

code

User Manual



Code Reader 3500™
Manual Version 3
Release Date: 1/22/2009

Statement of Agency Compliance



The Code Reader 3500 has been tested for compliance with FCC regulations and was found to be compliant with all applicable FCC Rules and Regulations.

IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, this device must not be co-located or operate in conjunction with any other antenna or transmitter.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



The Code Reader 3500 has been tested for compliance to CE standards and guidelines and was found to conform to applicable CE standards, specifically the EMC requirements EN 55024, ESD EN 61000-4-2, Radiated RF Immunity EN 61000-4-3, ENV 50204, EFT EN 61000-4-4, Conducted RF Immunity EN 61000-4-6, EN 55022, Class B Radiated Emissions, and Class B Conducted Emissions.

Code voids product warranty if the hard case has been opened or tampered with in any way.

In addition, a CB Test Certificate has been issued by the National Certification Board (NCB) indicating CR3500 meets all safety and quality standards in accordance to IEC 60950-1:2001, First Edition.

Code Reader 3500 User Manual

Copyright © 2005 Code Corporation.

All Rights Reserved.

The software described in this manual may only be used in accordance with the terms of its license agreement.

No part of this publication may be reproduced in any form or by any means without written permission from Code Corporation. This includes electronic or mechanical means such as photocopying or recording in information storage and retrieval systems.

NO WARRANTY. This technical documentation is provided AS-IS. Further, the documentation does not represent a commitment on the part of Code Corporation. Code Corporation does not warrant that it is accurate, complete or error free. Any use of the technical documentation is at the risk of the user. Code Corporation reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult Code Corporation to determine whether any such changes have been made. Code Corporation shall not be liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material. Code Corporation does not assume any product liability arising out of or in connection with the application or use of any product or application described herein.

NO LICENSE. No license is granted, either by implication, estoppel, or otherwise under any intellectual property rights of Code Corporation. Any use of hardware, software and/or technology of Code Corporation is governed by its own agreement.

The following are trademarks or registered trademarks of Code Corporation:

CodeXML, Maker, QuickMaker, CodeXML Maker, CodeXML Maker Pro, CodeXML Router, CodeXML Client SDK, CodeXML Filter, HyperPage, CodeTrack, GoCard, GoWeb, ShortCode, GoCode, Code Router, QuickConnect Codes, Rule Runner

All other product names mentioned in this manual may be trademarks of their respective companies and are hereby acknowledged.

The software and/or products of Code Corporation include inventions that are patented or that are the subject of patents pending. U.S. Patents: 6997387, 6619547, 6736320, 7014113, 6942152, 7036735, 7097099, 6957769

The Code Reader software uses the Mozilla SpiderMonkey JavaScript engine, which is distributed under the terms of the Mozilla Public License Version 1.1. Source code for this version of Spider Monkey is available at:

<http://www.codecorp.com/source/spidermonkey>.

The Code Reader software is based in part on the work of the Independent JPEG Group.

Code Corporation, 14940 South Pony Express Road, Suite 500, Bluffdale, UT 84065

www.codecorp.com

Table of Contents

Chapter 1 - Getting Started	1
1.1 - Introduction	2
1.2 - Unpacking	2
1.3 - Reader Battery Installation	3
1.4 - Attaching Handles	3
1.5 - Powering On/Off Reader	3
1.6 - Keypad/Icon Overview	4
1.7 - Batch Operation	6
1.7.1 - Introduction	6
1.8 - Cabled Operation	8
1.8.2 - CR3500 as a USB Keyboard	9
1.8.2.1 - Additional USB Communication Settings	9
1.8.2.2 - Keyboard Support	10
1.8.3 - PS/2 Cable Installation Guide	11
1.8.4 - RS-232 (Serial) Cable Installation Guide	12
1.8.4.1 - Additional RS-232 Communication Data Bit Settings	13
1.8.4.2 - Additional RS-232 Communication Baud Rate Settings	13
1.8.4.3 - Additional RS-232 Communication Parity Settings	13
1.9 - Bluetooth Radio Operation	14
1.9.1 - Introduction	14
1.9.2 - Bluetooth Radio Auto Connect	16
1.9.3 - Bluetooth Radio Auto Disconnect	16
1.9.4 - Bluetooth Radio Time Out Settings	17
1.9.5 - Bluetooth Radio Out of Range Notification Settings	17
1.9.6 - Auto Save Last Bluetooth Address	17
1.9.7 - Configuration for Belkin Bluetooth Manager Software (Version 1.4.2.10)	18
1.9.8 - Configuration for Toshiba Bluetooth Stack Instructions	20
1.9.9 - Configuration for Microsoft Bluetooth Stack Instructions	23
1.9.10 - Installing CodeXML Router Bluetooth Edition for Windows	25
1.10 - Targeting and Reading Techniques	26
1.11 - Imager Field Selection and Resolution	27
1.12 - Decode Zone	27
Chapter 2 - Optimization and Trigger Programming	28
2.1 - Introduction	29
2.2 - Global Trigger Optimization Matrix	30
2.3 - Left Trigger Optimization Matrix	30
2.4 - Left Trigger Programming	31
2.5 - Right Trigger Optimization Matrix	31
2.6 - Right Trigger Programming	31
2.7 - Handle Optimization Matrix	32
2.8 - Handle Trigger Programming	32

2.9 - Continuous Trigger Optimization Matrix	33
2.10 - Continuous Scan	33
2.11 - Continuous Scan Settings	34
2.11.1 - Continuous Scan - Sleep Time Out	34
2.11.2 - Continuous Scan - Trigger Delays	34
2.11.3 - Continuous Scan - Duplicate Scan Suppression	34
2.12 - Motion Detection Scan Settings	34
Chapter 3 - CR3500 Programming: Symbology Settings	35
3.1 - Aztec Symbology	36
3.2 - Codabar Symbology	36
3.3 - Codablock F Symbology	36
3.4 - Code 11 Symbology	36
3.5 - Code 39 Symbology	37
3.6 - Code 93 Symbology	37
3.7 - Code 128 Symbology	37
3.8 - Composite Symbologies	38
3.9 - Data Matrix Symbology	38
3.10 - GoCode Symbology	38
3.11 - Interleaved 2 of 5 Symbology	39
3.12 - Maxicode Symbology	39
3.13 - Matrix 2 of 5 Symbology	39
3.14 - Micro PDF417 Symbology	39
3.15 - MSI Plessy Symbology	40
3.16 - NEC 2 of 5 Symbology	40
3.17 - Optical Character Recognition (OCR)	40
3.18 - PDF 417 Symbology	40
3.19 - Pharmacode	41
3.20 - Postal Symbologies	41
3.21 - QR Code Symbology	41
3.22 - GS1 Data Bar (formerly RSS) Symbology	42
3.23 - Telepen Symbology	42
3.24 - UPC/EAN/JAN	42
Chapter 4 - Reader Feedback and Special Settings	43
4.1 - Volume and Vibration Settings	44
4.2 - Code Readability Index	44
4.3 - Backlight Intensity Settings	45
4.4 - Backlight Timeout Settings	45
4.5 - Targeting Settings	45
4.6 - Reader Power Off Settings	45
4.7 - Reader ID and Firmware Version	46
4.8 - Reader Settings Lock	46
4.9 - Time Stamp Settings	47

4.10 - Lock-out Link Mode.....	47
Chapter 5 - Advanced Decode Performance	48
5.1 - Set Targeting Zone Tolerances.....	49
5.2 - Windowing.....	50
5.3 - Mirror Decoding.....	51
5.4 - Anti-Glare	51
Chapter 6 - Adding a Prefix or Suffix and Reader Text Commands	52
6.1 - Prefix Settings	53
6.2 - Suffix Settings	53
6.3 - Erase Prefix and Suffix Settings.....	54
6.4 - Reader Text Commands.....	54
Chapter 7 - CR3500: Maintenance and Troubleshooting	55
7.1 - Reset Reader to Factory Defaults.....	56
7.2 - General Safety Information	56
7.3 - Warranty	57
7.4 - CR3500 Accessories.....	58
7.5 - Frequently Asked Questions	58
7.6 - CR3500 Maintenance	58

Chapter 1 - Getting Started

1.1 - Introduction

With new high-performance bar code reading technology, a graphic display and rugged keyboard, the Code Reader 3500 (CR3500) is the most advanced portable data terminal on the market today. The CR3500 decodes bar codes faster and offers features not found in other readers, including new automatic glare reducing illumination technology. The result is unequalled performance, even on difficult reading surfaces, including circuit boards, IV bags, patient-wristbands, driver licenses and other shiny or curved surfaces.



The CR3500 also offers the next generation in dual-field optics and is the only bar code reader that can read both wide linear and the smallest of 2D bar codes. The optimal focus and field of view indicator of the CR3500 make bar code reading even easier than before.

The CR3500 extends mobile all-symbology bar code reading to include information display and keyboard entry, making it an ideal bar code reading solution that can be deployed in both low and high-volume use-case scenarios. Built on an open JavaScript platform, the CR3500 can be easily customized to meet the data manipulation needs of any end-user application. The CR3500 will excel in batch, cabled or Bluetooth wireless modes, and all scanned data configuration settings and JavaScripts files are stored in non-volatile flash memory and are maintained in the event of a power loss.

Enabled for both in-stand and out-of-stand operation the CR3500 can be used as a wireless hand-held and fixed presentation reader. This lightweight, comfortable and easy to use bar code reader solution can be further accessorized to fit the needs of applications in the healthcare, public safety, manufacturing, aerospace, industrial automotive and defense environment. With its modular design and JavaScript platform, the CR3500 is future-proof and the most cost-effective reader available.

1.2 - Unpacking

Remove the CR3500 from its packing and inspect it for damage. If the reader was damaged during shipping, please call Code at (801) 495-2200.

The standard CR3500 reader is shipped with a USB cable interface. The reader also features a 1950 mAH battery that must be installed in the reader at all times, unless a battery blank is being used.

Various accessories are available for the CR3500:

- 4 cable options (USB 6 ft., USB 12 ft., RS-232 or PS/2)
- Class 1 Bluetooth radio with 100 meters (300 feet) operating range (shorter range option available)
- Ruggedized Cabled Handle
- Battery Handle (in two battery sizes)
- External Battery Charger
-  CodeXML Bluetooth® Modems
- Power Supplies: US/Europe/SA/UK/Asia
- Reader Stand
- Lanyard Hook attachment option

NOTE: Please keep your packing materials. The CR3500 is shipped in an approved shipping container and should be used if you ever need to return your equipment for servicing.

1.3 - Reader Battery Installation

Attaching and Detaching the Lithium Ion Battery

The CR3500 can be purchased with a 1950 mAH Lithium Ion battery. To install battery, make sure the battery is in the correct position (figure 1.1). Place the plastic tab of the battery into the reader (figure 1.2). Push the battery in and slide the locking mechanism down (figure 1.3)

Charging the Lithium Ion Battery

The battery automatically charges everytime a cable interface is attached to the reader and the host is powered up.

Note: The RS-232 interface power adapter must be plugged into a wall socket for the reader to charge.

If you power-up the CR3500 with a completely discharged battery it will take up to 10 minutes before the reader will become operational.



Figure 1.1



Figure 1.2



Figure 1.3

1.4 - Attaching Handles

BH1 or BH2 Battery Handle

1. Make sure the reader has no battery or battery blank installed.
2. Insert the tab on the back of the BH1 or BH2 Handle into the reader's recessed slot typically utilized to secure the battery in place on the reader (Figure 1.4).
3. The reader 'snaps' to the handle utilizing the battery compartment (Figure 1.5). The reader will 'quick release' from the handle to accommodate quick and easy battery charging.
4. Optionally, the reader can be further secured to the handle with two threaded screws on the underside of the reader and handle (Figure 1.6).



Figure 1.4



Figure 1.5

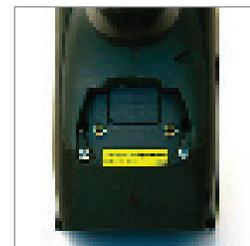


Figure 1.6

1.5 - Powering On/Off Reader

To power on the reader, press and hold either of the red trigger buttons for one second (Figure 1.7).

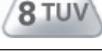
The reader will power down after 2 hours of non-use. To change the default settings, please see Section 4.6 - Reader Power Off Settings.



Figure 1.7

1.6 - Keypad/Icon Overview

The chart below shows key/button functions.

Description of Button Function				
Key	Numeric Mode	Upper Case Text Mode	Lower Case Text Mode	Symbol Mode
	Toggles between numeric characters, upper case text, lower case text, and symbol character input	Toggles between numeric characters, upper case text, lower case text, and symbol character input	Toggles between numeric characters, upper case text, lower case text, and symbol character input	Toggles between numeric characters, upper case text, lower case text, and symbol character input
	1	Space, 1	Space, 1	Space) < _
	2	A, B, C, 2	a, b, c, 2	! * = `
	3	D, E, F, 3	d, e, f, 3	“ + > {
	4	G, H, I, 4	g, h, i, 4	# , ?
	5	J, K, L, 5	j, k, l, 5	\$ - @ }
	6	M, N, O, 6	m, n, o, 6	% . [~
	7	P, Q, R, S, 7	p, q, r, s, 7	& / \ Space
	8	T, U, V, 8	t, u, v, 8	' :] Space
	9	W, X, Y, Z, 9	w, x, y, z, 9	(; ^ Space
	0	0	0	Toggles between 4 sets of symbols – when pressed, the current symbol set is displayed
	Backspace and clear messages			

Note: All characters represented in this table are for ASCII mode.

To lock/unlock reader buttons press Shift + Up Arrow simultaneously.

The chart below shows all of the icons for CodeViewer™ software and their definitions.

Icon	Description
<i>Power Icons</i>	
	50% to 100% capacity of battery
	20% to 50% capacity of battery
	0% to 20% capacity of battery – recharge battery as soon as possible
	Battery is recharging
	No icon is displayed when battery blank is used with a cabled reader
<i>Connection Icon</i>	
	Reader is connected physically or wirelessly to a receiving device (computer, handheld, etc.) Note: Some RS-232 configurations can not be detected
	No icon is displayed when the reader does not detect a connection
<i>Communication Mode Icons</i>	
	RS-232 communication mode enabled
	PS/2 communication mode enabled
	USB communication mode enabled
	Bluetooth communication mode enabled
<i>Packet Mode Icons</i>	
	Standard Bluetooth Reliability Mode (previously One Way Mode) – no acknowledgement required
	Additional Bluetooth Reliability Mode (previously Two Way Mode) – packetized communication between a CR3500 and an application
	USB Downloader mode
	Keyboard mode – can be used as either USB keyboard or PS/2 keyboard input mode
	Virtual COM Port One Way mode
	Secure mode – data encryption mode enabled
<i>Memory Icons</i>	
	No stored data
	Some stored data
	Memory is at least 90% full
	No batch mode – data will not be stored in the reader's memory if not connected
<i>Input Mode Icons</i>	
	Caps Lock – data entered manually on the keypad will be in capital letters
	Lower Case – data entered manually on the keypad will be in lower case letters
	Numeric – data entered manually on the keypad will be numeric
	Symbol – data entered manually on the keypad will be symbols
	Locked – buttons pushed on the reader's keypad will be ignored*

***Note:** To lock/unlock reader buttons press Shift + Up Arrow simultaneously.

1.7 - Batch Operation

1.7.1 - Introduction

The CR3500 unit features a batch mode for applications requiring a portable reader. Batch mode allows a user to store scanned data to the reader's non-volatile memory. The user may transfer the data to a host computer when needed. To utilize batch functionality you will need to purchase the 1950 mAH Lithium Ion battery from a Code representative.

The CR3500 may be programmed to operate in three different batch modes:

1. *Send & Buffer Mode (Default)* - In Send and Buffer Mode, the CR3500 unit will automatically detect when the USB or RS-232 cable is detached, or the Bluetooth® radio is out of range, and will switch into batch mode and buffer the data in non-volatile memory. When the reader is reconnected to your host computer, or when the Bluetooth Radio is back in range, the reader will auto transfer the buffered data. Once transferred, the data is automatically erased from the reader's memory.

Note: Once a unit is reattached to a cable or enters within radio range, any data scanned WILL NOT be saved to the non-volatile memory. For RS-232, a power supply connection is used to detect when a reader is attached to a host computer.

2. *Log Only Mode* - In Log Only Mode, the reader will only store data into non-volatile memory. You can only retrieve the data by scanning the Transfer All Stored Data in Memory code (see explanation next page). Once the reader's memory has been transferred to a host computer, all of the data will still reside in memory. A user must scan the Delete Scanned Data from Memory code to clear memory.
3. *Send & Log Mode* - In Send and Log Mode the reader will save a copy in non-volatile memory as well as send the data if the reader is connected. The data can be retrieved by scanning the Transfer All Stored Data in Memory code or the Transfer Only Unsent Data in Memory code (see explanations next page). Once the reader's memory has been transferred to a host computer, all of the data will still reside in memory. A user must scan the Delete Scanned Data from Memory code to clear memory.

Note: The reader can be defined as connected if:

- 1) The Bluetooth radio is in range;
- 2) The USB cable is attached to a host and the reader is enumerated;
- 3) The reader is in RS-232 Cabled - No Power mode; or
- 4) The RS-232 cable is attached to host with power supply and the reader is in RS-232 Batch-Cable Detect (Default) mode.

The CR3500's dedicated batch memory is a minimum of 1MB. To determine the number of reads that may be stored, divide the average bytes of a scan into the total minimum memory.

Feedback

After a successful decode in batch mode, the unit will beep once and the memory LED will flash either red or amber depending on memory level, and every 15 seconds the battery LED will flash green, amber or red depending on the battery level. This feedback behavior is accurate when a reader is cabled or uncabled.



Transferring and Deleting Data

There are three different codes to transfer and delete data in memory.

1. *Transfer All Data in Memory* - This code will send all data in memory everytime the code is scanned.
2. *Transfer Only Unsent Data in Memory* - This code will send only the data in memory that hasn't already been sent when the code is scanned (ONLY works in Send & Buffer and Send & Log modes).
3. *Delete Scanned Data from Memory* - Scanning this code will erase all data in the reader's non-volatile memory.

Auto Transfer Buffer Memory

By default, when reconnected, the CR3500 will automatically transfer any data in memory once a connection to a host is established. If your application is not ready, the reader will send the data anyway and the data could be lost. If you do not wish for the reader to immediately send data upon connection, please scan the Disable Auto Transfer Buffer Memory code.

Send & Buffer Mode (Default)



M075_01

Transfer All Data in Memory



M077_02

Enable Auto Transfer Buffer Memory (Default)



M070_01

Log Only Mode



M072_01

Transfer Only Unsent Data in Memory



M078_02

Disable Auto Transfer Buffer Memory



M069_01

Send & Log Mode



M076_01

Delete Scanned Data from Memory



M071_01

RS-232 Considerations

In RS-232 Cabled-No Power mode, the CR3500 will behave as if it is always connected even though the serial cable is disconnected or the power adapter is unplugged. Data scanned will be sent, regardless of connection status. Data scanned in Cabled-No Power mode will be lost if the CR3500 is not connected to the serial cable - it will not buffer the data, unless Send & Log or Log Only mode has been enabled.

In RS-232 Batch-Cable Detect (Default) mode, the CR3500 will detect if it is connected to a powered serial cable, if it is, it will then send the data. If a powered serial cable is not connected or if the power adapter is not connected to the serial cable, the CR3500 will buffer the data. When the CR3500 is then connected to a powered serial cable, the data will automatically upload.

RS-232 Batch-Cable Detect (Default)



M073_02

RS-232 Cabled-No Power



M074_02



Save Settings

M188_02

1.8 - Cabled Operation

1.8.1- Introduction

The Code Reader 3500 (CR3500) is a Multi-Interface Unit (MIU) and is available with USB (6 ft. or 12 ft.), RS-232 and PS/2 cables. All of the cables are connected to the CR3500 with a 8-pin DIN connector (Figure 1.8).



Figure 1.8

Hand Held CR3500 - To install a cable directly to the CR3500, correctly line up the 8-pin DIN connector into the back end of the reader. The arrows on the connector should be facing down (Figure 1.9). When the reader and the cable connector are lined up, firmly push the cable into the reader. The cable has a locking mechanism that will firmly hold the cable in place (Figure 1.10). To detach the cable from the reader, you must pinch the plastic on the 8-pin DIN and pull back to disengage the connector.



Figure 1.9



Figure 1.10

CR3500 with Cabled Handle - If a handle was purchased for use with the CR3500, the 8-pin DIN connector is at the bottom of the handle (Figure 1.11). Insert the 8-pin connector and firmly push the cable into the handle. The cable has a locking mechanism that will firmly hold the cable in place. If using the H2 cabled handle, for additional stability, there is an optional cable attachment clip that can secure the cable to the handle with two threaded screws (Figure 1.12).



Figure 1.11



Figure 1.12



1.8.2 - CR3500 as a USB Keyboard

To connect the CR3500 to your host computer via USB interface:

1. Attach the USB cable to CR3500 (Figure 1.13).
2. There is no need to power of the computer (Figure 1.14) Connect the USB cable to a USB port on the computer (Figure 1.15).
3. Once properly connected, the CR3500 will power on and beep.
4. Scan the below code (M049_03) for USB Keyboard Mode:

USB Keyboard Factory Reset



Save Settings



7. Scan the Save Settings Code (M188_02)



Figure 1.13



Figure 1.14



Figure 1.15

1.8.2.1 - Additional USB Communication Settings

USB Keyboard Mode - Data is sent from the Reader and interpreted by the host just as if a US keyboard was being used to enter data.

USB Downloader - This mode is used when downloading firmware.

USB Native Two Way Mode - This mode is utilized when there is a need for error-corrected communication between the CR3500 and an application through the USB port.

USB Virtual COM 1 Way Mode - This mode allows a USB-cabled CR3500 to function as a virtual COM port. To use the CR3500 in this mode, download the driver at www.codecorp.com/downloads.html.

USB HID POS (Terminal ID 131) - This mode allows a USB-cabled CR3500 to communicate as a USB HID POS (Terminal ID 131) device.

1.8.2.1 - Additional USB Communication Settings (continued)

Scan the following codes to set the appropriate USB communication setting:

USB Keyboard



M134_02

USB Downloader



M133_01

USB Native Two Way Mode



M135_04

USB Virtual COM 1 Way Mode



M668_01

USB HID POS (Terminal ID 131)



M736_01

1.8.2.2 - Keyboard Support

Scan the following codes to set appropriate keyboard mapping:

US English (Default)

No Leading 0
for non-printable characters



M172_01

US English - Leading 0
for non-printable characters



M602_01

US English - ctrl + char
for non-printable characters



M606_01

French



M603_01

German



M604_01

Japanese



M605_01

Universal Keyboard



M173_01

Custom Keyboard



M171_01

*Requests map to
be installed*

Alternative OS (Windows CE/MAC/Unix/Linux)

Enable



M585_02

Alternative OS Disable



M584_02



Save Settings

M188_02

1.8.3 - PS/2 Cable Installation Guide

1. Power off the computer. If you disconnect the computer's keyboard while it is powered on, your computer will lock up.
2. Attach the the PS/2 cable to the CR3500.
3. If you have a cabled keyboard, detach the keyboard cable from the computer and connect that same connector to the female connection on the CR3500 PS/2 cable (Figure 1.16).
4. Now connect the male CR3500 PS/2 connector into the keyboard port on the computer (Figure 1.17).
5. Power on the computer. The CR3500 is powered by the PS/2 port and does not require a power supply.
6. Once properly connected, the CR3500 will power on and beep.



Figure 1.16



Figure 1.17

PS/2 Factory Reset



M060_03

Save Settings



M188_02

Code does not guarantee compatibility
with all models of computers.



Save Settings

M188_02

1.8.4 - RS-232 (Serial) Cable Installation Guide

1. Attach the RS-232 (Serial) Cable to the CR3500.
2. Connect the RS-232 (Serial) cable to a serial port on the computer (Figure 1.18). There is no need to power off the computer.
3. The RS-232 (Serial) interface has an optional 5V/1.5A power supply (Figure 1.19). If you have a power supply, plug the power supply adapter into the RS-232 (Serial) cable and then plug the power adapter into a wall socket (Figure 1.20).



Figure 1.18



Figure 1.19



Figure 1.20

4. Once properly connected, the CR3500 will power on and beep.
5. For RS-232 (Serial) mode scan M418_02 (below). If the power supply is not connected scan M074_02 (below).
6. Scan the Save Settings Code (M188_02).

RS-232 (Serial) Factory Reset



M418_02

RS-232 (Serial) Mode No Power Supply



M074_02

Save Settings



M188_02

**RS-232 (Serial)
Factory Default Settings**
Mode: RS-232 (Serial)
One Way Mode
Baud Rate: 57600
Stop Bits: 2
Data Bits: 8
Parity: None

Warning: Code Corporation approved power adapter must be used. Reader failure due to use of incorrect power adapter will void warranties.



Save Settings

M188_02

1.8.4.1 - Additional RS-232 Communication Data Bit Settings

Scan the following codes to set the appropriate data bit:

7 Data Bits



8 Data Bits (Default)



1.8.4.2 - Additional RS-232 Communication Baud Rate Settings

Scan the following codes to set the appropriate baud rate:

1200



2400



4800



9600



19200



38400



57600 (Default)



115200



1.8.4.3 - Additional RS-232 Communication Parity Settings

Scan the following codes to set parity:

Even



Odd



None (Default)



Save Settings

1.9 - Bluetooth Radio Operation

1.9.1 - Introduction

The CR3500 features a Bluetooth® wireless radio. The radio allows for point-to-point wireless communication with other Bluetooth devices that support serial port protocol (SPP). If keyboard entry is necessary, Code XML Router will need to be installed. The following guide will give you general instructions on connecting your CR3500 to a desktop or laptop computer with a Bluetooth radio.

Connecting With A QuickConnect Code

The easiest way to connect to a Bluetooth device is to visit the Code website and create a *QuickConnect Code* that is specific to your device (Figure 1.21). This code will link your CR3500 directly to the desired Bluetooth device. To create a *QuickConnect Code*, you will need to know the Bluetooth address (often referred to as the BD_ADDR) of that device. You can usually find the 12-character Bluetooth address somewhere on the device near the device's serial number (see Figure 1.22).



Figure 1.21



Figure 1.22

If you purchased a CodeXML Bluetooth Modem or a Belkin® Bluetooth adapter from Code or from an authorized distributor, a QuickConnect Code was included. If you bought a Bluetooth adapter separately and wish to create a QuickConnect Code, please visit Code's web site at: <http://www.codecorp.com/bdaddr.php>.

Important Note: You will need to locate the Communications (COM) Port assigned to the Bluetooth serial port protocol. While installing the Bluetooth Configuration Manager Software that was included with your Bluetooth adapter, make sure to note the Communications (COM) Port number the software assigned for the adapter (e.g., COM 10). This is the COM Port through which the CR3500 will connect.

To connect your reader, use the following steps:

1. Power on the CR3500 reader by pressing one of the red buttons for one second to power on the reader.
2. Scan the Reset to RF Factory Defaults Code (M684_01).
3. Scan the Quick Connect Code you received or created from Code's website.
4. The CR3500 will automatically connect to the computer. By default, the CR3500 will beep once after it connects and beep four times in a row if it did not connect.
5. Scan the Save Settings Code (M188_02) if you want to save the wireless connection settings to the CR3500 so that the CR3500 will automatically try to connect wirelessly the next time it is powered on.

Reset to RF Factory Defaults



M684_01

Example:

QuickConnect



0003C92DB48F

Save Settings



M188_02



Save Settings

M188_02

1.9 - Bluetooth Radio Operation (Continued)

Radio Range and Transferring Data

The CR3500 radio is a Class 1 device. If connected to another Class 1 device the reader has roughly a 100 meter (300 feet) line of sight operating range. If connecting to a Class 2 or Class 3 device, the operating range may drop to match the lower range. Once a reader is connected, a serial application must be opened (HyperTerminal) unless Code XML Router is installed.

When the CR3500 detects the radio is out of range, the CR3500 will store data on the reader's non-volatile memory. The reader will continue to try and send data until radio is back in range. Once the data is sent the data will be erased from the reader's memory. The reader will continue to try and connect until it has reached the programmable radio time out setting.

The CR3500 Bluetooth protocol allows for two (2) forms of communication:

1. **Standard Bluetooth Reliability Mode** (previously One Way Mode) - Communication between the reader and host, that does not require host acknowledgement. This mode is only recommended when connecting to a device well within its specified range or if connecting to a simple device (e.g., printer). There are two settings in this mode:
 - Max Range (Default) - Greater range but data reliability is lower
 - Max Reliability - Limits range but reliability is improved

RF Standard Bluetooth Reliability Mode (Max Range)



M127_01

RF Standard Bluetooth Reliability Mode (Max Reliability)



M128_01

Note: One Way Mode doesn't guarantee data integrity, and you may have data loss when operating in the fringes of radio range or in the presence of radio interference.

2. **Additional Bluetooth Reliability Mode** (previously Two Way Mode) - This mode requires the implementation of software at the application level.* The reader receives confirmation via packet protocol verification and is 100% reliable. Data will be automatically retransmitted if necessary.

RF Additional Bluetooth Reliability Mode



M129_02

* **Note:** You will need either Code XML Router Software or a Code XML Bluetooth Modem on the PC side to use the Additional Bluetooth Reliability Mode.

If you are using the CodeXML Bluetooth Modem, you must use RF Additional Bluetooth Reliability Mode.



Save Settings

M188_02

1.9 - Bluetooth Radio Operation (Continued)

Permanently Establishing a Connection

Scan the Save Settings Code at the bottom of the page to make the RF settings (including which device to connect to) permanent on the reader:

Disconnecting from the Device

You may force disconnection by reading the disconnect code below (The CR3500 may not appear disconnected in the slave Bluetooth connection manager for 10 – 15 seconds after the command is issued). The CR3500 will also disconnect after 90 seconds of inactivity (**Note:** You may change the radio sleep time out setting; however, it may reduce battery life).

Bluetooth Disconnect



M114_02

Reconnecting to the Device

If the device is saved in RF mode and has a save connection (save was performed while connected) it will automatically reconnect when:

1. CR3500 is powered up
2. CR3500 wakes from sleep mode
3. CR3500 reads another code

1.9.2 - Bluetooth Radio Auto Connect

Auto Connect: After coming out of sleep mode or after powering up the CR3500 tries to auto connect with the last Bluetooth radio with which it was connected if the steps (previous) were followed (see Section 1.9.1 - Connecting with a Quick Connect Code). You may also re-connect by scanning a QuickConnect code.

Scan the following codes to enable or disable Auto Connect feature for the Bluetooth radio:

Bluetooth Radio Auto Connect: On (Default)



M068_01

Bluetooth Radio Auto Connect: Off



M067_01

Note: Auto Connect should always be set to “On” if Auto Disconnect is set to “On”. Otherwise the QuickConnect code would need to be re-scanned after every disconnect.

1.9.3 - Bluetooth Radio Auto Disconnect

Auto Disconnect: This feature is used when multiple CR3500 readers are connecting to the same Bluetooth Radio. By enabling Auto Disconnect the CR3500 radio disconnects after each data transmission, allowing other radios to connect.

Scan the following codes to enable or disable Auto Disconnect feature for the Bluetooth radio:

Bluetooth Radio Auto Disconnect: On



M066_01

Bluetooth Radio Auto Disconnect: Off (Default)



M065_01



Save Settings

M188_02

1.9.4 - Bluetooth Radio Time Out Settings

Scan the following codes to set the period of time before the Bluetooth Radio will go into sleep mode due to inactivity:

Note: Increasing the time before the reader will time out will decrease battery life.

90 Seconds (Default)



M125_01

5 Minutes



M121_01

10 Minutes



M122_01

15 Minutes



M123_01

30 Minutes



M124_01

1 Hour



M119_01

2 Hours



M120_01

1.9.5 - Bluetooth Radio Out of Range Notification Settings

Scan the following codes to enable a beep or vibrate notification when the radio goes out of range:

Bluetooth - Out of Range

Beep: On



M583_01

Bluetooth - Out of Range

Notify with Vibrate: On



M582_01

Bluetooth - Out of Range

Vibrate & Beep: On



M587_01

Bluetooth - Out of Range

Vibrate and/or Beep: Off (Default)



M581_01

Note: This feature may also be utilized to remind users they are carrying a reader and help prevent users from walking away with a reader Bluetooth radio.

1.9.6 - Auto Save Last Bluetooth Address

If the reader is saved in the proper RF communication mode, enabling this setting will allow the reader to automatically save the last device to which it was connected, removing the need to scan the save setting after scanning the QuickConnect code.

Enable Auto Save



M746_01

Disable Auto Save (Default)



M747_01



Save Settings

M188_02

1.9.7 - Configuration for Belkin Bluetooth Manager Software (Version 1.4.2.10)

In this version of the Belkin Bluetooth Manager software, you must disable the authentication feature to connect a Code Reader 3500. Follow the steps below:

1. Double click on the Bluetooth icon in the system tray. In the My Bluetooth Places Screen, select Advanced Configuration.



figure 2

2. Select the Local Services tab and double click on the Bluetooth Serial Port. Under the General tab unselect the Secure Connection box. This disables the encryption feature and allows the CR3500 to connect to the Bluetooth adapter. Click Apply.

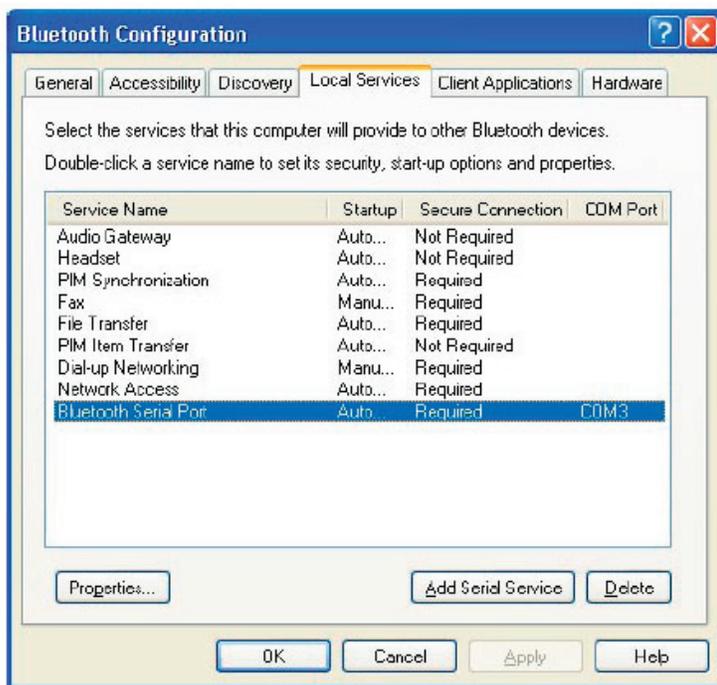


figure 3

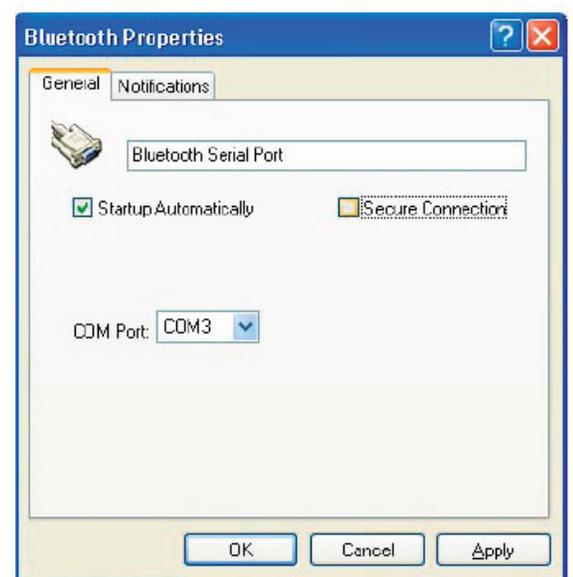


figure 4

1.9.7 - Configuration for Belkin Bluetooth Manager Software (Continued)

3. Your local service Bluetooth Serial Port profile should now read “Not Required”

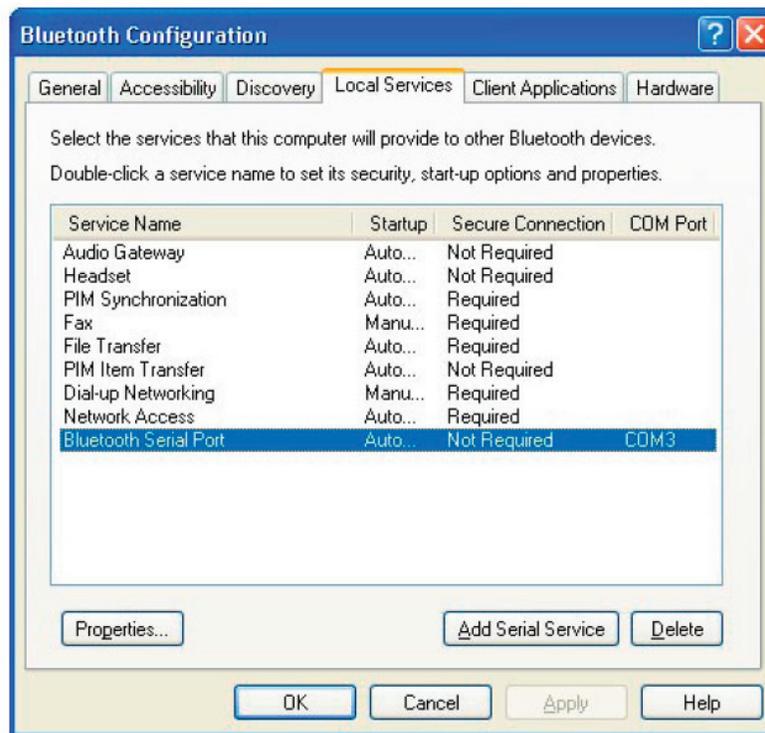


figure 5

4. Open the “Accessibility” Tab and verify that “All Devices” are allowed to connect (this is the default setting). You should now be able to connect your Code Reader 3500.

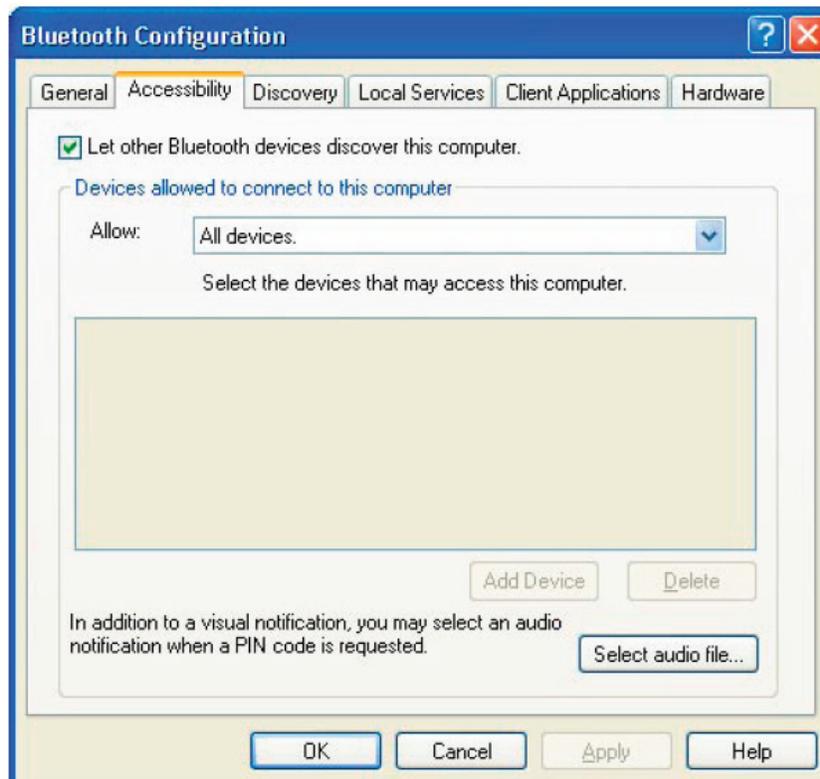
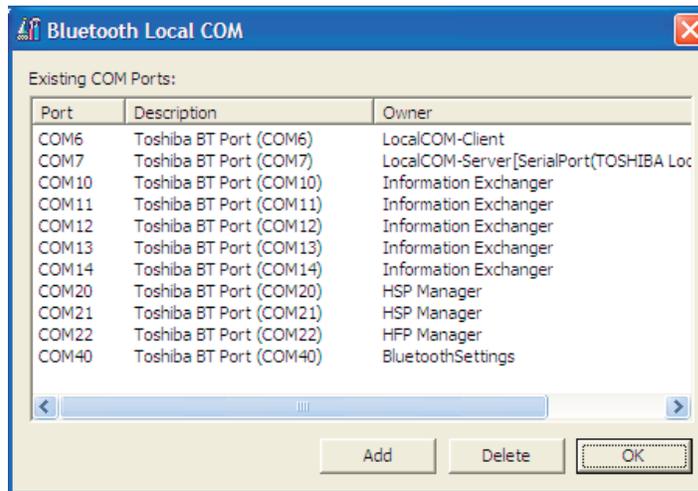


figure 6

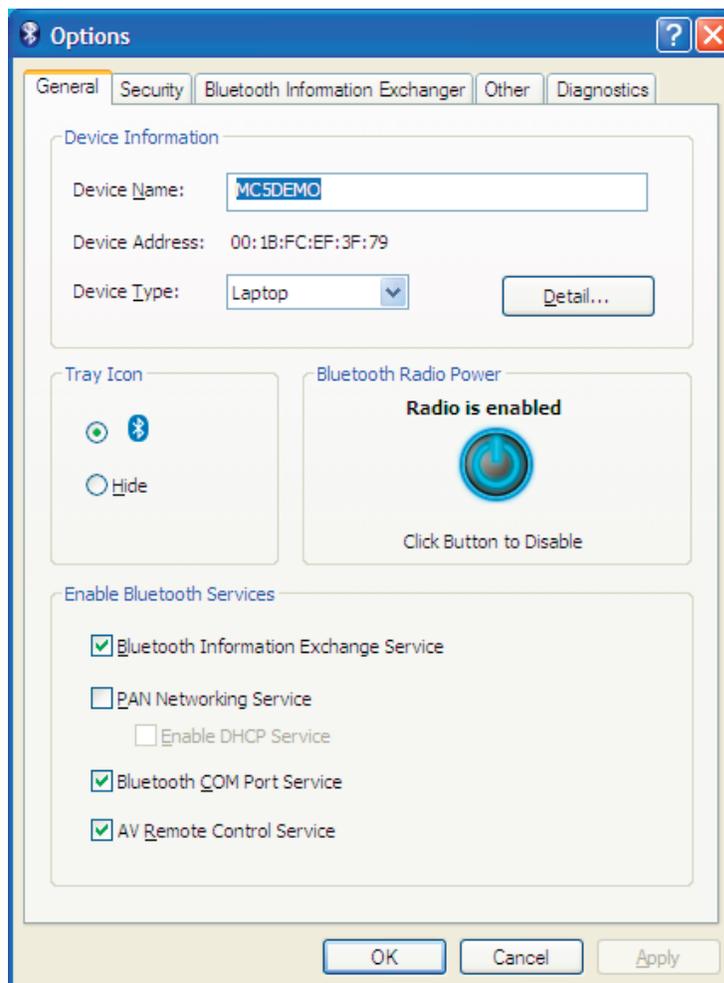


1.9.8 - Configuration for Toshiba Bluetooth Stack Instructions

1. Navigate to the Control Panel and Open the Bluetooth Local COM Port Icon.

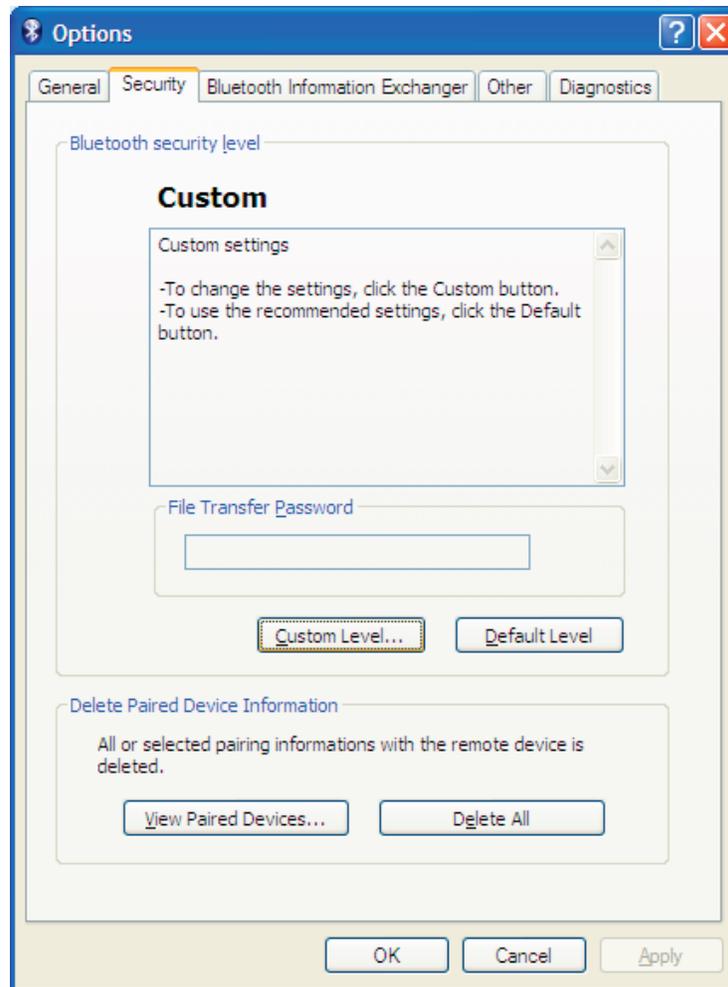


2. Identify the Appropriate Com Port owned by the LocalCOM-Server[SerialPort(TOSHIBA LocalCOM)] Owner.
3. Right Click on the Bluetooth Manager Tray Icon and selection "Options", you can Identify your Device Address here, in this example 00:1B:FC:EF:3F:79



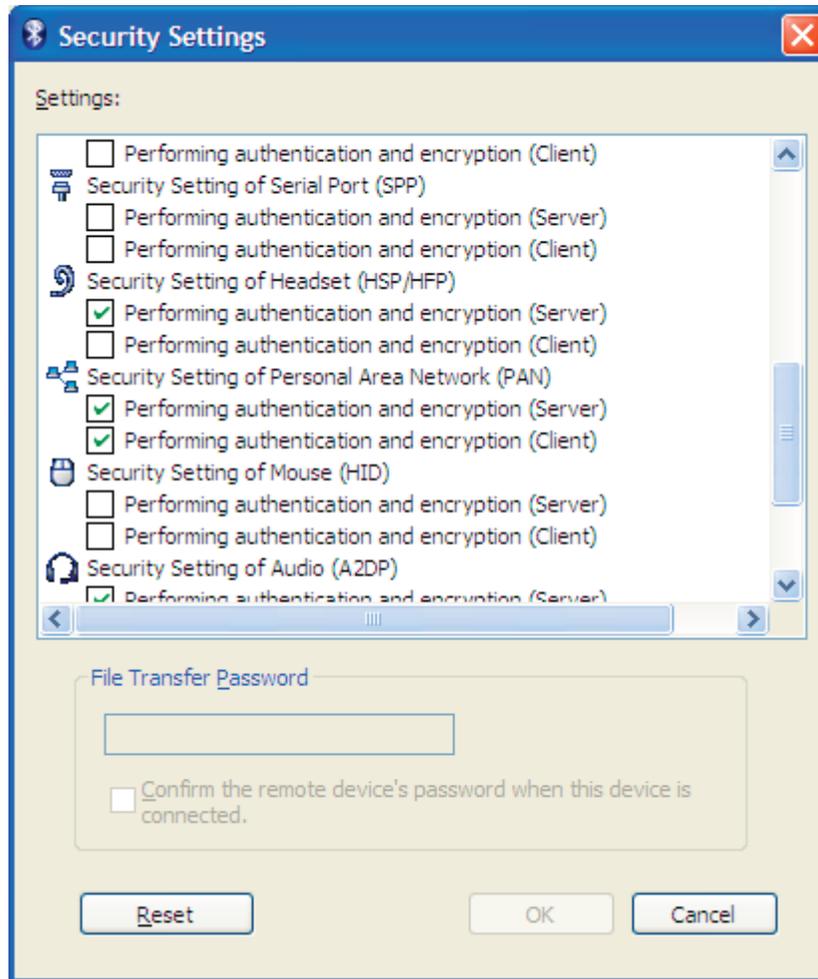
1.9.8 - Configuration for Toshiba Bluetooth Stack Instructions (Continued)

- 3a. Go to <http://www.codecorp.com/bdaddr.php> and create a QuickConnect code using the address from Step 3. Use the CodeXML Router/ 2-way applications section if CodeXML Router will be installed, or create a QuickConnect Code using the section for Serial Applications.
4. Optional – To remove the Passkey dialogue when connecting, Select the Security TAB and Select Custom Level.



1.9.8 - Configuration for Toshiba Bluetooth Stack Instructions (Continued)

- 4a. Uncheck the settings under the Security Setting of Serial Port (SPP).

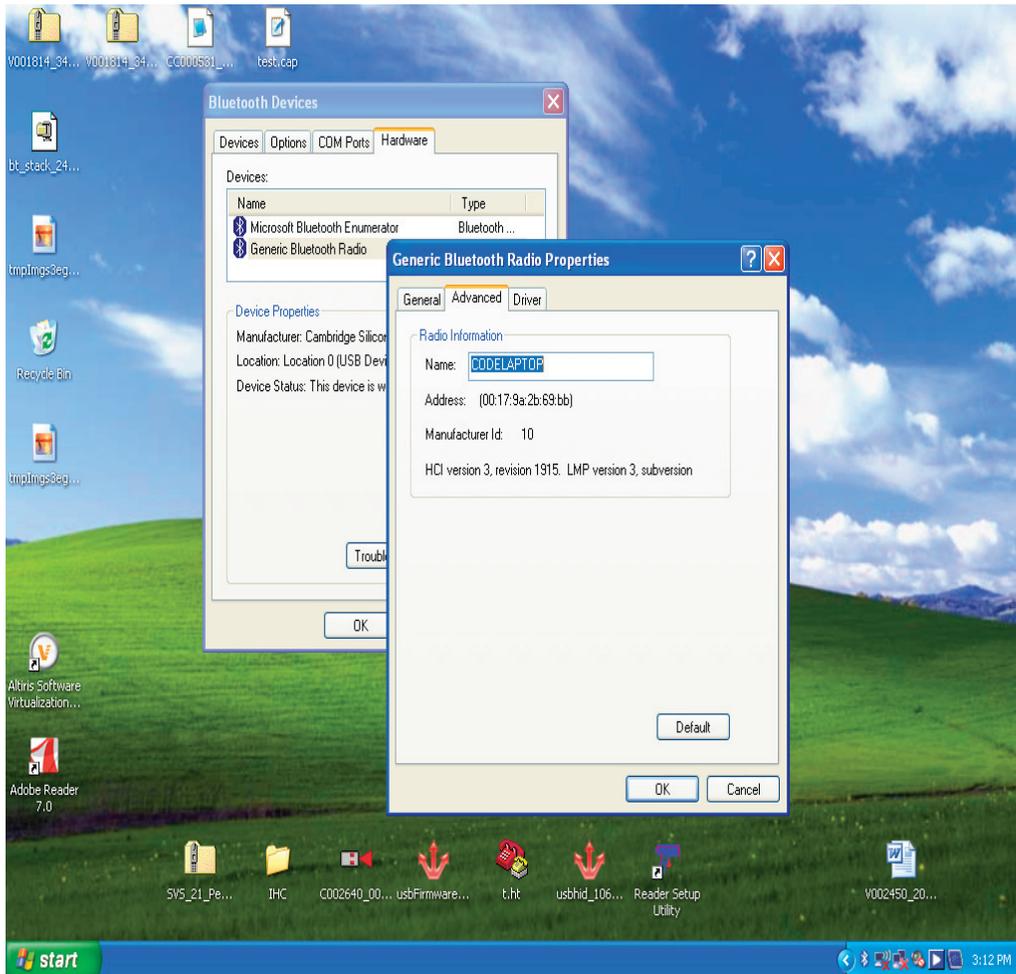


5. Install the Code XML Router Software to the Device on the Appropriate COM Port. Reboot the PC and then scan your QuickConnect code to connect. Please note that the Toshiba Stack does not allow a device to connect until the Com Port is opened. CodeXML Router must be installed or the serial application must be started before the QuickConnect Code is read.
6. Scan the QuickConnect Code generated in step 3. If step 4 was not done, Windows will prompt for a Passkey. The default Passkey is "12345678".



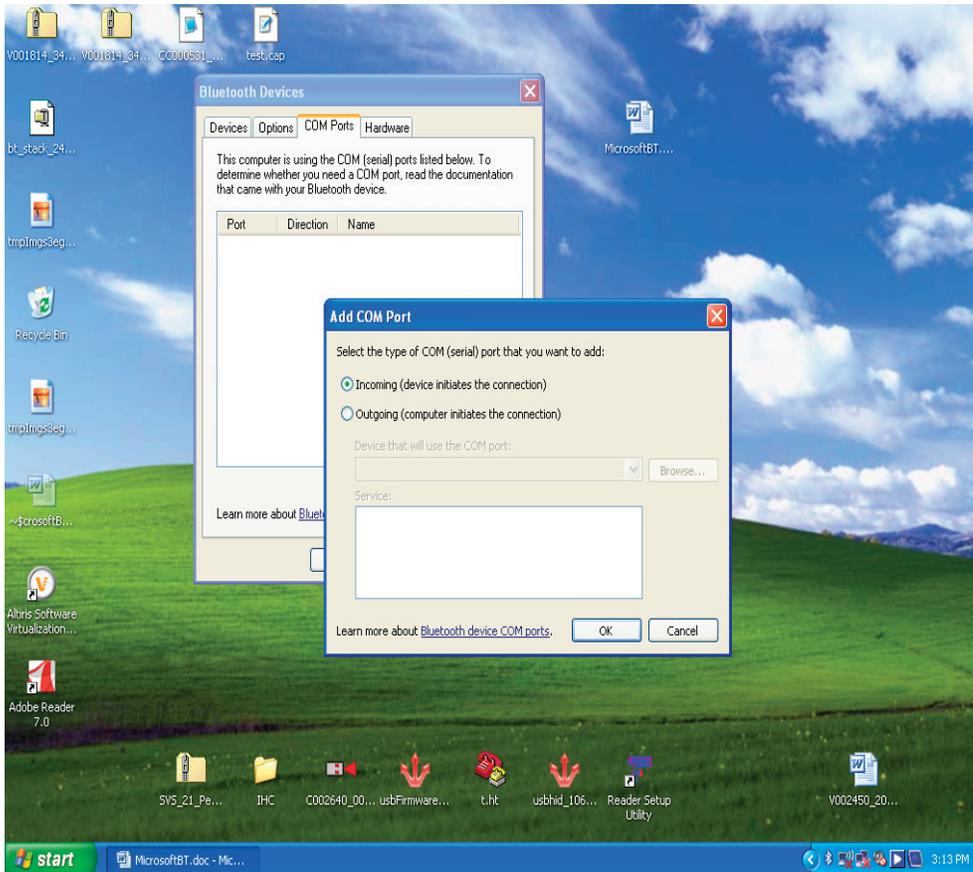
1.9.9 - Configuration for Microsoft Bluetooth Stack Instructions

1. Right click on the Microsoft Bluetooth Stack system tray icon, select “Open Bluetooth Settings”.
2. Go to the “Hardware” tab and select the “Generic Bluetooth Radio” and then click “Properties”. Next select the “Advanced” tab. Note the Address. For the example show below it is 00:17:9a:2b:69:bb.



1.9.9 - Configuration for Microsoft Bluetooth Stack Instructions (continued)

- 2a. Go to <http://www.codecorp.com/bdaddr.php> and create a QuickConnect code using the address from step 2. Use the CodeXML Router/ 2-way applications section if CodeXML Router will be installed, otherwise create a QuickConnect Code using the section for Serial Applications.
3. Under “COM Ports” tab, select “Add”. In Add COM Port dialog box, select Incoming, click OK. Windows installs driver and create a Bluetooth COM Port. Note the COM port number.

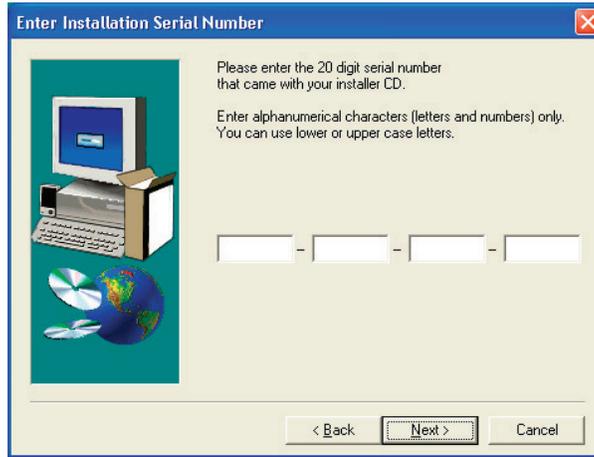


4. Install the Code XML Router Software to the Device on the Appropriate COM Port. Reboot the PC and then scan your QuickConnect code to connect. Please note that the Window Stack does not allow a device to connect until the Com Port is opened. CodeXML Router must be installed or the serial application must be started before the QuickConnect Code is read.
5. Scan the QuickConnect Code generated in step 3. Windows will prompt for a Passkey. The default Passkey is “12345678”.

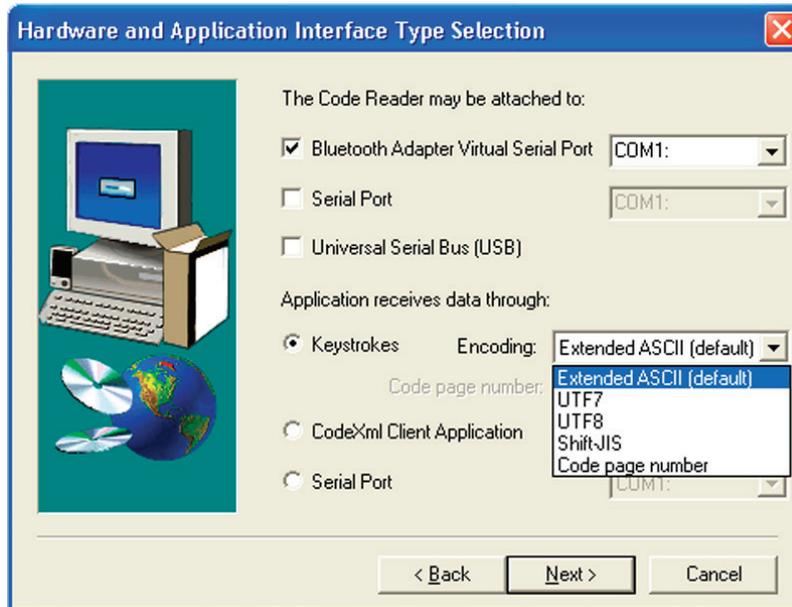


1.9.10 - Installing CodeXML Router Bluetooth Edition for Windows

1. Insert the Code Router Bluetooth Edition for Windows CD into your PC's CD drive. The CD will automatically begin the installation process. When you get to the screen pictured below, please enter the CD Serial # Key found on the card included in the CD case.



2. When you get to the screen pictured below, please choose from the appropriate settings. For a description of each setting, please see Chapter 3. **If connecting via Bluetooth radio, you will need to know the Virtual COM port number your Bluetooth software has assigned (see Frequently Asked Questions).** If you wish to enable the AutoDownload feature please check the appropriate box in the next screen. Finish the installation process and restart your computer.



3. After restarting your computer, you will see a blue “arrows” icon in the system tray of your computer. CodeXML Router was successfully installed.



1.10 - Targeting and Reading Techniques

The CR3500 utilizes digital camera technology to take a picture of a symbol. Once an image is captured, the CR3500 utilizes advanced decoding algorithms to extract data from the captured image.

The CR3500 is available as a palm-held reader or users may purchase a handle (available in various types).

The palm held reader features left and right triggers. These triggers may be programmed to perform various features. The reader is shipped with the left trigger and right trigger functioning as a decode symbol command.

Each handle has a trigger on the grip. The two triggers on the top of the reader also work when the handle is attached (Figure 1.23).



Figure 1.23

To read a bar code with the CR3500:

1. The CR3500 features omnidirectional decoding. Center the symbol in any orientation within the targeting line pattern (figure 1.24).

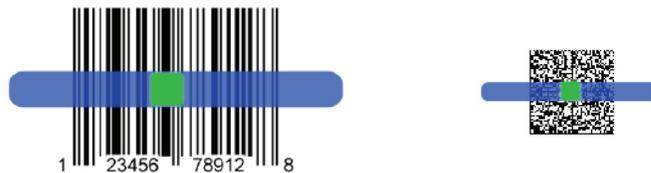


Figure 1.24

Note: The CR3500 can read a barcode that is not centered or aligned; however, the CR3500 performs best when a code is aligned. If two (2) bar codes are within the imagers decode zone, the CR3500 will decode the symbol closest to the center of the targeting line.

2. The CR3500 was developed to decode both very small 2-dimensional symbols and larger 1-dimensional symbols. The reader has an innovative dual field decode zone. The CR3500 **DECODES ONLY THE WIDE FIELD BY DEFAULT**. By default, the reader will focus on wide field for larger codes (optimal focal point 3.3 inches). The reader can be programmed to focus on high density for smaller codes (optimal focal point is 3.3 inches).
3. Hold the CR3500 still - **DO NOT SWIPE OR MOVE THE READER**. Press the trigger until the CR3500 beeps, indicating the code has been successfully decoded.
4. The reader may be optimized to your specific environment by scanning codes in Chapter 2.

1.11 - Imager Field Selection and Resolution

The CR3500's dual field optical system may be modified based on your scanning environment.

The 1.3 Million Pixel imager is divided into wide field and high density decode zones. In each zone the resolution is 1024 x 640 pixels (see Figure 1.25).

If only the high density field is used (small symbols), the wide field image can be ignored. If only the wide field is used (large symbols), the high density field can be ignored. Further optimization may be obtained by "windowing" the field to a smaller area. **BY DEFAULT, THE CR3500 DECODES ONLY THE WIDE FIELD.**



Figure 1.25

1.12 - Decode Zone

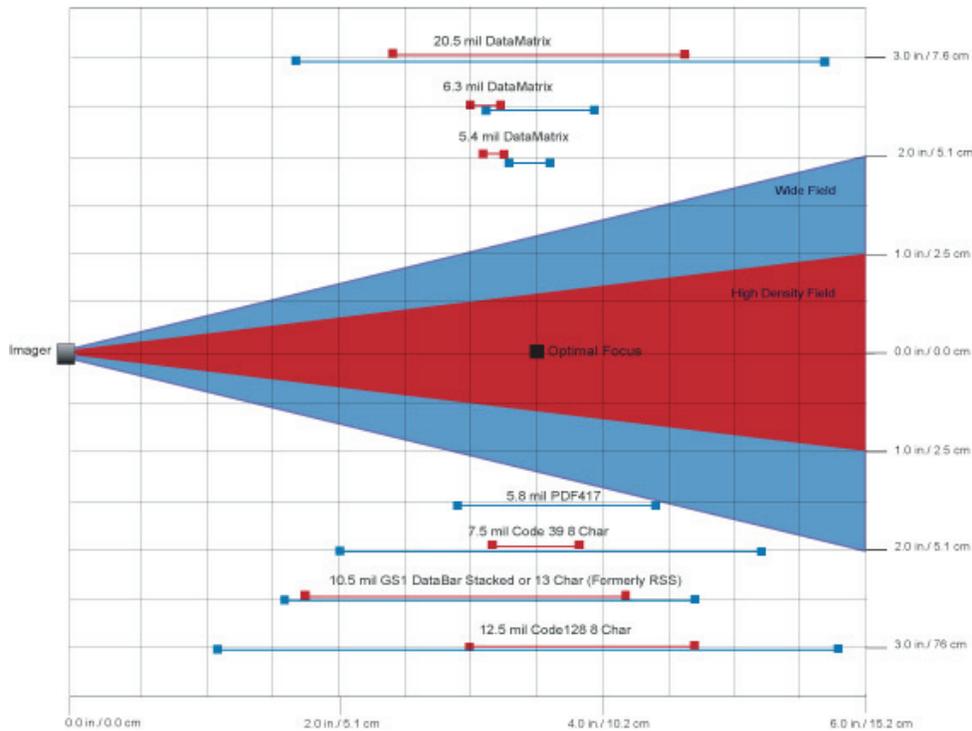


Figure 1.26



Save Settings

Chapter 2 - Optimization and Trigger Programming



2.1 - Introduction

By defining if you are scanning large, small, high density or low density types of symbology(s), the CR3500 has options that will maximize decoding speed.

The chart below shows options that will improve performance based on parameters listed in each box.

SXGA	
Both Fields	SB High Density Codes Standard Density Codes Small to Large Codes
High Density Field	SH High Density Codes Small Size 2D
Wide Field	SW Standard Density Codes Medium to Large Codes

The CR3500 is easily customizable; each trigger can be independently programmed for different behavior.

High Density Field: The High Density Field can decode small bar codes. It has an optimal focal point of 3.3" (83.33mm) away from the lens of the reader. See Figure 1.27 for optimal read distances.

Wide Field: The Wide Field can decode standard size bar codes. It has an optimal focal point of 3.3" (83.33 mm) away from the lens of the reader.

The following tables provide readable codes to program all or individual triggers to perform within different parameters. See Figure 1.28 for optimal read distances. The following tables provide the code to program all or individual triggers to perform with different parameters.

2.2 - Global Trigger Optimization Matrix

	SXGA
Both Fields	 M613_03
High Density Field	 M614_03
Wide Field	 M615_03

2.3 - Left Trigger Optimization Matrix

	SXGA
Both Fields	 M631_02
High Density Field	 M632_02
Wide Field	 M633_02

2.4 - Left Trigger Programming

Scan the following codes to set the left trigger functionality:

Left Trigger Take Picture



2.5 - Right Trigger Optimization Matrix

	SXGA
Both Fields	 M640_02
High Density Field	 M641_02
Wide Field	 M642_02

2.6 - Right Trigger Programming

Scan the following codes to set the right trigger functionality:

Right Trigger Take Picture



2.7 - Handle Optimization Matrix

SXGA

**Both
Fields**



M622_03

**High
Density
Field**



M623_03

**Wide
Field**



M624_03

2.8 - Handle Trigger Programming

Scan the following codes to turn continuous scanning on/off:

Handle Trigger Take Picture



M154_04



Save Settings

M188_02

2.9 - Continuous Trigger Optimization Matrix

	SXGA
Both Fields	 M649_02
High Density Field	 M650_02
Wide Field	 M651_02

2.10 - Continuous Scan

Scan the following codes to turn continuous scanning on/off:

Off (Default)



On



Save Settings

2.11 - Continuous Scan Settings

2.11.1 - Continuous Scan - Sleep Time Out

Scan one of the codes below to set the amount of time a cabled CR3500 will operate in continuous scan mode before entering sleep mode:

Cabled - 2 hours



Cabled - Always (Default)



Scan one of the codes below to set the amount of time an uncabled CR3500 will operate in continuous scan mode before entering sleep mode:

Uncabled - 5 minutes (Default)



Uncabled - 15 Minutes



Uncabled - 30 Minutes



Note: This function is only recommended for short term use because of battery consumption.

2.11.2 - Continuous Scan - Trigger Delays

Scan the following codes to set delay time between scans:

0 Seconds (Default)



1 Second



3 Seconds



2.11.3 - Continuous Scan - Duplicate Scan Suppression

Scan the following codes to set the period of time during which duplicate codes are ignored:

0 Seconds (Default)



1 Second



3 Seconds



2.12 - Motion Detection Scan Settings

Scan the following codes to set the reader to read when it detects motion in its scanning zone:

Motion Detection On



Motion Detection Off



Chapter 3 - CR3500 Programming: Symbology Settings

3.1 - Aztec Symbology

Scan the following codes to enable/disable Aztec symbology settings:

Aztec On



Aztec Off (Default)



Sample Aztec Code



3.2 - Codabar Symbology

Scan the following codes to enable/disable Codabar symbology settings:

Codabar On (Default)



Codabar Off



Sample Codabar



3.3 - Codablock F Symbology

Scan the following codes to enable/disable Codablock F symbology settings:

Codablock F On



Codablock F Off (Default)



Sample Codablock F Code



Note: When Codablock F and Code 128 decoding are enabled, there is some danger of mistakenly decoding a damaged Codablock F symbol as a Code 128 symbol. Therefore, Code 128 decoding should be disabled when Codablock F decoding is enabled.

3.4 - Code 11 Symbology

Scan the following codes to enable/disable Code 11 symbology settings:

Code 11 On (Default)



Code 11 Off



Code 11 Checksum 1 digit



Code 11 Checksum 2 Digit & Stripped from Result



Code 11 Checksum 1 Digit & Stripped from Result



Code 11 Sample with 1 Checksum Digit



Save Settings

3.5 - Code 39 Symbology

Scan the following codes to enable/disable Code 39 symbology settings:

Code 39 On (Default)



M235_01

Code 39 Off



M234_01

Enable Checksum



M237_01

Disable Checksum (Default)



M236_01

Enable Checksum and Strip From Result



M238_01

Code 39 Extended Full ASCII On



M233_01

Code 39 Extended Full ASCII Off (Default)



M232_01

Code 39 Short Margin On



M390_01

Code 39 Short Margin Off (Default)



M389_01

Sample Trioptic Code 39



123456

Code 39 Trioptic On



M671_01

Code 39 Trioptic Off



M670_01

Sample Code 39 Code



123456789

3.6 - Code 93 Symbology

Scan the following codes to enable/disable Code 93 symbology settings:

Code 93 On (Default)



M281_02

Code 93 Off



M280_01

Sample Code 93 Code



123456789

3.7 - Code 128 Symbology

Scan the following codes to enable/disable Code 128 symbology settings:

Code 128 On (Default)



M283_01

Code 128 Off



M282_01

Code 128 Short Margin On



M392_01

Code 128 Short Margin Off (Default)



M391_01

Sample Code 128 Code



12345678912345



Save Settings

M188_02

3.8 - Composite Symbologies

Scan the following codes to enable/disable Composite symbology settings:

Composite On



Composite Off (Default)



3.9 - Data Matrix Symbology

Scan the following codes to enable/disable Data Matrix symbology settings:

Rectangular Data Matrix On



Rectangular Data Matrix Off (Default)



Data Matrix Inverse On



Data Matrix Inverse Off (Default)



Enable improved reading capability for hard to decode datamatrix symbols



Disable improved reading capability for hard to decode datamatrix symbols (Default)



Sample Data Matrix Code



Sample Rectangular Data Matrix Code



3.10 - GoCode Symbology

GoCode is a miniature, two-dimensional (2-D) symbol. Developed to fit within a line of text, GoCode features a multi-dimensional, adaptable matrix pattern that may be reproduced on virtually any surface. GoCode is a private symbology and may be utilized by purchasing a runtime license through Code. GoCode has many significant advantages over all common linear barcodes and 2-D symbols. Please contact Code for more information on the benefits of utilizing a private symbology.

Sample GoCode



3.11 - Interleaved 2 of 5 Symbology

Scan the following codes to enable/disable Interleaved 2 of 5 symbology settings:

Int 2 of 5 On (Default)



M244_01

Int 2 of 5 Off



M243_01

Int 2 of 5 Two Digits On



M246_01

Int 2 of 5 Two Digits Off



M245_02

Int 2 of 5 Four Digits On



M248_01

Int 2 of 5 Four Digits Off



M247_01

Sample Int 2 of 5 Code



3.12 - Maxicode Symbology

Scan the following codes to enable/disable Maxicode symbology settings:

Maxicode On



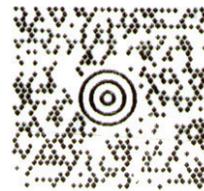
M289_04

Maxicode Off (Default)



M288_01

Sample Maxicode



3.13 - Matrix 2 of 5 Symbology

Scan the following codes to enable/disable Matrix 2 of 5 symbology settings:

Matrix 2 of 5 On (Default)



M675_01

Matrix 2 of 5 Off



M674_01

Matrix 2 of 5 Sample



3.14 - Micro PDF417 Symbology

Scan the following codes to enable/disable micro PDF 417 symbology settings:

MicroPDF417 On



M301_01

MicroPDF417 Off (Default)



M300_01

Sample MicroPDF417



Save Settings

M188_02

3.15 - MSI Plessey Symbology

Scan the following codes to enable/disable MSI Plessey symbology settings:

MSI Plessey On



M291_01

MSI Plessey Off (Default)



M290_01

Sample MSI Plessey



123456789

3.16 - NEC 2 of 5 Symbology

Scan the following codes to enable/disable NEC 2 of 5 symbology settings:

NEC 2 of 5 On (Default)



M673_01

NEC 2 of 5 Off



M672_01

3.17 - Optical Character Recognition (OCR)

The Code Reader can read Optical Character Recognition (OCR) texts. The following codes can be used to enable/disable this feature. Fonts supported include Passport, ISBN, Price, MICR13, and a user defined template:

Disable OCR (Default)



M712_01

Enable OCR



M713_01

Purchase of OCR license required.

Note: See Reader Host Interface Document for more details.

3.18 - PDF 417 Symbology

Scan the following codes to enable/disable PDF 417 symbology settings:

PDF 417 On (Default)



M293_01

PDF417 Off



M292_01

Macro PDF 417 On



M287_01

Macro PDF 417 Off (Default)



M286_01

Sample PDF 417 Code



Save Settings

M188_02

3.19 - Pharmacode

For an explanation of Pharmacode settings and all programming codes please refer to Appendix G of the CR3500 User Manual. You may download the Appendix G at: <http://www.codecorp.com/manuals.html>

3.20 - Postal Symbologies

All postal code default settings are OFF. Scan the following codes to enable the appropriate Postal symbology:

Note: If you wish to change which Postal code is activated, you MUST first scan the disable all postal codes symbol and then scan your desired symbology.

Australian Post On



M252_01

Japan Post On



M253_01

KIX



M254_01

Planet On



M256_01

Postnet On



M257_01

Postnet and Planet On



M255_01

Royal Mail On



M258_01

Disable All Postal Codes (Default)



M259_01

Sample Postnet Code



4-State CB On (Intelligent Mail)



M748_01

3.21 - QR Code Symbology

Scan the following codes to enable/disable QR Code symbology settings:

QR Code On



M261_01

QR Code Off (Default)



M260_01

Enable Checksum



M265_01

Disable Checksum (Default)



M264_01

QR Code Inverse On



M262_01

Both Inverse and Standard On



M263_01

All QR On (includes Micro QR)



M609_03

Inverse QR and Micro QR On



M687_03

Sample QR Code



Sample Micro QR



Save Settings

M188_02

3.22 - GS1 Data Bar (formerly RSS) Symbology

Scan the following codes to enable/disable GSS Data Bar (formerly RSS) symbology settings:

GS1 Data Bar Limited On



M268_01

GS1 Data Bar 14 Truncated On



M271_01

GS1 Data Bar 14 Stacked On



M270_01

GS1 Data Bar Expanded On



M269_01

All GS1 Data Bar On



M267_01

All GS1 Data Bar Off (Default)



M266_01

Sample RSS Limited Code



Sample RSS 14 Code



Sample RSS 14 Truncated Code



Sample RSS 14 Stacked Code



3.23 - Telepen Symbology

Scan the following codes to enable/disable Telepen symbology settings:

Telepen On - Default



M677_01

Telepen Off



M676_01

Sample Telepen



3.24 - UPC/EAN/JAN

Scan the following codes to enable/disable UPC/EAN/JAN symbology settings:

UPC On (Default)



M295_01

UPC Off



M294_01

UPC Short Margin Enabled



M299_01

UPC Short Margin Disabled (Default)



M298_01

UPC Extension On



M297_01

UPC Extension Off



M296_01

Sample UPC A Code



Save Settings

M188_02

Chapter 4 - Reader Feedback and Special Settings

4.1 - Volume and Vibration Settings

Scan the following codes to set vibration mode:

Vibrate On / Beep On



M107_01

Vibrate On / Beep Off



M109_01

Vibrate Off / Beep On (Default)



M108_01

Scan the following codes to set your reader's volume:

Beep Off



M110_01

Beep Low



M111_01

Beep High (Default)



M112_01

Scan the following codes to set the volume for keypad button press sounds:

Off (Default)



M697_02

Low



M698_03

Medium



M699_03

High



M700_03

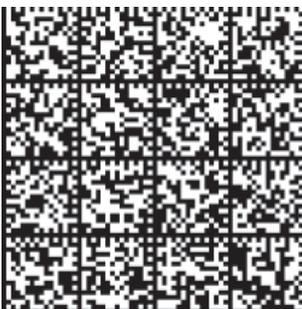
4.2 - Code Readability Index

The Readability Index provides a measurement of a specific symbol's ease or difficulty to be decoded by the CR3500. The Readability Index is specific to the CR3500, and should not be confused with a verification quality measurement.

The Readability Index is a blend of information obtained from the internal operations of the decoding algorithm pertaining to contrast, symbology construct, error detection, forward error correction (if applicable), and other symbology-specific characteristics.

The Readability Index is a score on a scale of 01 (very poor) to 100 (very readable). Due to differences based on motion, skew, reflection, focus, and ambient lighting, the Readability Index on the same symbol may vary somewhat from read to read. However, a poor contrast or damaged symbol will score lower than a high contrast undamaged symbol. The Readability Index can be used as a quick check on the reliability of label generation or marking systems. When used in conjunction with the CR3500 stand (or fixed mount positioning) which fixes the distance from the reader to the symbol, and constant ambient light, the Readability Index provides a symbol quality assurance tool and check point for feedback to an overall label or marking quality control system.

Code Readability Index Rule:



M061_02

Readability Index Output Enable:



M062_02

Readability Index Output Disable:



M063_02

Each time a data symbol is read, the index will be output, followed by a comma, (,) followed by the decoded data. The reader will store the rule and reset, but will not output the Readability Index until the Readability Index Output Enable code is read. The Reader will continue to output the Readability Index upon every read until disabled, either by reset or by reading the Readability Index Output Disable code.



Save Settings

M188_02

4.3 - Backlight Intensity Settings

Scan the following codes to set the intensity of the CR3500's backlight with High being the brightest and Low being the dimmest:

Low



M678_03

Med - Default



M679_03

High



M680_03

4.4 - Backlight Timeout Settings

Scan the following codes to set the backlight settings:

Backlight Off



M686_05

3 seconds (Default)



M681_03

6 seconds



M682_03

10 seconds



M683_03

4.5 - Targeting Settings

Scan the following codes to turn targeting on/off:

On (Default)



M055_01

Off



M054_01

4.6 - Reader Power Off Settings

Scan the following codes to set the amount of time before a reader powers off:

1 Hour



M691_02

2 Hours - Default



M688_02

4 Hours



M689_02



Save Settings

M188_02

4.7 - Reader ID and Firmware Version

To find out the Reader ID and firmware version, open a text editor program (i.e., Notepad, Microsoft Word, etc.) and read the following code:

Reader ID and Firmware



You will see a text string indicating your firmware version and CR3500ID number (see below):

Xap/iVVVVWWWWXXXXSSSSSSSSSSPXX-XX+XXX

Xap/i - Code Internal ID (not applicable)

VVVV is the application firmware version number

WWWW is the bootloader firmware version number

XXXX is the radio firmware version number

SSSSSSSSSS Reader's serial number (ten digits)

P is "A" if running firmware is the application, "B" if BootLoader

XX-XX+XX - Internal ID (not applicable)

Example: Xap/i3000300006040010002363A06D-SD+SQ

Note: Code will periodically release new firmware for CR3500 readers. For information on latest firmware versions, call Code at (801) 495-2200. To upgrade firmware, please visit our website at <http://www.codecorp.com/codesupport/html> and follow instructions provided.

4.8 - Reader Settings Lock

To lock or unlock the current settings on your reader please scan the codes below:

Reader Settings Locked



Reader Settings Unlocked



NOTE: Prefix and Suffix programming codes, memory transfer and delete commands, "Clear All CodeXML Rules" and "Suffix -Erase/None" commands are not locked by this feature.

4.9 - Time Stamp Settings

CR3500 has a battery-powered real time clock embedded in the reader. When enabled, the time stamp will be a prefix to the data. Time stamping continues until disabled. The time stamp will be shown in the following format: YYYY-MM-DD HH:MM:SS

On



Off (Default)



Note: Turning on the time stamp feature will cause the reader to re-start. Make sure previous settings have been saved prior to scanning the code or you will lose unsaved settings.

4.10 - Lock-out Link Mode

This mode can be used to establish a permanent connection between the reader and a CodeXML modem,

Prepare the reader to communicate in 'RF Comm Mode' by scanning the QuickConnect code on the paired modem to which you wish to establish a permanent link. Listen for the single beep to verify the connection acknowledgement. Scan the Lockout Link Mode code (see below). Set appropriate timeout settings, if applicable (see Section 1.4.5).

To reassign a permanent connection to a different reader, scan the unlock link code. Using the 'new' reader' follow the directions outlined in the previous paragraph.

Lockout Link Mode



Unlock Link Mode



Chapter 5 - Advanced Decode Performance



5.1 - Set Targeting Zone Tolerances

The targeting tolerance is the zone around the green LED which is eligible for decoding. The values of each of the following codes are the percent tolerance based on the size of the barcode. As the targeting tolerance becomes smaller the targeting green LED must be more centered in the symbol being read. Conversely, as the targeting tolerance gets larger there is less precision needed with the green LED. If there is more than one decodable code in the field of the, the symbol closest to the targeting green LED will be decoded.



Too far from code.



Too close to code.



Optimal distance from code is 3.3" (85mm).

50 Most Accurate



M189_01

75



M190_01

100



M191_01

125



M192_01

150



M193_01

200



M195_01

400



M194_01

1600 (Default) Least Accurate



M196_01

5.2 - Windowing

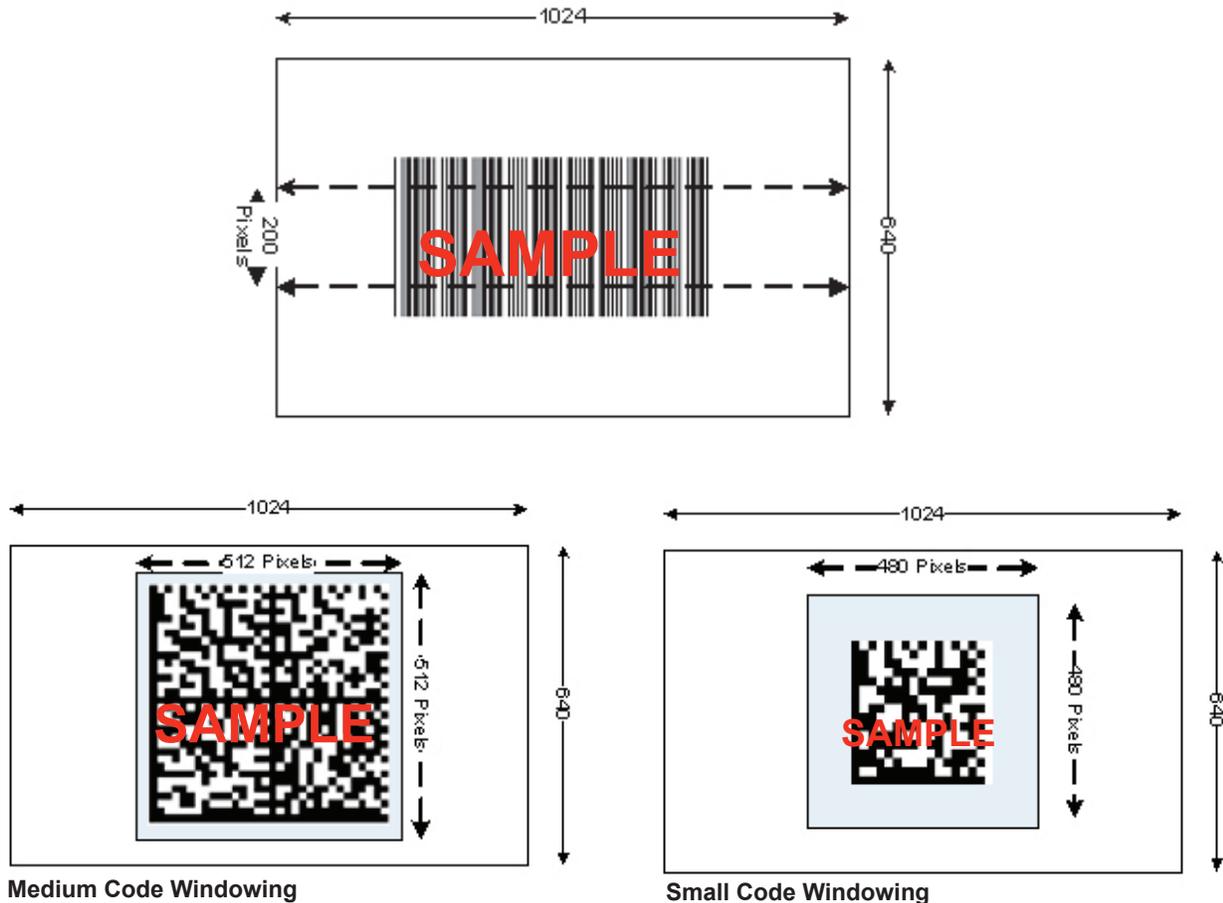
If only one size of bar code is being scanned in an application, the CR3500 can be optimized to reduce processing time by adjusting the viewing area within the field of view of the image.

By reducing the vertical window value of the imager to 200 pixels, 1-D codes are processed more quickly. Because only a horizontal strip of a 1-D code is needed to be decoded, using a narrow strip of the imager is all that is needed. The area above and below the 200 pixels, which is always in the center of the imager, is ignored. This approach reduces the number of pixels that must be processed.

Windowing can improve the processing time of 1D and 2D codes.

You may negatively impact reader performance if the window size is too small. If it is necessary to have the reader farther away than normal to read the code, the window may be too small.

Reading other types of codes, especially large codes, may be difficult while using this setting.



5.2 - Windowing (Continued)

Users may optimize the CR3500 decode zone if their application only requires one bar code format. If the size and density of the bar codes to be scanned are consistent, please select the setting below that best describes your environment.

1-Dimensional Codes ONLY (1024 X 200 pixels)



Caution: It may be more difficult to read other codes while in this setting. You must have the reader farther away than normal.

Small 2-Dimensional Codes (480 x 480 pixels)



Medium 2-Dimensional Codes (512 x 512 pixels)



Large 2-Dimensional Codes (640 x 640 pixels)



Reset to Default Setting (1024 X 640 pixels)



5.3 - Mirror Decoding

Scan the following codes to enable/disable the mirroring feature:

On



Off (Default)



Note: The Mirroring feature allows the CR3500 to read codes as they are seen through a mirror (inversed 180°). If the Mirroring feature is enabled, non-mirrored reading ability will be disabled.

5.4 - Anti-Glare

Anti-glare technology improves performance on highly reflective surfaces. The CR3500 will detect when the glare from the illumination LEDs is preventing the reader from being able to decode the bar code. Once glare is detected the reader will attempt to control the illumination LEDs to remove or reduce the glare thereby improving performance.

Enable Anti-glare (default)



Disable Anti-glare



Save Settings

Chapter 6 - Adding a Prefix or Suffix and Reader Text Commands



6.1 - Prefix Settings

If you scan the following codes, you will lose any unsaved settings. Make sure to save settings on your reader before scanning the prefix codes. If you scan more than one prefix you will receive each scanned prefix in your scanned data; (i.e., if you scan comma prefix twice, you will get two comma prefixes). Scan the following codes to set appropriate prefix:

Prefix - Comma



M159_02

Prefix - Space



M164_02

Prefix - Tab (Keyboard Mode)



M166_01

Prefix - Tab (Serial)



M218_02

Prefix - Erase



M404_01

Prefix - Carriage Return Line Feed (Serial)



M214_02

Note: If you require a special configuration, please contact Code at (801) 495-2200 or email appeng@codecorp.com.

6.2 - Suffix Settings

If you scan the following codes, you may lose your current settings. Make sure to save settings on your reader before scanning the Suffix codes. If you scan more than one suffix you will receive each scanned suffix in your scanned data; (i.e., if you scan comma suffix twice, you will get two comma suffixes). Scan the following codes to set appropriate suffix:

Suffix - Carriage Return (Serial)



M168_04

Suffix - Comma



M160_04

Suffix - Line Feed (Serial)



M169_04

**Suffix - Carriage Return
Line Feed (Serial)**



M170_04

Suffix - Space



M165_04

Suffix - Enter (Keyboard Mode)



M161_04

Suffix - Tab (Keyboard Mode)



M167_04

Suffix - Tab (Serial)



M219_04

Suffix - Erase



M405_02



Save Settings

M188_02

6.3 - Erase Prefix and Suffix Settings

Scan the following codes to erase all prefix and suffix data.

Erase Prefix & Suffix Data



M406_02

6.4 - Reader Text Commands

Enabling Reader Text Commands allows the CR3500 to accept text commands via RS-232 or RF communication. Scan the following codes to enable/disable reader text commands:

Reader Text Commands On



M198_01

Reader Text Commands Off - Default



M197_01

Note: Text commands can only be sent to the reader when it is active. See Reader-Host Interface Document for more information.



Save Settings

M188_02

Chapter 7 - CR3500: Maintenance and Troubleshooting



7.1 - Reset Reader to Factory Defaults

Scan the following codes to reset reader:

Step 1: Reset the Reader

Reset to USB Factory Default Settings



M049_03

Reset to PS/2 Factory Default Settings



M060_03

Reset to RS-232 (Serial) Factory Default Settings



M418_02

Reset to RF One Way Factory Default Settings



M684_01

Bootloader Mode

Bootloader mode is utilized to download new version of bootloader firmware.



M692_01

Step 2: Save Settings



M188_02

Step 3: Clear All CodeXML Rules

Prefix & Suffix



M052_01

Clear All Stored Data



M071_01

Note: If you scan these codes, you may lose your current settings. Make sure to save settings on your reader before scanning the reset codes.

7.2 - General Safety Information

Repairs and Adjustments - Only those individuals authorized by Code should attempt to make repairs or adjustments to CR3500 equipment. If the reader casing is opened the warranty is voided.

Power Supply - Use only the power supply provided for use with each specific reader when operating Code equipment.

Accessories - Only those accessories approved by Code (see page 2) should be utilized with Code equipment.

Non-compliance with any of the above may result in:

- Injury to individuals handling the equipment;
- Damage to the equipment; and
- Voiding of the maintenance contract.

Lithium Ion Battery - Warning: Charge the battery with Code cables ONLY. Do not open battery, dispose of in fire, or short circuit - it may ignite, explode, leak, or get hot causing personal injury.



Save Settings

M188_02

7.3 - Warranty

Code Corporation's Code Reader 3500 carries a two year limited warranty as described herein.

Customers may purchase a one or two year extension to this warranty. Please contact a Code representative for more information.

Limited Warranty

Code manufactures its hardware products in accordance with industry-standard practices. Code warrants its products will be free from defects in materials and workmanship, provided that the products are used under normal operating condition intended by the Manufacturer. This warranty is provided to the original owner only and is not transferable to any third party. This warranty is subject to any and all accompanying disclaimers, limitations and other terms of this section.

Terms of Warranty

Code Reader 3500 readers carry a warranty of two years. Other products with serial numbers, such as but not limited to, radios, CodeXML modems, battery chargers, stands and power supplies are warranted for three years from date of shipment. Batteries and battery handles carry a two year warranty, or until battery capacity after recharge is less than sixty percent of new, whichever is shortest. Non-serialized items, such as but not limited to handles and cables, carry a 90-day limited warranty.

Exclusions

No warranty herein contained or set out shall apply to any product (i) which has been repaired, altered or tampered with unless done or approved by Code, (ii) which has not been maintained in accordance with any operating or handling instructions supplied by Code, (iii) which has been subjected to unusual physical or electrical stress, immersion in fluids, puncture, crushing, misuse, abuse, power shortage, improper power supply such as incorrect voltage or wrong polarity, negligence or accident, or (iv) which has been used other than in accordance with the product operating and handling instructions. Preventive maintenance is the responsibility of the customer and is not covered under this warranty.

Warranty Coverage and Procedure

During the warranty period, Code will repair or replace defective products returned to Code's service center in the US. For worldwide warranty service call Code Warranty Support at 1-801-495-2200.

If warranty service is required, Code will issue a Return Material Authorization Number. Products must be shipped in the original or comparable packaging, with shipping and insurance charges prepaid. Code will ship the repaired or replacement product freight and insurance prepaid in North America. Shipments from the US or other locations will be made F.O.B. Code's manufacturing plant. Code will use new or refurbished parts at its discretion and will own all parts removed from repaired products. Customer will pay for any pre-shipped replacement product in case it does not return the replaced product to Code within 7 days of receipt of the replacement product. The process for return and customer's charges will be in accordance with Code's Exchange Policy in effect at the time of the exchange.

Customer accepts full responsibility for its software and data including the appropriate backup thereof. Repair or replacement of a product during warranty will not extend the original warranty term. Code's Customer Service organization offers an array of service plans, such as on-site, depot, or phone support, that can be implemented to meet customer's special operational requirements and are available at a substantial discount during warranty period.

7.3 - Warranty (continued)

General

EXCEPT FOR THE WARRANTIES STATED ABOVE, CODE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, ON PRODUCTS FURNISHED HEREUNDER, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. The stated express warranties are in lieu of all obligations or liabilities on part of Code for damages, including without limitation, special, indirect, or consequential damages arising out of or in connection with the use or performance of the product. Seller's liability for damages to buyer or others (regardless of the form of action, whether by contract, warranty, tort, malpractice, and/or otherwise) resulting from the use of any product, shall in no way exceed the purchase price of said product. In no event shall Code be liable for any consequential, special, indirect, incidental or punitive damages, or for any loss of profits, revenue or data, even if Code has been advised of the possibility thereof.

7.4 - CR3500 Accessories

Please visit www.codecorp.com for more information on Code accessories.

7.5 - Frequently Asked Questions

For a complete list of Frequently Asked Questions, please visit: <http://www.codecorp.com/faq.html>

7.6 - CR3500 Maintenance

The CR3500 device operates efficiently and reliably and needs only a minimum of maintenance to operate. A few tips are given below for maintenance suggestions.

Cleaning the CR3500 Window

The CR3500 window should be clean to allow the best performance of the device. The window is the clear plastic piece inside the head of the reader. Do not touch the window. Your CR3500 uses CMOS technology that is much like a digital camera. A dirty window may stop the CR3500 from reading bar codes.

If the window becomes dirty, clean it with a soft, non-abrasive cloth or a facial tissue (no lotions or additives) that has been moistened with water. A mild detergent may be used to clean the window, but the window should be wiped with a water moistened cloth or tissue after using the detergent.

The CR3500 display screen and housing may be cleaned in the same way.

For applications that require cleaning with disinfectant, please use products with the following ingredients:

- 1) Isopropyl Alcohol
- 2) Ethyl Alcohol (Denatured Grade)

Code does not recommend using bleach.

Technical Support and Returns

For returns or technical support call Code Technical Support at (801) 495-2200. For all returns Code will issue an RMA number which must be placed on the packing slip when the reader is returned.

Visit <http://www.codecorp.com/codesupport.html> for more information.

