

code



Code Reader 3.0

Portable Data Terminal

Statement of Agency Compliance



The CR3 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 CR3 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.

The CR3 can be set to use targeting lasers. The CR3's targeting laser emits Class 2M radiation outside of the product per IEC 60825-1. Class 2M Laser/LED product. Do not stare into beam or view directly with optical instruments.

The CR3 has been tested by an independent electromagnetic compatibility laboratory in accordance with the applicable specifications and instructions.

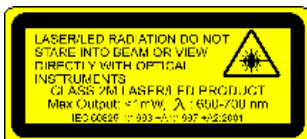


Laser/LED Radiation

Wavelength: <math><1\text{mW}</math>
 Maximum Output: 650-700 nm
 Laser Pulse Duration: 0.977 mSec.
 LED Pulse Duration: 0.255 uSec.



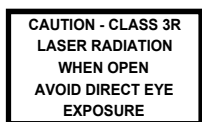
Laser aperture



A Warning Label (see left) is located on the underside of the CR3 near the battery locking mechanism as pictured (see right).



Enlarged for readability



Code voids product warranty if the hard case has been opened or tampered with in any way. Opening the case may put the user at risk of laser radiation exposure (Class 3R). A second Warning Label (see left) is placed within the casing structure as pictured (see right).



Enlarged for readability

Caution – Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.

In addition, a CB Test Certificate has been issued by the National Certification Board (NCB) indicating Code Reader 3.0 (CR3) meets all safety and quality standards in accordance to IEC 60950-1:2001, First Edition.

Code Reader 3.0 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

Code Corporation, 11814 S. Election Road, Suite 200, Draper, UT 84020

www.codecorp.com

Table of Contents

- Chapter 1 - Getting Started 1**
 - 1.1 - Introduction 2
 - 1.2 - Unpacking 3
 - 1.3 - Reader Battery Installation 4
 - 1.4 - Attaching Handles 5
 - 1.5 - Powering On/Off Reader 5
 - 1.6 - Keypad/Icon Overview 6
 - 1.7 - Batch Operation 8
 - 1.7.1 - Introduction 8
 - 1.7.2 - RS232 Considerations 8
 - 1.8 - Cabled Operation 9
 - 1.8.1 - Introduction 9
 - 1.8.2 - USB Cable Installation Guide 10
 - 1.8.2.1 - USB Communication Settings 11
 - 1.8.3 - PS2 Cable Installation Guide 11
 - 1.8.3.1 - PS2 Communication Settings 12
 - 1.8.4 - RS232 Cable Installation Guide 13
 - 1.8.4.1 - RS232 Communication Data Bit Settings 14
 - 1.8.4.2 - RS232 Communication Baud Rate Settings 14
 - 1.8.4.3 - RS232 Communication Parity Settings 14
 - 1.8.5 - Cabled Reader - Time Out Settings 15
 - 1.9 - Bluetooth Radio Operation 16
 - 1.9.1 - Introduction 16
 - 1.9.2 - Bluetooth Radio Auto Connect 18
 - 1.9.3 - Bluetooth Radio Auto Disconnect 19
 - 1.9.4 - Bluetooth Radio Time Out Settings (Uncabled Operations) 19
 - 1.9.5 - Bluetooth Radio Out of Range Notification Settings 19
 - 1.9.6 - Auto Save Last Bluetooth Address 20
 - 1.10 - Reader Feedback Guide 21
 - 1.11 - Targeting and Reading Techniques 22
 - 1.12 - Imager Field of View and Resolution 23
 - 1.13 - Decode Zone 24
- Chapter 2 - Optimization and Trigger Programming 25**
 - 2.1 - Introduction 26
 - 2.2 - Global Trigger Optimization Matrix 27
 - 2.3 - Left Trigger Optimization Matrix 28
 - 2.4 - Left Trigger Programming 28
 - 2.5 - Right Trigger Optimization Matrix 29
 - 2.6 - Right Trigger Programming 29
 - 2.7 - Handle Optimization Matrix 30

2.8 - Handle Trigger Programming	30
2.9 - Continuous Trigger Optimization Matrix	31
2.10 - Continuous Scan	31
2.11 - Continuous Scan Settings	32
2.11.1 - Continuous Scan - Sleep Time Out	32
2.11.2 - Continuous Scan - Trigger Delays	32
2.11.3 - Continuous Scan - Duplicate Scan Suppression	32
2.12 - Motion Detection Scan Settings	32
Chapter 3 - CR3 Programming: Symbology Settings	33
3.1 - Aztec Symbology	34
3.2 - Codabar Symbology	34
3.3 - Codablock F Symbology	35
3.4 - Code 11 Symbology	35
3.5 - Code 39 Symbology	35
3.6 - Code 93 Symbology	36
3.7 - Code 128 Symbology	36
3.8 - Composite Symbologies	37
3.9 - Data Matrix Symbology	37
3.10 - GoCode Symbology	37
3.11 - Interleaved 2 of 5 Symbology	38
3.12 - Maxicode Symbology	38
3.13 - Matrix 2 of 5 Symbology	39
3.14 - Micro PDF417 Symbology	39
3.15 - MSI Plessy Symbology	39
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	42
3.22 - RSS Symbology	42
3.23 - Telepen Symbology	43
3.24 - UPC/EAN/JAN	43
Chapter 4 - Reader Feedback and Special Settings	44
4.1 - Volume and Vibration Settings	45
4.2 - Code Readability Index	45
4.3 - Backlight Intensity Settings	46
4.4 - Backlight Timeout Settings	47
4.5 - Laser Settings	47
4.6 - Reader Power Off Settings	47
4.7 - Reader ID and Firmware Version	48
4.8 - Reader Settings Lock	48

4.9 - Keyboard Support	49
4.10 - Time Stamp Settings	49
4.11 - Lock-out Link Mode	50
Chapter 5 - Advanced Decode Performance	51
5.1 - Set Targeting Zone Tolerances.....	52
5.2 - Windowing.....	53
5.3 - VGA & Megapixel Settings	55
5.4 - Mirror Decoding.....	55
Chapter 6 - Adding a Prefix or Suffix and Reader Text Commands	56
6.1 - Prefix Settings	57
6.2 - Suffix Settings	57
6.3 - Erase Prefix and Suffix Settings.....	58
6.4 - Reader Text Commands.....	58
Chapter 7 - CR3: Maintenance and Troubleshooting	59
7.1 - Reset Reader to Factory Defaults.....	60
7.2 - General Safety Information	60
7.3 - Warranty.....	61
7.4 - CR3 Accessories.....	62
7.5 - Frequently Asked Questions	63
7.6 - CR3 Maintenance	63

Chapter 1 - Getting Started

1.1 - Introduction

The CR3 establishes a new benchmark for Portable Data Terminals and Hand Held Computers by combining the industry's best imaging technology with a graphic display and rugged keyboard to create the smallest and lightest full-featured bar code reading terminal on the market.

Using the same ergonomic platform as the highly successful Code Reader 2.0, the CR3 extends mobile all-symbology bar code reading to include information display and keyboard entry.

The CR3 instantly reads large linear as well as high density matrix symbols due to Code Corporation's unique Dynamic Optimization Technology (DOT), which continuously adapts the resolution, illumination, and image field for the fastest automatic symbology identification and decoding over the widest range of symbology types, sizes, recording surfaces and ambient lighting. With DOT, the CR3 achieves matrix symbol decoding at speeds that are similar to linear bar code decoding, while preserving battery energy. By monitoring each user's reading patterns, DOT reduces training time and eliminates the need for manual configuration optimization through parameter settings.

Code eliminates the need for costly, high-overhead operating systems by providing an open platform JavaScript development environment within its CodeXML Applications Development Suite. With CodeXML and JavaScript, Developers and Information Technology organizations no longer need to worry about expensive porting of applications between Windows, Windows Pocket PC, Windows CE.Net, et.al.. A unique feature of the Applications Development Suite has the ability to protect both development investment and data security by a customer-unique key encryption, which allows the developer to control the distribution and modification of applications to specific serial-numbered CR3 units.



featuring
DOT



The CR3 features a 1.3 MegaPixel dual-field image collection engine, a 400MHz AMD Alchemy Au1100 CPU, and 8MB of non-volatile memory. Portable operations are supported by a 1950 mAH Lithium Ion Battery and a Real Time Clock with its own battery backup system. For wireless communications, a 2.4 GHz radio system is available and compatible with a wide range of Bluetooth™ systems, as well as the CodeXML Modem, with a unique data and pairing encryption system for unsurpassed wireless data security.

The CR3 will instantly decode all bar and 2D codes

1.2 - Unpacking

Remove the CR3 from its packing and inspect it for damage. If the scanner was damaged during shipping, please call Code at (801) 495-2200.

The standard CR3 unit is shipped with a USB cable interface. The unit also features a 1950 mAH battery that must be installed in the unit at all times.

Various accessories are available for the CR3.

- 4 cable options (USB 6 ft., USB 12 ft., RS232 or PS/2)
- Class 1 Bluetooth radio with 300 foot operating range (shorter range option available)
- Clip-on pistol grip handle
- Ruggedized cabled handle
- Battery handle (in two battery sizes)
- External battery charger
- CodeXML Bluetooth modem
- Protective Case Cover
- Power Supplies: US/Europe/SA/UK/Asia
- Reader Stand
- Lanyard Hook attachment option

Please keep your packing materials. The CR3 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 CR3 can be purchased with a 1950 mAH Lithium Ion battery. To install battery, make sure the battery is in the correct position (figure 1.21). Place the plastic tab of the battery into the reader (figure 1.22). Push the battery in and slide the locking mechanism down (figures 1.23 & 1.24)

Charging the Lithium Ion Battery

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

Note: The RS232 interface power adapter must be plugged into a wall socket for the unit to charge.

If you power-up the CR3 with a completely discharged battery it will take up to 10 minutes before the unit will become operational.



Figure 1.21



Figure 1.22



Figure 1.23



Figure 1.24



1.4 - Attaching Handles

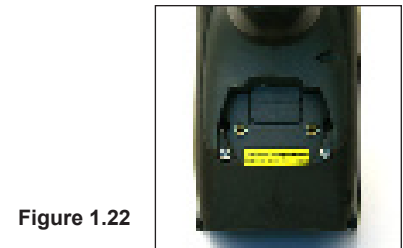
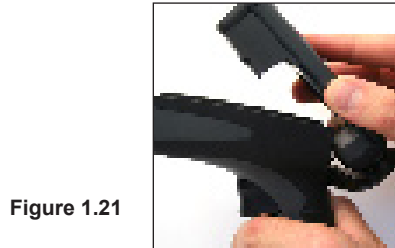
H1 - Handle

1. Place the CR3 in the cradle of the handle and slide the unit back (Figure 1.18). Be careful not to place fingerprints on the front glass when attaching handle.
2. Once the 8-pin DIN connector of the handle begins to enter the opening in the back of the unit, firmly press the unit back until the unit is flush against the handle (Figure 1.19).



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 1.20).
3. The reader 'snaps' to the handle utilizing the battery compartment (Figure 1.21). 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 1.22).



1.5 - Powering On/Off Reader

To power on the reader, press and hold either of the red trigger buttons for 3 seconds (Figure 1.1).








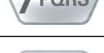
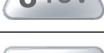
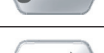
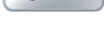

The reader will power down after 2 hours of non-use. To change the default settings, please see Section 4.6 - Reader Power Off Settings.

Figure 1.1



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	Backspace and clear messages	Backspace and clear messages	Backspace and clear messages

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

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 RS232 configurations can not be detected
	No icon is displayed when the reader does not detect a connection
<i>Communication Mode Icons</i>	
	RS232 communication mode enabled
	PS2 communication mode enabled
	USB communication mode enabled
	Bluetooth communication mode enabled
<i>Packet Mode Icons</i>	
	One way mode – no acknowledgement required
	Two way mode – packetized, bidirectional communication between a CR3 and an application (may also indicate download mode)
	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

1.7 - Batch Operation

1.7.1 - Introduction

Batch data storage and data transfer are controlled by the resident JavaScript application on your CR3 reader. Please consult the Code Viewer user manual for the application on your CR3 for instructions on how to control data storage and transfer.

1.7.2 - RS232 Considerations

In RS232 Batch Cable-Detect mode, the CR3 will detect if it is connected to a powered serial cable, and will send the data. If a powered serial cable is not connected or if the power adapter is not connected to the serial cable, the CR3 will buffer the data. When the CR3 is then connected to a powered serial cable, the data will automatically upload.

In RS232 Cabled - No Power mode, the CR3 will behave as if it is always connected even though the serial cable is disconnected or the power adapter is unplugged. Scanned data will be sent, regardless of connection status. Data scanned in Cabled mode will be lost if the CR3 is not connected to the serial cable. It will not buffer the data, unless Send & Store mode has been enabled.

Important Note: If you are in RS232 Cabled-No Power mode, when you place a unit in a charger the reader will behave as if it is being cabled, and download the data. THE DATA WILL BE ERASED FROM MEMORY. To disable this feature, scan the RS232 Cable - Detect code.

RS232 Batch Cable-Detect - Default



RS232 Cabled - No Power



1.8 - Cabled Operation

1.8.1 - Introduction

The CR3 is available with USB, RS232 and PS2 cables. All of the cables are connected to the CR3 with a 8-pin DIN connector. Different cables may be required for different hosts.

Hand Held CR3 - To install a cable on the standard palm-held unit, correctly line up the 8-pin DIN connector into back end of the unit. The arrows on the connector should be facing down (Figure 1.2). When they are lined up, firmly push the cable in. The cable has a locking mechanism that will firmly hold the cable in place (Figure 1.3). To detach the cable from the reader, **YOU MUST** grip the plastic on the 8-pin din (Figure 1.4) and pull back to disengage the connector.

CR3 with Handle - If you purchased one of Code's cabled handle accessories, the 8-pin DIN connector is on the bottom of the handle (Figure 1.4). 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. To detach the cable from the reader, **YOU MUST** grip the plastic on the 8-pin DIN (Figure 1.5) and pull back to disengage the connector.

When using the H2 ruggedized handle, an extra clip is available to attach the cable to the handle with two threaded screws (Figure 1.6).



Figure 1.2



Figure 1.3



Figure 1.4



Figure 1.5



Figure 1.6



1.8.2 - USB Cable Installation Guide

To connect the CR3 to your host computer via USB interface:

1. Make sure the USB cable is sufficiently attached to your CR3 unit (Figure 1.7).
2. You **DO NOT** need to power off your host computer (Figure 1.8). The CR3 with USB interface can be plugged into any host while the computer is powered up.
3. Connect the USB interface cable to the host (Figure 1.9). If you are unsure of the proper location to connect the USB cable please consult the manual of your host computer.
4. The USB interface does not require additional power supply. If you are using 1950 mAH battery for batch mode, the CR3 will automatically recharge the battery whenever the unit is attached to a host that is powered up.
5. The CR3 will power on automatically.
6. Scan the USB Keyboard Mode code, then the Save Setting code to configure reader:

USB Keyboard Mode



Save Settings



7. Your CR3 unit should be ready for use. Open the application on your host computer to which you wish to send data and begin scanning.



Figure 1.7



Figure 1.8

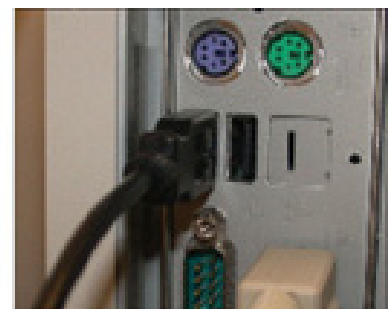


Figure 1.9

1.8.2.1 - 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 CR2 and an application through the USB port.

USB Virtual COM 1 Way Mode - This mode allows a USB-cabled CR2 to function as a virtual COM port. To use the CR2 in this mode, download the driver at www.codecorp.com/downloads.html.

USB HID POS (Terminal ID 131) - This mode allows a USB-cabled CR2 to communicate as a USB HID POS (Terminal ID 131) device.

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

*You must first install the
virtual com port driver
before using this code.*

Reset to USB Factory Defaults



M049_03

USB HID POS (Terminal ID 131)



M736_01

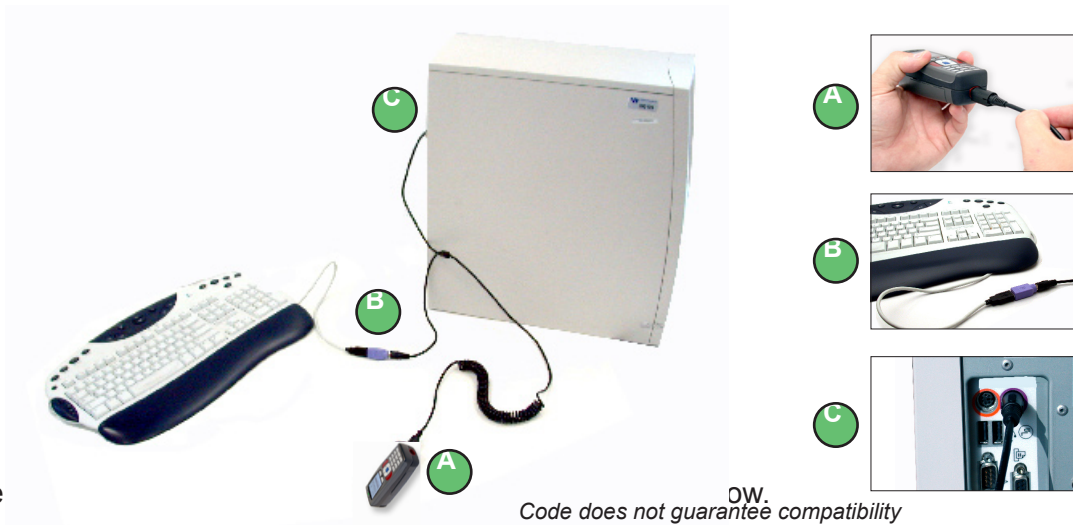
1.8.3 - PS2 Cable Installation Guide



Save Settings

M188_02

1. Power off the host computer.
2. Attach the end of the PS2 cable with the single connector **A** to the CR3.
3. Disconnect your keyboard from the host and connect the appropriate connector to the PS2 cable **B**.
4. Connect the other connector to host computer into keyboard port **C**. Power on the host computer. The CR3 is powered by the PS2 port and does not require a power supply.



OW.
Code does not guarantee compatibility
with all models of laptops.

5. Set the
6. Scan the Save Settings code.
7. Your CR3 is now ready. Open the appropriate application and begin scanning data.

WARNING: Code does not recommend using Batch or Bluetooth Radio modes with the PS2 interface. You may need to disconnect the CR3 and the keyboard which may result in the host computer freezing. Using PS2 in conjunction with Batch or BT mode is not recommended.

1.8.3.1 - PS2 Communication Settings

Scan the following codes to set the reader to the PS2 communication setting:

PS2 Mode



M126_01

Save Settings



M188_02

Reset to PS2 Factory Defaults



M060_03



Save Settings

M188_02

1.8.4 - RS232 Cable Installation Guide

To connect the CR3 to your host computer via RS232 interface:

1. Make sure the RS232 cable is sufficiently attached to your unit.
2. Connect the RS232 interface cable to your host computer (Figure 1.10). If you are unsure of the proper location to connect the RS232 cable please consult the manual of your host computer.
3. The RS232 interface can be purchased with a power supply. Plug the power supply adapter into the RS232 interface cable (Figure 1.11) and then plug the power adapter into a wall socket (Figure 1.12). If you are using the RS232 interface and utilizing Batch functionality, please read the Important Note in batch section. If you are using the 1950 mAH battery for batch mode, the RS-232 cable will recharge the CR3 battery only if the RS232 cable has a power supply connected and the power supply is plugged into a socket.



Figure 1.10



Figure 1.11



Figure 1.12

4. The CR3 will power on automatically.
5. Scan the RS232 One Way Mode code then the Save Settings code to configure reader:

RS232 One Way Mode



M131_01

Save Settings



M188_02

RS232 Factory Default Settings

Mode: RS232 One Way Mode

Baud Rate: 57600

Stop Bits: 2

Data Bits: 8

Parity: None

6. Your CR3 should be ready for use. Open the application on your host computer that will receive scanned data and begin scanning.

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

1.8.4.1 - RS232 Communication Data Bit Settings

Scan the following codes to set the appropriate data bit:

7 Data Bits



M100_01

8 Data Bits (Default)



M101_01

1.8.4.2 - RS232 Communication Baud Rate Settings

Scan the following codes to set the appropriate baud rate:

1200



M092_01

2400



M093_01

4800



M094_01

9600



M095_01

19200



M096_01

38400



M097_01

57600 (Default)



M098_01

115200



M099_01

1.8.4.3 - RS232 Communication Parity Settings

Scan the following codes to set parity:

Even



M102_01

Odd



M104_01

None (Default)



M103_01



M188_02

Save Settings

1.8.5 - Cabled Reader - Time Out Settings

Scan one of the codes below to set the amount of time a cabled CR3 will be enumerated before entering sleep mode. The battery is re-charged at the fastest rate when CR3 is in sleep mode:

Cabled - 2 hours



M136_01

Cabled - Always (Default)



M137_01



Save Settings

M188_02

1.9 - Bluetooth Radio Operation

1.9.1 - Introduction

This CR3 features a Bluetooth® wireless radio. The radio allows for point-to-point wireless communication with other Bluetooth devices that support serial port protocol (SPP). The following guide will give you general instructions on connecting your CR3 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 1.13). This code will link your CR3 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 1.14).



Figure 1.13



Figure 1.14

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 web site at:

<http://www.codecorp.com/support/bdaddr.php>.

Important Note: While installing the Bluetooth Configuration Manager software that was included with your Bluetooth adapter, make sure to note the Communication Port number the software assigned for the adapter (e.g. COM 10). This is the COM Port your CR3 will connect through.

To connect your reader, scan the Reset to Factory Defaults below then the *QuickConnect Code* and your CR3 will automatically connect. You should also scan the Save Settings code if you want to save these settings. (**Note:** If the CR3 unit powers off without scanning the Save Settings code, you will lose your settings.)

Reset to RF Factory Defaults



M684_01

Example:

QuickConnect



0003C92DB48F

Save Settings



M188_02



Save Settings

M188_02

Radio Range and Transferring Data

The CR3 radio is a Class 1 device. If connected to another Class 1 device the unit has roughly a 300 foot 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 unit is connected, the application software on the host must be open to receive data.

When the CR3 detects the radio is out of range, the CR3 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 unit's memory. The reader will continue to try and connect until it has reached the programmable radio time out setting.

The CR3 Bluetooth protocol allows for two (2) forms of communication:

1. **One Way Mode** - Communication between the reader and host, that does not require host acknowledgement. One Way mode is only recommended when connecting to a device well within its specified range or if connecting to a device without an operating system (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 One Way Mode (Max Range)



RF One Way Mode (Max Reliability)



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. **RF Two Way Mode** - This mode allows for two way communication between the host and reader. 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 Two Way Mode



* **Note:** You will need to install application software that supports packet communication to operate in RF Two Way Mode. Code offers the CodeXML Bluetooth Modem and a Windows or Pocket PC version of software called CodeXML Router - Bluetooth Edition (BE) that provides for end-to-end Bluetooth handshakes that eliminate out-of-range data loss. CodeXML Router - BE also offers Bluetooth to keyboard wedge communication for applications that require keyboard port input.

If you are using the CodeXML Bluetooth modem, you must use RF Two Way Mode.

Save Settings

Scan the code below to make the RF settings permanent on the reader:

Save Settings



Disconnecting from the Device

You may force disconnection by reading the disconnect code below (The CR3 may not appear disconnected in the slave Bluetooth connection manager for 10 – 15 seconds after the command is issued). The CR3 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



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. CR3 is powered up
2. CR3 wakes from sleep mode
3. CR3 reads another code

Note: To set up more than one device, please consult Appendix F: “QuickConnect Codes”

1.9.2 - Bluetooth Radio Auto Connect

Auto Connect: After coming out of sleep mode or after powering up the CR3 tries to auto connect with the last Bluetooth radio with which it was connected if the steps (previous) were followed (see Section 1.7.1 - 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)



Bluetooth Radio Auto Connect: Off



Save Settings

1.9.3 - Bluetooth Radio Auto Disconnect

Auto Disconnect: This feature is used when multiple CR3 units are connecting to the same Bluetooth Radio. By enabling Auto Disconnect the CR3 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



Bluetooth Radio Auto Disconnect: Off (Default)



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)

1.9.4 - Bluetooth Radio Time Out Settings (Uncabled Operations)

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 unit will time out will decrease battery life. If the unit has power (cabled unit or cable with power supply combination), it will disconnect based on cable time-out settings.

90 Seconds (Default)



5 Minutes



10 Minutes



15 Minutes



30 Minutes



1 Hour



2 Hours



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



Bluetooth - Out of Range Notify with Vibrate: On



Bluetooth - Out of Range Vibrate & Beep: On



Bluetooth - Out of Range Vibrate and/or Beep: Off (Default)



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



Save Settings

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



M188_02

1.10 - Reader Feedback Guide

The chart below shows potential icon combinations in CodeViewer™ software. Consult the chart to verify a configuration.

Possible CR3 Configurations			
RS232	PS2	USB	Bluetooth Radio
<p>RS232 One Way Mode </p> <p>This mode is the standard way of transferring unformatted, unpacketized data through the serial/RS232 port.</p>	<p>PS2 Keyboard Mode </p> <p>This mode is the standard mode for transferring data from the CR3 through a PS2 port.</p>	<p>USB One Way Mode </p> <p>This mode is the standard way of transferring unformatted, unpacketized data through a USB port.</p>	<p>Bluetooth One Way Mode </p> <p>This mode is a way of transferring unformatted, unpacketized data by radio frequency (Bluetooth).</p>
<p>RS232 Two Way Mode </p> <p>This mode allows for reliable communication by utilizing packet acknowledgement protocol.</p>		<p>USB Two Way Mode </p> <p>This mode is utilized when there is a need for packetized, bidirectional communication between the CR3 and an application through a USB port.</p>	<p>Bluetooth Two Way Mode </p> <p>This mode is utilized when there is a need for packetized, bidirectional communication between the CR3 and an application by radio frequency (Bluetooth). This requires implementation of software at the application level. The reader receives confirmation via packet protocol verification and is 100% reliable. Code offers a Windows or PocketPC version of software called CodeXML Router Bluetooth Edition (BE) that automatically provides packet protocol verification. CodeXML Router BE allows for end-to-end Bluetooth handshakes that eliminate issues with out-of-range data loss.</p>
		<p>USB Keyboard Mode </p> <p>This mode emulates the transfer of data from the CR3 to a host computer via a keyboard interface.</p>	
<p>RS232 Secure Mode </p> <p>This mode is utilized for transferring data in an encrypted format from the CR3 to a host computer through the serial/RS232 port.</p>		<p>USB Virtual COM Port 1 Mode </p> <p>This mode allows communication between a USB port and an application expecting serial input. A virtual com driver must be loaded onto the host computer before reader can be utilized in this mode. ** See Note.</p>	<p>Bluetooth Secure Mode </p> <p>This mode is utilized for transferring data in an encrypted format from the CR3 to a host computer through a Bluetooth connection.</p>
		<p>USB Secure Mode </p> <p>This mode is utilized for transferring data in an encrypted format from the CR3 to a host computer through a USB port.</p>	
		<p>USB Downloader Mode </p> <p>This mode is used when downloading firmware changes to the reader.</p>	<p>** Note: USB Virtual COM Port Driver is available for download on Code's website at: www.codecorp.com/downloads</p>



Save Settings

1.11 - Targeting and Reading Techniques

The CR3 utilizes digital camera technology to take a picture of a symbol. Once an image is captured, the CR3 utilizes advanced decoding algorithms to extract data from the captured image.

The CR3 is available as a palm-held unit or users may purchase a handle (available in various types).

The palm held unit 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 unit also work when the handle is attached.



To read a symbol with the CR3:

1. The CR3 features omnidirectional decoding. Center the symbol in any orientation within the laser dot aiming pattern (figure 1.15).

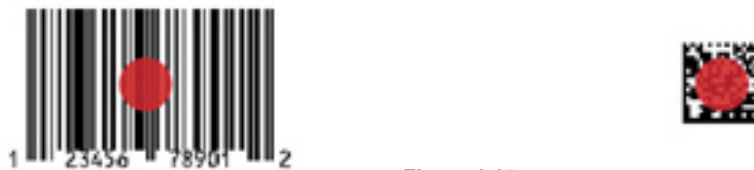


Figure 1.15

Note: The CR3 can read a symbol that is not centered; however, the CR3 performs best when a code is centered. If two (2) bar codes are within the imager's decode zone, the CR3 will decode the symbol closest to the center of the aiming dot.

2. The CR3 was developed to decode both very small 2-dimensional symbols and larger 1-dimensional symbols. The unit has an innovative dual field decode zone. The CR3 **DECODES BOTH ZONES SIMULTANEOUSLY**. The unit has a lens focused on a near-field for smaller codes (optimal focal point is 4 inches) and one lens focused on a far-field for larger codes (optimal focal point 9 inches). To read smaller symbols move the CR3 closer to the symbol. To read larger symbols move the unit farther away from the symbol. The entire CR3 decode zone varies between two (2") and twenty (20+) or more inches.



3. Hold the CR3 still - **DO NOT SWIPE OR MOVE THE READER.** Press the trigger until the CR3 beeps, indicating the code has been successfully decoded.
4. The reader may be optimized to your specific environment by scanning codes in Chapter 2.

1.12 - Imager Field of View and Resolution

The CR3's dual field optical system may be modified based on your scanning environment. The CR3's megapixel imager may be set to the following three modes:

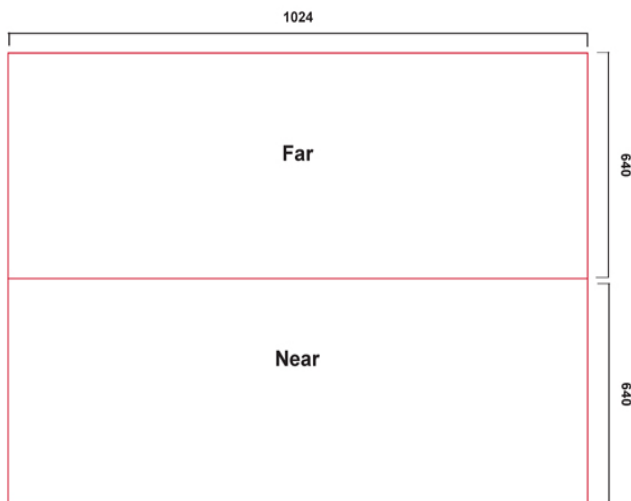
DOT Mode (Dynamic Optimization Technology): DOT dynamically changes the resolution mode of the reader between VGA and SXGA. DOT adapts the resolution based on varying environmental criteria, and types of symbologies being scanned. This mode works best if you are working with multiple types of symbologies of varying sizes.

Note: If you are scanning mostly medium to low density codes, you may want to choose VGA. If you are scanning high densely packed codes, SXGA may be the better choice. It is recommended to experiment with all three modes to determine the best reading performance for your application.

SXGA Mode (Default): In standard SXGA mode (default), the 1.3 Million Pixel imager is divided into near field and far field decode zones. In each zone the resolution is 1024 x 640 pixels (see Figure 1.16). In this mode of operation the reader utilizes the highest resolution creating the widest working range on bar code and 2-dimensional symbols of all densities. The trade-off is the amount of time the reader spends processing the image. This time can be reduced by optimization functions:

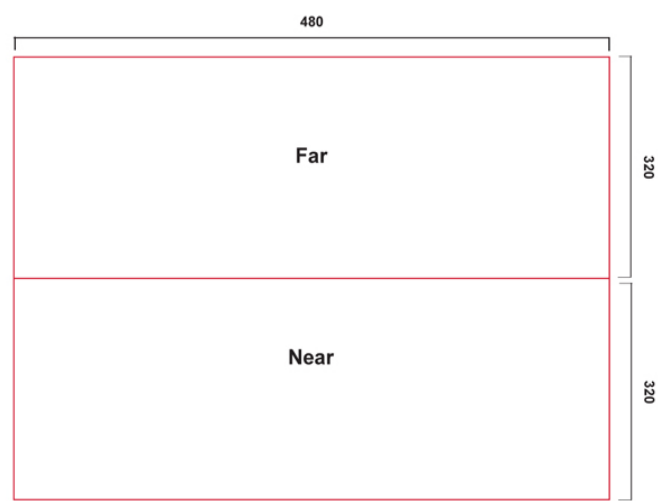
If only the near field is used (small symbols), the far field image can be ignored. If only the far field is used (large symbols), the near field can be ignored. Further optimization may be obtained by "windowing" the field to a smaller area. Each focal area may be narrowed by enabling the windowing feature found in section 9.3.

VGA Mode: In VGA mode the 1.3 Million Pixels are sampled on a 4-to-1 basis. This greatly reduces the amount of time necessary for the transfer of the image to the CPU and the resulting processing time (Figure 1.17). The trade-off for this increased speed is a reduction in resolution and working range.



SXGA Imaging Area

Figure 1.16



VGA Imaging Area

Figure 1.17

1.13 - Decode Zone

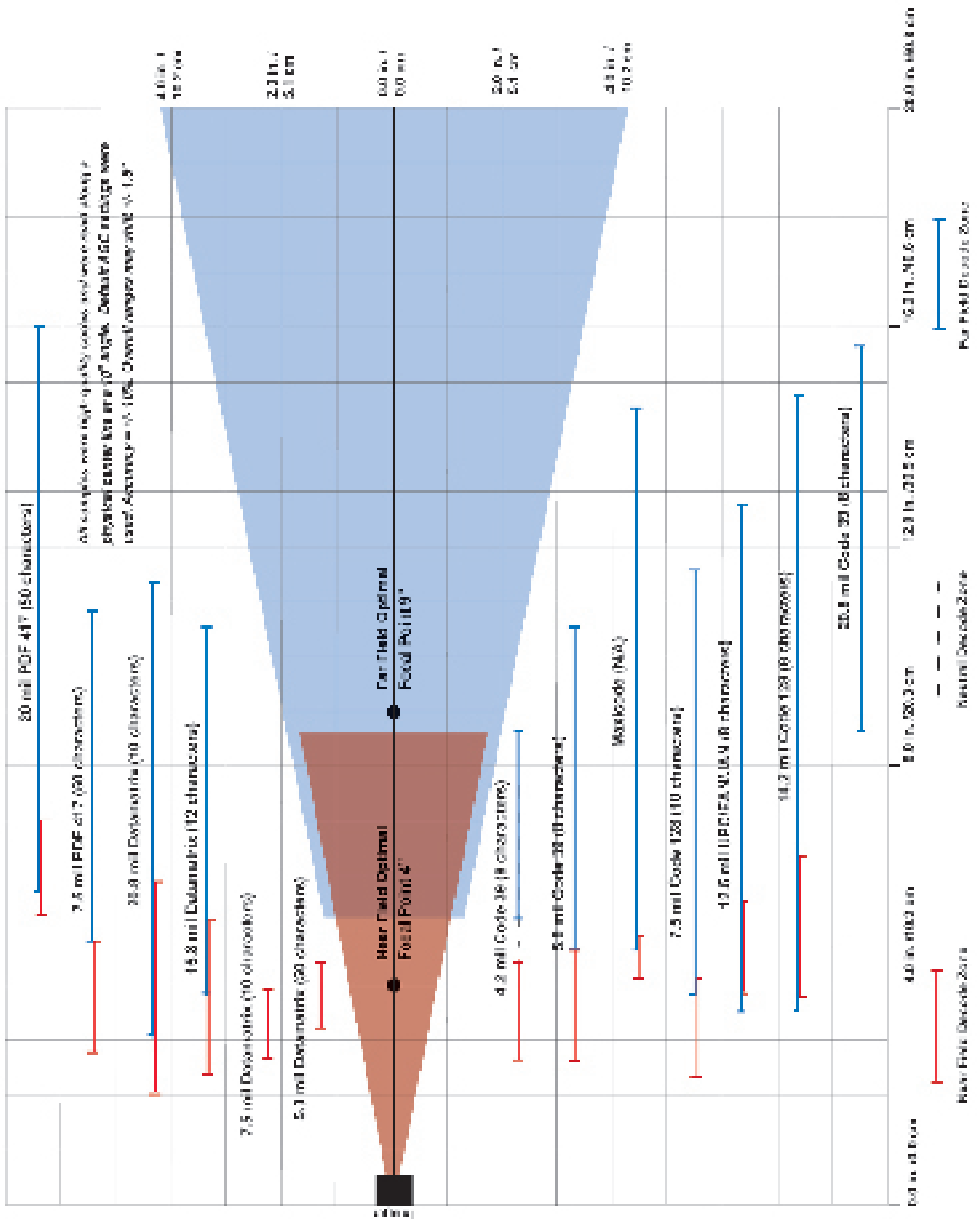


Figure 1.18



Chapter 2 - Optimization and Trigger Programming



2.1 - Introduction

The CR3 comes pre-configured with Dynamic Optimization Technology (DOT), a revolutionary adaptive read technique that eliminates the need to manually set most individual parameters. From the moment you turn on your CR3, you are taking full advantage of the dual path 1.3 megapixel imager, the 400 MHz processor, and DOT.

DOT continuously adapts illumination and image field for optimized decoding. DOT achieves decoding speeds for 2D codes that are similar to speeds usually only seen in 1D readers. CR3 units are able to read a wide range of symbology types and sizes, as well as a variety of printed media, within a wide range of environmental factors including light (natural or ambient lighting).

By defining if you are scanning large, small, high density or low density types of symbology(s), the CR2 has options that will maximize decoding speed.

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

	SXGA	VGA
Both Fields	<p>SB</p> <p>High density codes Medium to Small size 2D</p>	<p>VB</p> <p>Medium/low density codes Medium to large size 1D or 2D</p>
Near Field	<p>SN</p> <p>High density codes Small size 2D</p>	<p>VN</p> <p>Medium/low density codes Medium size 1D or 2D</p>
Far Field	<p>SF</p> <p>High density codes Medium size 2D</p>	<p>VF</p> <p>Medium/low density codes Large size 1D</p>

The CR3 is easily customizable; each trigger can be independently programmed for different behavior.







Near Field (NF): The closest optimal focal point of the CR3's two image fields. The Near Field can decode the highest density barcode. It has an optimal focal point of 4" (101.6 mm) away from the lens of the reader. See Figure 1.18 for optimal read distances.

Far Field (FF): The farthest field of the CR3's two image fields. It has an optimal focal point of 9" (228.6 mm) away from the lens of the reader with a 4" wide field of view at this point.







The following tables provide readable codes to program all or individual triggers to perform within different parameters. See Figure 1.18 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	VGA
Both Fields	 M613_02	 M616_02
Near Field	 M614_02	 M617_02
Far Field	 M615_02	 M618_02

2.3 - Left Trigger Optimization Matrix

	SXGA	VGA
Both Fields	 M631_02	 M634_02
Near Field	 M632_02	 M635_02
Far Field	 M633_02	 M636_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	VGA
Both Fields	 M640_02	 M643_02
Near Field	 M641_02	 M644_02
Far Field	 M642_02	 M645_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	VGA
Both Fields	 M622_03	 M625_03
Near Field	 M623_03	 M626_03
Far Field	 M624_03	 M627_03







2.8 - Handle Trigger Programming

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

Handle Trigger Take Picture



2.9 - Continuous Trigger Optimization Matrix

	SXGA	VGA
Both Fields	 M649_02	 M652_02
Near Field	 M650_02	 M653_02
Far Field	 M651_02	 M654_02

2.10 - Continuous Scan

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

Off (Default)



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 CR3 will operate in continuous scan mode before entering sleep mode:

Cabled - 2 hours



M136_01

Cabled - Always (Default)



M137_01

Scan one of the codes below to set the amount of time an uncabled CR3 will operate in continuous scan mode before entering sleep mode:

Uncabled - 5 minutes (Default)



M145_01

Uncabled - 15 Minutes



M146_01

Uncabled - 30 Minutes



M147_01

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)



M142_01

1 Second



M143_01

3 Seconds



M144_01

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)



M222_01

1 Second



M223_01

3 Seconds



M224_01

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



M701_01

Motion Detection Off



M702_01



M188_02

Save Settings

Chapter 3 - CR3 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



M277_01

Codablock F Off (Default)



M276_01

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)



M393_01

Code 11 Off



M394_01

Code 11 Checksum 1 digit



M395_01

Code 11 Checksum 2 Digit & Stripped from Result



M396_01

Code 11 Checksum 1 Digit & Stripped from Result



M397_01

Code 11 Sample with 1 Checksum Digit



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



M188_02

Save Settings

Code 39 Short Margin On



M390_01

Code 39 Short Margin Off (Default)



M389_01

Code 39 Trioptic On



M671_01

Code 39 Trioptic Off



M670_01

Sample Code 39 Code



123456789

Sample Trioptic Code 39



123456

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



M188_02

Save Settings

3.8 - Composite Symbologies

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

Composite On



M285_02

Composite Off (Default)



M284_02

3.9 - Data Matrix Symbology

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

Rectangular Data Matrix On



M242_01

Rectangular Data Matrix Off (Default)



M241_01

Data Matrix Inverse On



M239_01

Data Matrix Inverse Off (Default)



M240_01

Enable improved reading capability for hard to decode datamatrix symbols.

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



M744_01



M745_01

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



Save Settings

M188_02

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)



Int 2 of 5 Off



Int 2 of 5 Two Digits On



Int 2 of 5 Two Digits Off



Int 2 of 5 Four Digits On



Int 2 of 5 Four Digits Off



Sample Int 2 of 5 Code



3.12 - Maxicode Symbology

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

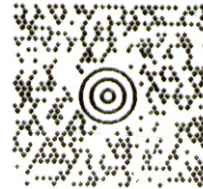
Maxicode On



Maxicode Off (Default)



Sample Maxicode



Save Settings

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



Matrix 2 of 5 Off (Default)



Matrix 2 of 5 Sample



3.14 - Micro PDF417 Symbology

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

MicroPDF417 On



MicroPDF417 Off (Default)



Sample MicroPDF417



3.15 - MSI Plessey Symbology

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

MSI Plessey On



MSI Plessey Off (Default)



Sample MSI Plessey



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



NEC 2 of 5 Off (Default)



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)



Enable OCR



Purchase of OCR license required.

3.18 - PDF 417 Symbology

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

PDF 417 On (Default)



PDF417 Off



Macro PDF 417 On



Macro PDF 417 Off (Default)



Sample PDF 417 Code



Save Settings

3.19 - Pharmacode

For an explanation of Pharmacode settings and all programming codes please refer to Appendix G of the CR3 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



Save Settings

M188_02

3.21 - QR Code Symbology

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

QR Code On



QR Code Off (Default)



Enable Checksum



Disable Checksum (Default)



QR Code Inverse On



Both Inverse and Standard On



All QR On (includes Micro QR)



Inverse QR and Micro QR On



Sample QR Code



Sample Micro QR



3.22 - RSS Symbology

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

RSS Limited On



RSS 14 and RSS 14 Truncated On



RSS 14 Stacked On



RSS Expanded On



All RSS On



All RSS Off (Default)



Save Settings

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 CR3. The Readability Index is specific to the CR3, 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 CR3 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.

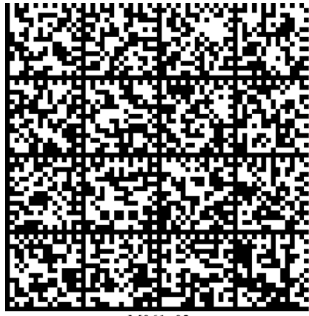


Save Settings

M188_02

The Readability Index is enabled by first reading a CodeXML rule into the permanent CR3 Memory:

Code Readability Index Rule:



M061_02

The reader will store the rule and reset, but will not output the Readability Index until the Readability Index Output Enable code is read.

Readability Index Output Enable:



M062_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 continue to output the Readability Index upon every read until disabled, either by reset or by reading the Readability Index Output Disable code:

Readability Index Output Disable:



M063_02

4.3 - Backlight Intensity Settings

Scan the following codes to set the intensity of the CR3's backlight with High being the brightest and Low being the dimmest:

Low



M678_03

Med - Default



M679_03

High



M680_03



Save Settings

M188_02

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 - Laser Settings

Scan the following codes to turn laser targeting on/off:

On (Default)



M055_01

Off



M054_01

Scan one of the following codes to set the brightness of the CR3 laser.

High (Default)



M058_01

Medium



M057_01

Low



M056_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 CR3 ID 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 CR3 units. For information on latest firmware versions, call Code at (801) 495-2200. To upgrade firmware, please visit our website at <http://www.codecorp.com/support/downloads.htm> 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.



Save Settings

4.9 - Keyboard Support

Scan the following codes to set appropriate keyboard mapping:

**US English (Default)
No Leading 0**



US English - Leading 0



US English - ctrl + char



French



German



Japanese



Universal Keyboard



Custom Keyboard



*Requests map to
be installed*

4.10 - Time Stamp Settings

CR3 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.

CR3 also has a separate time set feature for logging data (defaulted off in shipped units). If you enable the time set feature, everytime the CR3 is powered off or rebooted, the timer will stop.

Scan the following codes to turn the time set on/off:

On



Off (Default)



Note: The time set feature is in relative time from when the reader was last powered up.



Save Settings

4.11 - 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

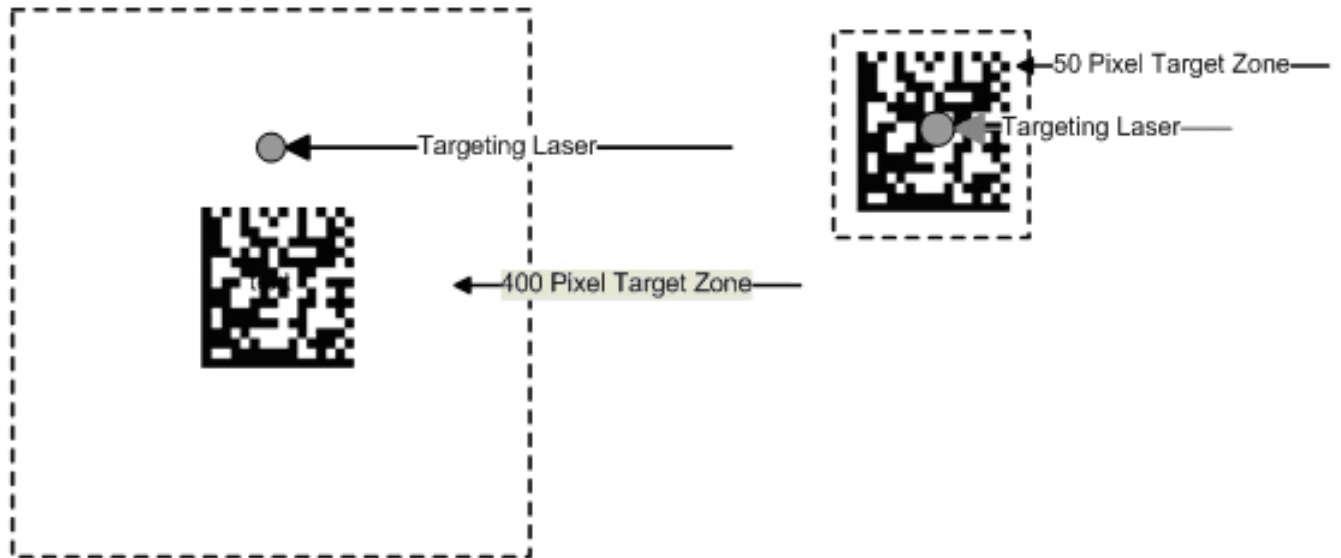


Chapter 5 - Advanced Decode Performance



5.1 - Set Targeting Zone Tolerances

The targeting tolerance is the zone around the laser 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 laser must be more centered in the symbol being read. Conversely, as the targeting tolerance gets larger there is less precision needed with the targeting laser. If there is more than one decodable code in the field of the, the symbol closest to the targeting laser will be decoded.



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

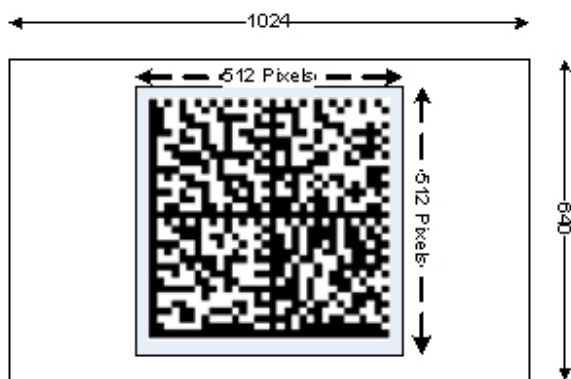
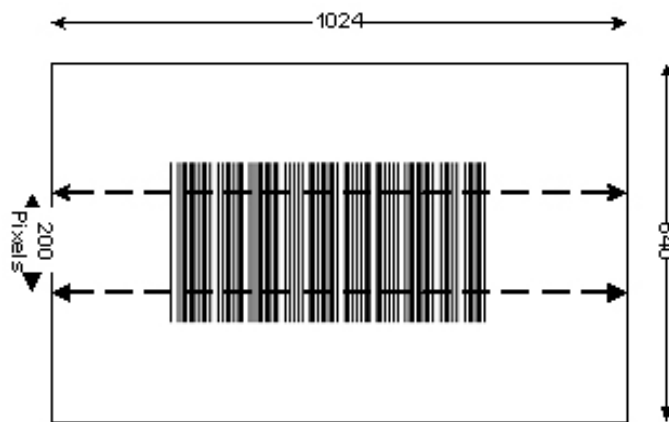
If only one size of bar code is being scanned in an application, the CR3 can be optimized to reduce processing time by adjusting the viewing area within the field of view of the image (ONLY FOR SXGA MODE).

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.

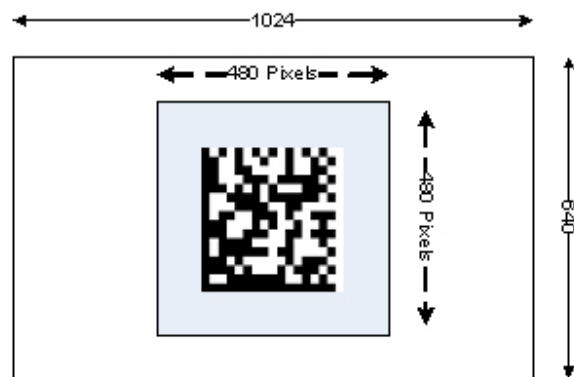
Windowing can improve the processing time of 1D and 2D codes.

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.



Medium Code Windowing



Small Code Windowing



Users may optimize the CR3 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 (ONLY FOR SXGA MODE).

1-Dimensional Codes ONLY (1024 X 200 pixels)



M209_01

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)



M210_01

Medium 2-Dimensional Codes (512 x 512 pixels)



M211_01

Large 2-Dimensional Codes (640 x 640 pixels)



M212_01

Reset to Default Setting (1024 X 640 pixels)



M213_01

5.3 - VGA & Megapixel Settings

User's may optimize the CR3's megapixel (SXGA) imager (1280 x 1024) to VGA (640 x 480). This feature is used to decrease the pixel sampling area, which will greatly increase processing speed. This is an advanced feature used for the rapid decoding of 1-dimensional/linear codes and larger module size 2-dimensional codes. Code recommends testing this feature, as it will not work well with many high density codes.

Enable VGA - 640 x 480



Enable SXGA - 1280 x 1024



5.4 - Mirror Decoding

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

On



Off (Default)



Note: The Mirroring feature allows the CR3 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.

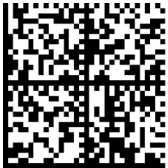
Chapter 6 - Adding a Prefix or Suffix and Reader Text Commands



6.1 - Prefix Settings

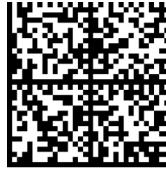
If you scan the following codes, you will lose any unsaved settings. Make sure to save settings on your reader before scanning the prefix codes. If you scan more than one prefix you will receive each scanned prefix in your scanned data; (i.e., if you scan comma prefix twice, you will get two comma prefixes).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

Prefix - Comma



M159_02

Prefix - Space



M164_02

Prefix - Tab (Keyboard Mode)



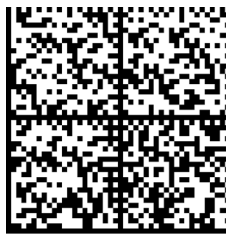
M166_01

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.

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



Save Settings

M188_02

Suffix - Tab (Keyboard Mode)



M167_04

Suffix - Tab (Serial)



M219_04

Suffix - Erase



M405_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 CR3 to accept text commands via RS232 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.



Save Settings

M188_02

Chapter 7 - CR3: Maintenance and Troubleshooting



7.1 - Reset Reader to Factory Defaults

Scan the following codes to reset reader:

Reset to USB Factory Default Settings



M049_03

Reset to PS/2 Factory Default Settings



M060_03

Reset to RS232 Factory Default Settings



M418_02

Reset to RF One Way Factory Default Settings



M684_01

Bootloader Mode



M692_01

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

Clear All CodeXML Rules Prefix & Suffix



M052_01

Clear All Stored Data



M071_01

Save Settings



M188_02

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

7.2 - General Safety Information

Repairs and Adjustments - Only those individuals authorized by Code should attempt to make repairs or adjustments to CR3 equipment. If the reader casing is opened the warranty is voided.

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

Accessories - Only those accessories approved by Code (see pg. 9) 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.

Lasers - The CR3 utilizes a laser **FOR TARGETING PURPOSES ONLY**. If the laser is activated, do not stare into the beam. See pg. i for further information regarding laser warnings.



Save Settings

M188_02

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.

7.3 - Warranty

Code Corporation's Code Reader 3.0 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 3.0 units carry a warranty of two years. Other products with serial numbers, such as but not limited to Code Reader 2.0 units, 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.

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

7.4 - CR3 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/support/faq.htm>

7.6 - CR3 Maintenance

The CR3 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 CR3 Window

The CR3 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 CR3 uses CMOS technology that is much like a digital camera. A dirty window may stop the CR3 from reading 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 CR3 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.