minimum Length



0504040

Set the Maximum Length



0006000

*** Exit Setup**



0006010
Enter Setup

Rectangular Barcode



0504110

**** Enable Rectangular Barcode**



0504100

Disable Rectangular Barcode

Mirror Image



0504331

**** Decode Mirror Images**



0504330

Do Not Decode Mirror Images



0006000
*** Exit Setup**



0006010
Enter Setup

Data Matrix Twin Code

Data Matrix twin code is 2 Data Matrix barcodes paralleled vertically or horizontally. Two of them must have the same direction and similar specifications and be placed closely together.

There are 3 options for reading Data Matrix twin codes:

Single Data Matrix Only: Read either Data Matrix code.

Twin Data Matrix Only: Read both Data Matrix codes. Transmission order: Data Matrix code on the left (in the upper position) followed by the one on the right (in the lower position).

Both Single & Twin: Read both Data Matrix codes. If successful, transmit as twin Data Matrix only. Otherwise, try single Data Matrix only.



0504070

**** Single Data Matrix Only**



0504080

Twin Data Matrix Only



0504090

Both Single & Twin



0006000

*** Exit Setup**



Chapter 9 Image Control

Ambient Illumination

Ambient lighting conditions may vary from one operating environment to another, such as fluorescent lit warehouses or sunlit open spaces. Fluorescent lights may flicker when using AC power source in 50-60Hz. Usually indoor illuminance is around 1,000 lux while outdoor illuminance may reach 60,000 lux or even over 100,000 lux.

Two options are provided for ambient illumination settings:

Normal Illuminance: applicable to most indoor/outdoor environments.

High Illuminance: applicable to special environments with super-intense light source.

Change to this settings will not take effect until the scanner reboots or wakes up from sleep.



**** Normal Illuminance (0~60000lux)**



High Illuminance (60000~120000lux)



*** Exit Setup**



Image Flipping

The user may get reversed images when the scanner is installed in non-standard ways. When it happens, image flipping can be used to right the “wrong”.

The following figures illustrate standard image and three flipped images.

- ✧ Fig.8-1 Standard Image: Image the scanner should get when it is installed properly and no reflector is used in its optical imaging system.
- ✧ Fig.8-2 Horizontal Flipped Image: It happens when horizontal reflection occurs along the optical path. To get standard images, enable the **Flip Horizontally** option.
- ✧ Fig.8-3 Vertical Flipped Image: It happens when vertical reflection occurs along the optical path. To get standard images, enable the **Flip Vertically** option.
- ✧ Fig.8-4 Horizontal and Vertical Flipped Image: It happens when the scanner is installed upside down. To get standard images, enable the **Flip Horizontally and Vertically** option.



Fig.8-1 Standard Image



Fig.8-2 Horizontal Flipped Image



Fig.8-3 Vertical Flipped Image



Fig.8-4 Horizontal and Vertical Flipped Image





0006010
Enter Setup

Flip



0202000
** Do Not Flip



0202030
Flip Vertically



0202031
Flip Horizontally



0202032
Flip Horizontally and Vertically

Flip Vertically



0202033
Flip Vertically



0202034
Do Not Flip Vertically

Flip Horizontally



0202035
Flip Horizontally



0202036
Do Not Flip Horizontally



0006000
* Exit Setup

Chapter 10 Troubleshooting

FAQ

Problem: Barcodes cannot be read.

Solution:

1. Find out the barcode type and verify that the barcode type is enabled. If the barcode parameters include check digit verification, select the Disable option.
2. If you do not know the barcode type, enable all symbologies.
3. If they are inverse barcodes (bright images on a dark background), enable the Video Reverse feature.

Problem: Incorrect output.

Solution:

1. If this problem happens to all barcodes and additional characters appear before/after barcode data, disable all prefix/suffix.
2. If this problem only happens to some barcodes and matches one of the following situations:
 - a) incomplete barcode data: Enable the check digit verification.
 - b) both the first and last characters are asterisks (*): Disable the transmission of start/stop characters of Code 39.
 - c) "a" transmitted as "+A": Enable Code 39 Full ASCII.

Problem: Barcodes can be read, but cannot be displayed.

Solution: Verify that the serial port parameter (such as baud rate, data bit and stop bit) settings match the host requirements.

Problem: Illumination and aiming beams are OFF.

Solution:

1. Verify that the scanner is properly powered up.
2. Send “?” to the scanner. If the scanner returns a reply of “!”, then send programming commands to turn on illumination and aimer.

Problem: Carriage Return/Line Feed settings.

Solution: See the “**Terminating Character Suffix**” section in Chapter 7.

Appendix

Appendix 1: Factory Defaults Table

Parameter		Factory Default	Remark
Programming Barcode			
Barcode Programming		Disabled	
Programming Barcode Data		Do not send	
Communication Settings			
Power-Saving Mode (Only RS-232 supported)		Enabled	Normal Mode: RS-232 & USB supported
RS-232	Baud Rate	9600	
	Parity Check	None	
	Data Bit	8	
	Stop Bit	1	
	Hardware Flow Control	No flow control	
HID-KBW	USB Country Keyboard Type	U.S.	
	Convert Case	No conversion	
	Inter-Keystroke Delay	No delay	
	Beep on Unknown Character	Do not beep	
Scan Mode			
Scan Mode		Batch mode	Options: Batch mode, Trigger mode, Sense mode, Continuous mode.
Trigger Mode	Decode Session Timeout	3,000ms	Applicable to a Trigger mode, Sense mode, Continuous mode. 0~3,600,000ms
	Trigger Condition	Electric level	
	Auto Sleep	Enabled	
	Time Period from Idle to Sleep	500ms	0~65,535ms
Sense Mode	Decode Session Timeout	3,000ms	Applicable to Trigger mode, Sense mode, Continuous mode. 0~3,600,000ms
	Image Stabilization Timeout	500ms	0~1,600ms
	Operation after Good Decode	Pause after good decode	
	Timeout between Decodes (Same Barcode)	Disabled 1,500ms	0~65,535ms
	Threshold Value of Illumination Change	2	1~20

Parameter		Factory Default	Remark
Continuous Mode	Decode Session Timeout	3,000ms	Applicable to Trigger mode, Sense mode, Continuous mode. 0~3,600,000ms
	Timeout between Decodes	1000ms	0~65,535ms
Cellphone Read Mode		Disabled	
Scanning Preferences			
Decode Area		Whole Area Decoding	
Central Area		20%	
Illumination & Aiming			
Illumination		Normal	
Aiming		Normal	
Beep & LED Indications			
Startup Beep		Enabled	
Beep after Good Decode (Non-Programming Barcode)	Notification	Enabled	
	Beep Type	Type 3	
	Beep Volume	Loud	
Beep after Good Decode (Programming Barcode)		Enabled	
LED Notification for Good Decode		Enabled	
NGR (Not Good Read) Message		Do not transmit	
		None	
Data Formatting			
Prefix Sequence		Custom Prefix+Code ID+AIM ID	
Custom Prefix		Disabled	
		None	
AIM ID Prefix		Disabled	
Code ID Prefix		Disabled	
Custom Suffix		Disabled	
		None	
Terminating Character Suffix		Enabled	
		0x0D, 0x0A	Carriage Return /Line Feed
Image Control			
Ambient Illumination		Normal illuminance	
Image Flipping		Do not flip	

Parameter	Factory Default	Remark
Symbologies		
Video Reverse	Disabled	Applicable to all symbologies.
Code 128		
Code 128	Enabled	
Maximum Length	127	
Minimum Length	1	
GS1-128 (UCC/EAN-128)		
GS1-128	Enabled	
Maximum Length	127	
Minimum Length	1	
AIM-128		
AIM-128	Enabled	
Maximum Length	127	
Minimum Length	1	
EAN-8		
EAN-8	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to EAN-13	Disabled	
EAN-13		
EAN-13	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
ISSN		
ISSN	Disabled	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	

Parameter	Factory Default	Remark
ISBN		
ISBN	Enabled	
ISBN Format	ISBN-13	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
UPC-E		
UPC-E	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to UPC-A	Disabled	
System Character "0"	Do not transmit	
UPC-A		
UPC-A	Enabled	
Check Digit	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Preamble Character "0"	Do not transmit	
Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Maximum Length	100	
Minimum Length	6	
ITF-6		
ITF-6	Disabled	
Check Digit	Do not transmit	

Parameter	Factory Default	Remark
ITF-14		
ITF-14	Enabled	
Check Digit	Do not transmit	
Matrix 2 of 5		
Matrix 2 of 5	Disabled	
Check Digit Verification	Enabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Industrial 2 of 5		
Industrial 2 of 5	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Standard 2 of 5		
Standard 2 of 5	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Code 39		
Code 39	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Start/Stop Character	Transmit	
Code 39 Full ASCII	Enabled	
Maximum Length	127	
Minimum Length	1	

Parameter	Factory Default	Remark
Codabar		
Codabar	Enabled	
Check Digit Verification	Disabled	
Check Digit	Do not transmit	
Start/Stop Character	Transmit	
Start/Stop Character Format	ABCD/ABCD	
Maximum Length	127	
Minimum Length	1	
Code 93		
Code 93	Enabled	
Check Digit Verification	Enabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	3	
GS1 Databar		
GS1 Databar	Enabled	
Application Identifier "01"	Transmit	
Code 11		
Code 11	Enabled	
Check Digit Verification	One check digit, MOD11	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	2	
Plessey		
Plessey	Enabled	
Check Digit Verification	Enabled	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	1	

Parameter	Factory Default	Remark
MSI-Plessey		
MSI-Plessey	Enabled	
Check Digit Verification	One check digit, MOD10	
Check Digit	Do not transmit	
Maximum Length	127	
Minimum Length	2	
PDF 417		
PDF 417	Enabled	
Maximum Length	2710	
Minimum Length	1	
PDF 417 Twin Code	Read single PDF417 only	
Transmission Order of Twin Code	Order 1	
QR Code		
QR Code	Enabled	
Micro QR	Enabled	
Maximum Length	7089	
Minimum Length	1	
QR Twin Code	Read single QR only	
Transmission Order of Twin Code	Order 3	
Data Matrix		
Data Matrix	Enabled	
Rectangular Barcode	Enabled	
Mirror Image	Decode	
Maximum Length	3116	
Minimum Length	1	
DM Twin Code	Read single DM only	

Appendix 2: AIM ID Table

Symbology	AIM ID	Remark
EAN-13	]E0	Standard EAN-13
	]E3	EAN-13 + 2/5-Digit Add-On Code
EAN-8	]E4	Standard EAN-8
	]E4...]E1...	EAN-8 + 2-Digit Add-On Code
	]E4...]E2...	EAN-8 + 5-Digit Add-On Code
UPC-E	]E0	Standard UPC-E
	]E3	UPC-E + 2/5-Digit Add-On Code
UPC-A	]E0	Standard UPC-A
	]E3	UPC-A + 2/5-Digit Add-On Code
Code 128	]C0	Standard Code 128
GS1-128 (UCC/EAN-128)	]C1	FNC1 is the character right after the start character
AIM-128	]C2	FNC1 is the 2nd character after the start character
ISBT-128	]C4	
Interleaved 2 of 5	]I0	No check digit verification
	]I1	Transmit check digit after verification
	]I3	Do not transmit check digit after verification
ITF-6	]I1	Transmit check digit
	]I3	Do not transmit check digit
ITF-14	]I1	Transmit check digit
	]I3	Do not transmit check digit
Industrial 2 of 5	]S0	Not specified
Standard 2 of 5	]R0	No check digit verification
	]R8	One check digit, MOD10; do not transmit check digit
	]R9	One check digit, MOD10; transmit check digit
Code 39	]A0	Transmit barcodes as is; Full ASCII disabled; no check digit verification
	]A1	One check digit, MOD43; transmit check digit
	]A3	One check digit, MOD43; do not transmit check digit
	]A4	Full ASCII enabled; no check digit verification
	]A5	Full ASCII enabled; transmit check digit
	]A7	Full ASCII enabled; do not transmit check digit
Codabar	]F0	Standard Codabar
	]F2	Transmit check digit after verification
	]F4	Do not transmit check digit after verification

Symbology	AIM ID	Remark
Code 93	]G0	Standard Code 93
Code 11	]H0	One check digit MOD11; transmit check digit
	]H1	Two check digits, MOD11/MOD11; transmit check digit
	]H3	Do not transmit check digit after verification
	]H9	No check digit verification
GS1-DataBar (RSS)	]e0	Standard GS1-DataBar
Plessey	]P0	Standard Plessey
MSI-Plessey	]M0	One check digit, MOD10; transmit check digit
	]M1	One check digit, MOD10; do not transmit check digit
	]M8	Two check digits
	]M9	No check digit verification
Matrix 2 of 5	]X0	Specified by the manufacturer
	]X1	No check digit verification
	]X2	One check digit, MOD10; transmit check digit
	]X3	One check digit, MOD11; do not transmit check digit
ISBN	]X4	Standard ISBN
ISSN	]X5	Standard ISSN
PDF417	]L0	Comply with 1994 PDF417 specifications
Data Matrix	]d0	ECC000 - ECC140
	]d1	ECC200
	]d2	ECC200, FNC1 is the 1st or 5th character after the start character
	]d3	ECC200, FNC1 is the 2nd or 6th character after the start character
	]d4	ECC200, ECI included
	]d5	ECC200, FNC1 is the 1st or 5th character after the start character, ECI included
	]d6	ECC200, FNC1 is the 2nd or 6th character after the start character, ECI included
QR Code	]Q0	QR1
	]Q1	2005 version, ECI excluded
	]Q2	2005 version, ECI included
	]Q3	QR Code 2005, ECI excluded, FNC1 is the 1st character after the start character
	]Q4	QR Code 2005, ECI included, FNC1 is the 1st character after the start character
	]Q5	QR Code 2005, ECI excluded, FNC1 is the 2nd character after the start character
	]Q6	QR Code 2005, ECI included, FNC1 is the 2nd character after the start character

Reference: ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers).

Appendix 3: Code ID Table

Symbology	Code ID
Code 128	j
GS1-128(UCC/EAN-128)	j
AIM-128	f
EAN-8	d
EAN-13	d
ISSN	n
ISBN	B
UPC-E	c
UPC-A	c
Interleaved 2 of 5	e
ITF-6	e
ITF-14	e
Matrix 2 of 5	v
Industrial 2 of 5	D
Standard 2 of 5	s
Code 39	b
Codabar	a
Code 93	i
Code 11	H
Plessey	p
MSI-Plessey	m
GS1 Databar	R
PDF417	r
QR Code	Q
Data Matrix	u

Appendix 4: ASCII Table

Hex	Dec	Char
00	0	NUL (Null char.)
01	1	SOH (Start of Header)
02	2	STX (Start of Text)
03	3	ETX (End of Text)
04	4	EOT (End of Transmission)
05	5	ENQ (Enquiry)
06	6	ACK (Acknowledgment)
07	7	BEL (Bell)
08	8	BS (Backspace)
09	9	HT (Horizontal Tab)
0a	10	LF (Line Feed)
0b	11	VT (Vertical Tab)
0c	12	FF (Form Feed)
0d	13	CR (Carriage Return)
0e	14	SO (Shift Out)
0f	15	SI (Shift In)
10	16	DLE (Data Link Escape)
11	17	DC1 (XON) (Device Control 1)
12	18	DC2 (Device Control 2)
13	19	DC3 (XOFF) (Device Control 3)
14	20	DC4 (Device Control 4)
15	21	NAK (Negative Acknowledgment)
16	22	SYN (Synchronous Idle)
17	23	ETB (End of Trans. Block)
18	24	CAN (Cancel)
19	25	EM (End of Medium)
1a	26	SUB (Substitute)
1b	27	ESC (Escape)
1c	28	FS (File Separator)
1d	29	GS (Group Separator)

Hex	Dec	Char
1e	30	RS (Request to Send)
1f	31	US (Unit Separator)
20	32	SP (Space)
21	33	! (Exclamation Mark)
22	34	" (Double Quote)
23	35	# (Number Sign)
24	36	\$ (Dollar Sign)
25	37	% (Percent)
26	38	& (Ampersand)
27	39	` (Single Quote)
28	40	((Right / Closing Parenthesis)
29	41	) (Right / Closing Parenthesis)
2a	42	* (Asterisk)
2b	43	+ (Plus)
2c	44	, (Comma)
2d	45	- (Minus / Dash)
2e	46	. (Dot)
2f	47	/ (Forward Slash)
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	: (Colon)
3b	59	; (Semi-colon)
3c	60	< (Less Than)
3d	61	= (Equal Sign)

Hex	Dec	Char
3e	62	> (Greater Than)
3f	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[(Left / Opening Bracket)
5c	92	\ (Back Slash)
5d	93	] (Right / Closing Bracket)

Hex	Dec	Char
5e	94	^ (Caret / Circumflex)
5f	95	_ (Underscore)
60	96	' (Grave Accent)
61	97	A
62	98	b
63	99	C
64	100	D
65	101	E
66	102	F
67	103	G
68	104	H
69	105	I
6a	106	J
6b	107	K
6c	108	L
6d	109	M
6e	110	N
6f	111	O
70	112	P
71	113	Q
72	114	R
73	115	S
74	116	T
75	117	U
76	118	V
77	119	W
78	120	X
79	121	Y
7a	122	Z
7b	123	{ (Left/ Opening Brace)
7c	124	| (Vertical Bar)
7d	125	} (Right/Closing Brace)
7e	126	~ (Tilde)
7f	127	DEL (Delete)

Appendix 5: Parameter Programming Examples

The following examples show you how to program parameters by scanning programming barcodes.

a. Program the Decode Session Timeout

Example: Set the decode session timeout to 1500ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Decode Session Timeout** barcode. (See the “**Decode Session Timeout**” section in Chapter 3)
3. Scan the numeric barcodes “1”, “5”, “0” and “0”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

b. Program the Time Period from Idle to Sleep

Example: Set the time period from idle to sleep to 500ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Time Period from Idle to Sleep** barcode. (See the “**Auto Sleep**” section in Chapter 3)
3. Scan the numeric barcodes “5”, “0” and “0”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

c. Program the Image Stabilization Timeout

Example: Set the image stabilization timeout to 500ms

1. Scan the **Enter Setup** barcode.
 2. Scan the **Image Stabilization Timeout** barcode. (See the “**Image Stabilization Timeout**” section in Chapter 3)
 3. Scan the numeric barcodes “5”, “0” and “0”.
 4. Scan the **Save** barcode.
 5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

d. Program the Timeout between Decodes (Same Barcode)

Example: Set the timeout between decodes (same barcode) to 1000ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Timeout between Decodes (Same Barcode)** barcode. (See the “**Timeout between Decodes (Same Barcode)**” section in Chapter 3)
3. Scan the numeric barcodes “1”, “0”, “0” and “0”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

e. Program the Threshold Value of Illumination Change

Example: Set the threshold value of illumination change to 4

1. Scan the **Enter Setup** barcode.
2. Scan the **Threshold Value of Illumination Change** barcode. (See the “**Sensitivity**” section in Chapter 3)
3. Scan the numeric barcode “4”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

f. Program the Timeout between Decodes

Example: Set the timeout between decodes to 500ms

1. Scan the **Enter Setup** barcode.
 2. Scan the **Timeout between Decodes** barcode. (See the “**Timeout between Decodes**” section in Chapter 3)
 3. Scan the numeric barcodes “5”, “0” and “0”.
 4. Scan the **Save** barcode.
 5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

g. Program the Central Area

Example: Set the percentage of central area to 20%

1. Scan the **Enter Setup** barcode.
2. Scan the **Specify Central Area** barcode.
3. Scan the numeric barcodes “2” and “0”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

h. Program the Custom Prefix/Suffix

Example: Set the custom prefix to “CODE”

1. Check the hex values of “CODE” in the ASCII Table. (“CODE”: 43, 4F, 44, 45)
2. Scan the **Enter Setup** barcode.
3. Scan the **Set Custom Prefix** barcode. (See the “**Set Custom Prefix**” section in Chapter 6)
4. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5”.
5. Scan the **Save** barcode.
6. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

i. Program the Terminating Character Suffix

Example: Set the terminating character suffix to 0x0D

1. Scan the **Enter Setup** barcode.
 2. Scan the **Set Terminating Character Suffix** barcode. (See the “**Set Terminating Character Suffix**” section in Chapter 6)
 3. Scan the numeric barcodes “0” and “D”.
 4. Scan the **Save** barcode.
 5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

j. Program the Code ID

Example: Set the Code ID of PDF 417 to “p”

1. Check the hex value of “p” in the ASCII Table. (“p”: 70)
2. Scan the **Enter Setup** barcode.
3. Scan the **Modify PDF417 Code ID** barcode. (See the “**Modify Code ID**” section in Chapter 6)
4. Scan the numeric barcodes “7” and “0”.
5. Scan the **Save** barcode.
6. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

k. Program the NGR Message

Example: Set the NGR message to “!ERR”

1. Check the hex values of “!ERR” in the ASCII Table. (“!ERR”: 21, 45, 52, 52)
 2. Scan the **Enter Setup** barcode.
 3. Scan the **Edit NGR Message** barcode. (See the “**Edit NGR Message**” section in Chapter 5)
 4. Scan the numeric barcodes “2”, “1”, “4”, “5”, “5”, “2”, “5” and “2”.
 5. Scan the **Save** barcode.
 6. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

I. Program the Length Range (Maximum/Minimum Lengths) for a Symbology

Note: If minimum length is set to be greater than maximum length, the scanner only decodes barcodes with either the minimum or maximum length. If you only want to read barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Example: Set the scanner to decode Code 128 barcodes containing between 8 and 12 characters

1. Scan the **Enter Setup** barcode.
 2. Scan the **Set the Minimum Length** barcode. (See the “**Set Length Range for Code 128**” section in Chapter 7)
 3. Scan the numeric barcode “8”.
 4. Scan the **Save** barcode.
 5. Scan the **Set the Maximum Length** barcode. (See the “**Set Length Range for Code 128**” section in Chapter 7)
 6. Scan the numeric barcodes “1” and “2”.
 7. Scan the **Save** barcode.
 8. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

Appendix 6: Digit Barcodes

0-9



0000000

0



0000050

5



0000010

1



0000060

6



0000020

2



0000070

7



0000030

3



0000080

8



0000040

4



0000090

9

A-F**A****B****C****D****E****F**

Appendix 7: Save/Cancel Barcodes

After reading numeric barcode(s), you need to scan the **Save** barcode to save the data. If you scan the wrong digit(s), you can either scan the **Cancel** barcode and then start the configuration all over again, or scan the **Delete the Last Digit** barcode and then the correct digit, or scan the **Delete All Digits** barcode and then the digits you want.

For instance, after reading the **Maximum Length** barcode and numeric barcodes “1”, “2” and “3”, you scan:

- ✧ **Delete the Last Digit:** The last digit “3” will be removed.
- ✧ **Delete All Digits:** All digits “123” will be removed.
- ✧ **Cancel:** The maximum length configuration will be cancelled. And the scanner is still in the setup mode.





AdvanCode Technology Co., Ltd.

6F-5, No.81, Sec. 1, Xintai 5th Rd., Xishi Dist., New Taipei City, 221, Taiwan

TEL : 886-2-7708-1569 FAX : 886-2-8698-4093

E-mail: info_adv@advancode.us

www.advancode.com.tw