



# BCV-1203 Barcode Verification System Users Guide Version 1.4





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## i Revision History

Version	Date	Page	Description
1.0	09/28/2009	All	Initial Release
1.1	11/04/2013	All	Updated for BCV-1203
1.2	11/30/2015	All	Updated added Relay Output Mode Setup
1.3	12/04/2015	All	Updated Trigger timer to 9999
1.4	1/16/2018	All	Master Slave RS232 Communication

## ii Reference Documents

## 1.0 Introduction

The BCV-1203 is a barcode verification system designed to verify barcodes for a variety of machine applications. The system can connect with a variety of Datalogic barcode scanners. It can also connect with other barcode scanners which can customize data output. The BCV-1203 can connect to up to 4 barcode scanners and 4 presence sensors and provides 2 relay outputs to accommodate a number of verification and control scenarios. The system includes a full graphic touch screen display for user interaction.

## 2.0 Hardware Connections

### 2.1 A/C Power

The BCV-1203 is powered by 90-264 VAC power 50-60 Hz. A standard power cord is provided and can be connected to a standard 110 VAC outlet. Alternatively the power cord and cord grip can be removed and replaced with a conduit fitting for direct connection to facilities or machine power. No external power switch is provided on the BCV-1203. The system will be powered and operational as long as power is provided to the box. Internally there is a 4 amp circuit breaker on the incoming AC power. The box includes screw latches and is not safety interlocked. Incoming power should be removed before opening the box for service.



Figure 1 –110 VAC Input

## 2.2 Scanner Ports

The BCV-1203 Master-Slave version supports one Master barcode scanner and up to 9 Slave barcode scanners. The scanners connect through the DB25 input port 2 on the bottom of the box. The female DB25 port connects directly to 24-volt Datalogic scanners with DB25 male connectors. Adapters can be used to connect 5-volt Datalogic scanners with other connectors. The following Datalogic scanner models are supported.

Model	Adapter Cable
DS2100N	None
DS2400N	None
DS4800N	None
Matrix 200	None
Matrix 400	None
Matrix 300N	None
DS1100	CAB-BCV-11A
DS1500	CAB-BCV-15A
DS2200	CAB-BCV-22A

**Table 1 –Supported Scanners**

The BCV-1203 may also be customized to accept a specific scanner directly without an adapter cable. The BCV can be configured to communicate with a specific type of scanner on each port.

Port 2 connects internally to a RS232 port on the BCV controller. The scanners, are programmed to communicate over RS232 protocol.

## 2.2 Presence Sensor

The BCV-1203 has connections for up to four sensors. The BCV accepts sinking (NPN) sensor inputs. The sensors are wired to the inputs of the internal controller and also to the trigger inputs of the scanners.

The four sensor inputs are connected to terminal blocks 1, 2, 3, and 4 respectively. Also available are terminal blocks for +24V and 0V to power the sensors.

The BCV Master-Slave version is configured to use two presence sensors, one to sense the leading edge of a trigger and one to sense the trailing edge. Once the first presence sensor is triggered the scanners will begin scanning for barcodes until the trigger cycle on the second presence sensor has ended.

## 2.3 Relay Outputs

The BCV-1203 includes 2 relays. Each relay includes 2 normally open and 2 normally closed contacts.

14 – NC	11 – COM	12 – NO
24 – NC	21 – COM	22 – NO

When the system is running the relays are energized. Relay 1 is de-energized with a Wrong Read event on any of the enabled channels. Relay 2 is de-energized with a No Read event on any of the enabled channels. The parameters to determine the trip conditions are configured for each channel via the BCV display.

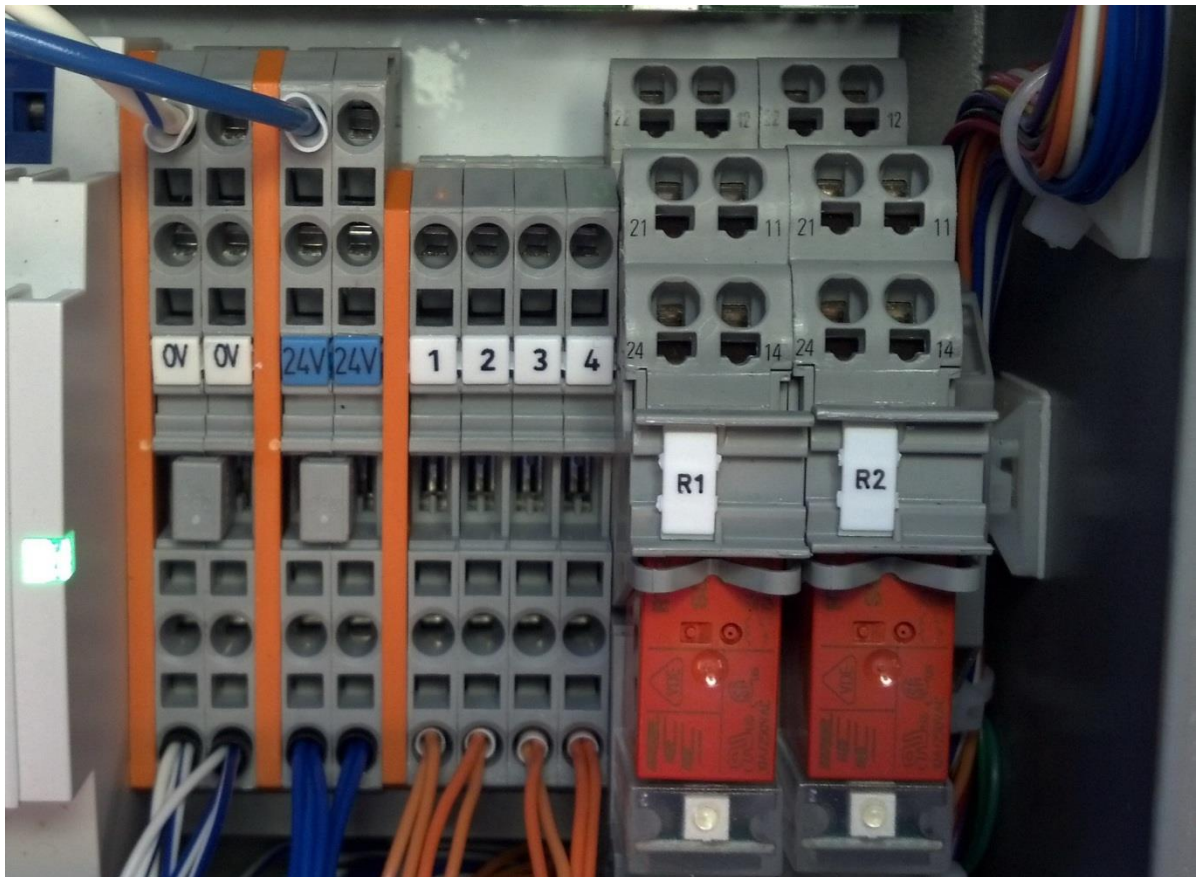


Figure 2 – Terminal Blocks and Relay Connections

### 3.0 Operation

The BCV-1203 includes a graphical touch screen panel for users to interact with the system. It also includes a 3-position key switch to enter the setup and reset modes.

On power up a splash screen showing the software version and revision is displayed. If everything is healthy the system will automatically switch to the main screen after 5 seconds. The splash screen shows the code revision and the build date.

Figure 3 - Splash Screen

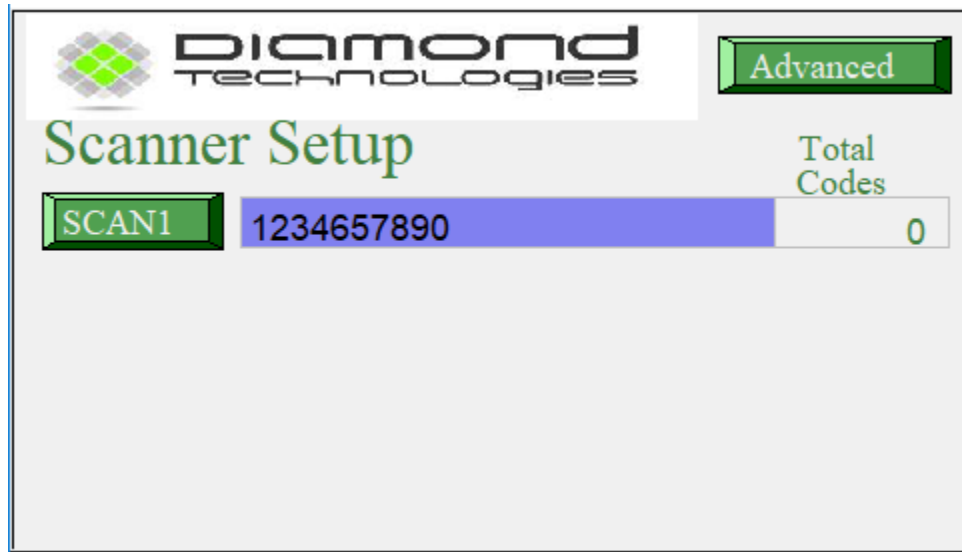




### 3.1 Setup Mode

The system should be configured before being put into run mode. To setup the scanners, and teach the verify codes switch the key switch to the setup position. The main setup screen will be displayed.

Figure 4 –Setup Mode



From here you can set the verify code for the BCV. In order to set the verify code the key switch must be in the setup position. To set the verify code simply scan the verify barcode using any of the scanners attributed to the system and the verify code will then appear in the blue text box as seen above. Anytime a barcode is scanned while in setup mode it will be considered as the new verify code.

#### 3.1.2 Parameter Setup

The BCV has different parameters that can be set by selecting the SCAN1 button on the HMI window. To access this window as well as the Advanced setup mode window you must enter the password that was setup in the HMI. Contact the system administrator for the password.

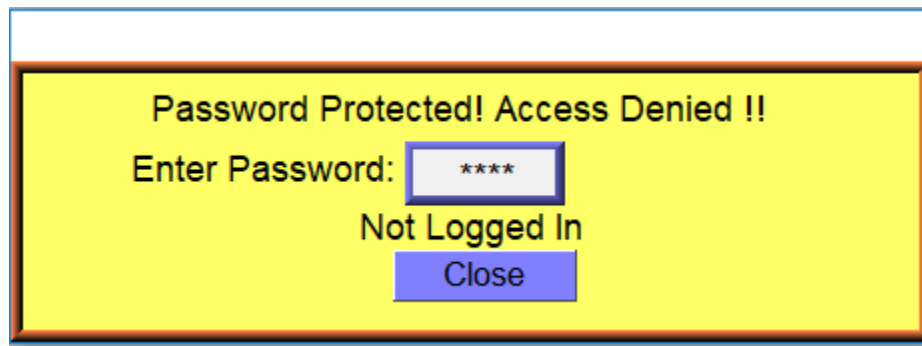


Figure 5 – Password Protection Window

The scanner setup screen allows the user to enter the limit of **Wrong Codes** and **No Reads** that the BCV will allow. It will also display the verify code. To enter the allowed limits, use the touch screen select the corresponding box and a keypad will appear to allow a user input. When system is running and the limit is reached the corresponding relay will be deenergized, refer to the Advanced Relay Mode section for more details on the relay settings. This screen will also display the current read rate percentage of the scanners.

Setup-Scanner1:

Verify Code: 1234657890

	Limit
Wrong Code	0
No Read	0
Read Rate (%):	0

Done

Figure 5 – Password Protection Window

### 3.1.3 Advanced Setup Mode

The Advanced setup mode will display scanner settings and allow access to the **Advanced Relay Mode**. The scanner type will be displayed, as well as the input sensor number and the operation mode. The BCV Master-Slave version does not allow the user to change these settings since it is designed to operate with preconfigured parameters.

Advanced Setup:

	Type	Sensor	OP Mode
Scanner 1:	1	1	AUTOMATIC

Done Relay Mode

Figure 6 – Advanced Setup Window

### 3.1.4 Advanced Relay Mode Setup

The BCV-1203 has the ability to either one shot or latch the output relays. This configuration is entered by selecting Relay Mode in the Advanced Setup screen.

	Mode	Time (sec)
R1-Wrong Code:	LATCHED	0
R2-No Read:	LATCHED	0

Done

Figure 10 – Advanced Relay Mode Setup

In One Shot mode the relay will stay active for the amount of time entered in the Time box. In Latched mode the relay will stay active until the system is reset by the operator. If One Shot is selected a time from 0 - 10 seconds must be selected.

## 3.2 Run Mode

Turning the key switch back to the Run position puts the system in run mode. While in run mode the relays will be energized as long as the trip events have not been met. The system will be counting labels and verifying codes.

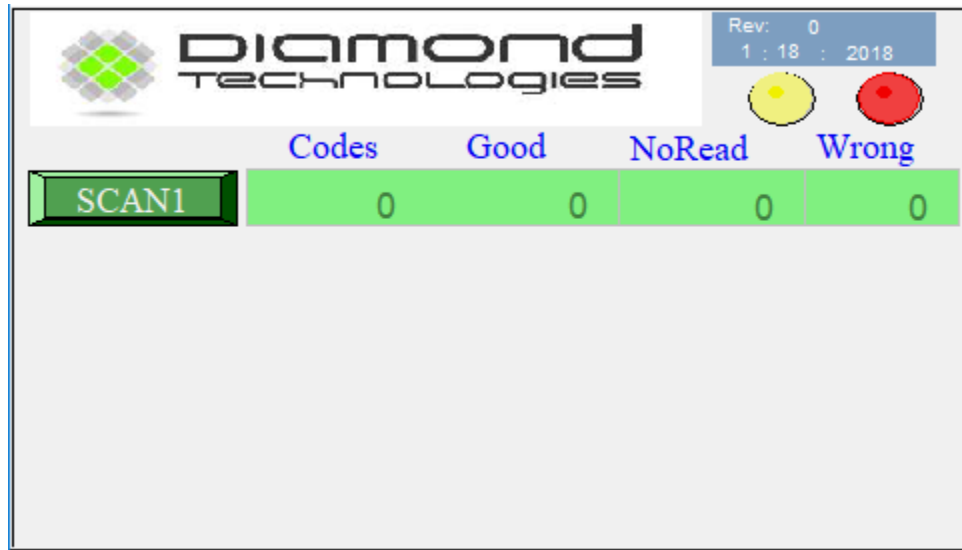
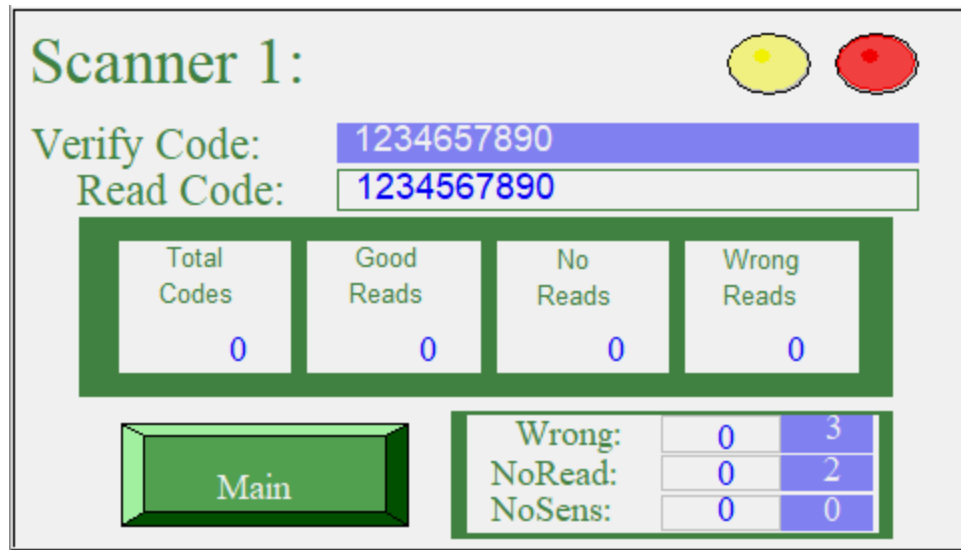


Figure 11 – Main Screen

The main run screen shows the status of the scanners and the output relays. The Codes value indicates the number of labels counted by the sensor. The Good value indicates the number of codes read that match the verify code. The No Read value indicates the number of no reads (i.e. no code was read in between successive sensor triggers). The Wrong value indicates the number of codes read that did not match the verify code. If either the no read limit or wrong read limit has been exceeded those numbers will be highlighted in red.

The entire status bar for a scanner will be shown in red if the scanner is not communicating reads. A detailed screen for the scanner can be displayed by pressing the scanner button.



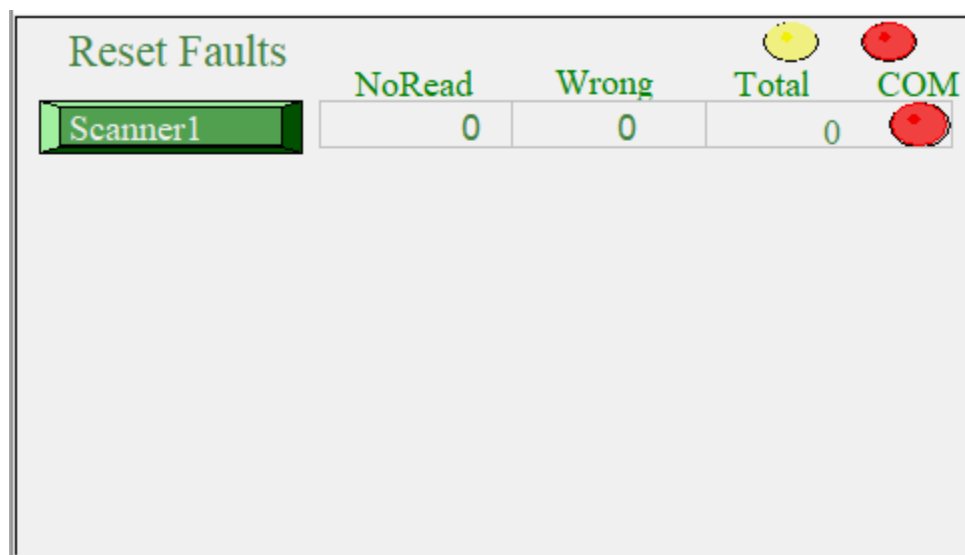
**Figure 12 – Scanner Detail Screen**

The verify code is shown highlighted in blue at the top and the last read code underneath. This can be referred to in order to determine the cause of a wrong read. The counts are displayed in the middle. The table in the bottom right shows the status of the wrong, no read, and missed sensor conditions. Highlighted in blue are the configured limits, with the current values to the left. If the current values reach the limit, the trip will occur, and the value will be highlighted in red or yellow. The status of the two relays is shown in the upper right.

Pressing the Main button returns to the main run screen.

### 3.3 Reset Mode

To reset any fault conditions, turn the key switch to the Reset position. The Reset screen will be displayed.



**Figure 15 – Reset Screen**

Any error or fault conditions will be shown on the Main screen. Once the key switch is put into the reset position the NoReads, Wrong and Total counts will be set to zero. Reset mode could also be used to override the system. When in reset mode the scanner is offline so it will not read any barcodes and the relays will remain energized.

## Maintenance and Troubleshooting

### 4.1 Scanner Communications Errors

If any scanner is not communicating properly the scanner icon will not appear and the window will be highlighted red.



Figure 16 – Main Screen – Communications Failure

This will occur if the scanner is unplugged from the BCV, the scanner is not programmed correctly, or can be an indication of a scanner or controller failure. If communications to the scanner is re-established the error message will disappear and operation can resume. Communications failures should be repaired before running the system.

If a scanner needs to be replaced the new scanner must be programmed with the correct parameters and address.

## 4.2 Screen Communications Error

A communications failure between the HMI screen and the BCV controller displays the error message as shown.



**Figure 17 – Screen Communications Error**

This is an indication of a failure in the controller, the display, or the cable connecting them.

## 5.0 Notes