

DualRunners User Guide

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Revision History

Changes to the original manual are listed below.

Document	Date	Description
1.0	31 March 09	Initial release
1.1	29 April 09	Modify "Installing / Replacing batteries" & "Safety / Regulatory" sections
1.2 to 1.4	18 June 09	Modify "Safety / Regulatory" sections
1.5	02 July 09	Add EU countries where product can be used.
1.6	22 July 09	Add Autoscan mode
1.7	12 Nov 09	Add remote trigger BT command
1.8	15 March 10	Precision on 'no duplicate scan' feature ; Image & Signature capture added (for 2D version)
1.9	14 June 10	Precision on 'signature capture' feature.
2.0	28 Nov 10	7.6 : Add reference to 'MCG software' in master mode paragraph 7.7 : Add 'Manual Autoscan' mode 7.8.2 : Add Connection via scan of LXE or Psion Teklogix barcodes 8.1 & 8.2 : Precision on capture of 'Image or Signature' features
2.1	25 March 11	9. Add precision in 'other indications' paragraph
2.2	22 Sept. 11	Add range of temperature to recharge the battery.

Introduction

DualRunners is a "2-in-1" reader that combines assets of both RoadRunners (barcode scanner) and TagRunners (Contact RFID Reader/Encoder HF 13,56Mhz), so 2 technologies in the same product, and very easy to use. Just press the trigger in order to switch on the scanner and simply press it again to scan/read a barcode or a RFID Tag. The colours of the LEDs indicate the status of the device. A beep indicates when the scanner connects to the remote device and when a barcode or Tag is scan/read successfully. Acknowledgement of a completed scan/read is configurable by the user.

Barcodes and Tags data are transmitted in real time to the remote host devices/terminals using Bluetooth wireless technology or barcodes/RFID tags can be stored in the scanner and later uploaded to a remote device/terminal using Bluetooth wireless technology. You can download software updates as well as additional documentation from <http://www.baracoda.com> after registration.

Note:**What is the Reading technology used by the DualRunners?**

This product supports the RFID HF 13,56MHz. Please consult the Compatibility Protocols list included in this document to know the RFID protocols supported.

1. Status Display Summary

The DualRunners has two (2) LEDs. There are providing a status regarding the Bluetooth connection and the reading status. The right one is the Bluetooth connection LED (BCL) and the left one is the Reading status LED (RSL).



The function of the BCL is to give

- The Bluetooth status of the device (connected or not connected).
- The communication mode of the scanner (Real Time mode, Batch mode or Master Mode).

The function of the RSL is to give:

- The information whether or not a barcode or Tag data has been read.
- The status of the battery. If battery level will be too low, you will need to recharge the battery immediately.

BCL LED:

Single Blinks (e.g. *pause*pause*...)	The scanner is ready to be connected
Double fast Blinks (e.g. **pause**pause**...)	The scanner is connected
The led colour is Green	The Scanner is set in Real Time mode or in Master mode
The Led Colour is Orange	The Scanner is set in Batch mode
The Led Colour is blinking Orange/Green	The Scanner is set in Batch mode, but no barcode is stored in the memory

RSL LED:

One Single long Blink (green colour)	The scanner has just read and decoded a barcode or a tag
One Single long Blink (orange colour)	The scanner is set in Master mode and is trying to connect to the Host address
The Led Colour is blinking Orange	The reader is trying to read a Tag (Smart Autoscan mode)
Double fast Blinks Red	Battery level is low. Please recharge the battery immediately
One Single long Blink Red + Green (solid)	The scanner is charging
Green (solid)	The scanner is fully charged

Special cases:

Both LEDs blinks orange	The scanner is set in the “Real Time with No Data Loss mode” but with no bufferisation (buffer configured to 0) and is not connected. In this particular situation the RFID antenna and the scanner beam are disabled: impossible to read barcodes/tags in this mode.
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2. PDA stylus

In order to attach the PDA stylus to the DualRunners, insert the stylus into the hole, as showed in Fig.1. Note that there are two holes, symmetric around the principal axe of DualRunners. Push downwards, as shown by the arrow n° 2 in Fig.1 till you will hear a clips.

There are two holes, one on both sides.

Note: You will not be able to use the Protective boot and the PDA stylus simultaneously.



Fig.1

3. Recharging the battery

Recharge the internal battery by using the included AC adapter or the charging cradle (optional). The Adapter rating is 5V, 500mA.

When the product is charging, the RSL led (left) has the following status: one single long blink red + green (solid).

When the scanner is fully charged, the RSL led (left) is green (solid).

A full recharge (from completely drained batteries) takes approximately four (4) hours.

Make sure that the temperature is from **0°C to 35°C** to recharge the battery

When the original batteries wear out, please contact your Baracoda reseller for replacements.

Note: When you insert the DualRunners (with its protective boot) in its charging cradle, the scanner will:

- emit a beep.
- and automatically switch on (if it was off).



4. Installing / replacing batteries

Only use Baracoda approved rechargeable batteries. The use of any other batteries may damage the scanner and void the warranty. Please remove the batteries when you are storing the scanner for more than 30 days.

To insert batteries into DualRunners:

1. Use a coin or your finger to unlock and remove the battery cover at the back of the DualRunners. Turn the lock underneath the scanner to a horizontal position.
2. Insert the battery lid downwards.
3. Plug the small battery cable into the battery connector (Zone A in Fig. 2).
4. Insert the Baracoda Battery in its location. Pay attention also to well position the battery connector.
5. Slide the cover up and lock it into place.

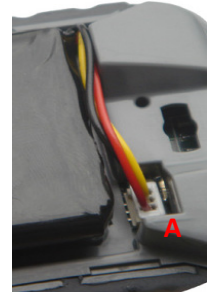


Fig. 2

Caution. Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

5. Switching on the reader

Remember to fully charge the battery before first use.

In order to switch on the scanner, please press the trigger button.

The product will switch off after some period of inactivity. The default time period is ten (10) minutes of scanner inactivity if the device is not connected via Bluetooth, and twenty (20) minutes of scanner inactivity if the device is connected via Bluetooth and if the user don't press the trigger button. These default values can be modified by the end user.

6. Configuring your Product

There are two (2) ways to configure your product:

- When connected to a host device, the BaracodaManager software (v3.36 min) can be used for multiple setting changes.
- The Configuration barcodes In the Programming Guide can be used to configure the scanner without using outside software applications.

6.1 Reset your scanner

To reset the scanner to its “default settings”, use BaracodaManager software (v3.36 min) or scan the Reset Configuration barcode (only available in BOTH or BARCODE modes).

To reset the **DualRunners –L & -Laser**, please scan only “RESET 1” barcode.

To reset **DualRunners –Fs (2D Imager)**, please scan “RESET 2” barcodes.

Reset 1



Reset 2

For firmware version < **v1.48**



For firmware version ≥ **v1.48**



6.2 Security

The Bluetooth connection is secured with a PIN code authentication.

You can configure security (enable/disable/change PIN code) with the BaracodaManager software (v3.36 min) or with the Programming Guide.

The Security is enabling by default: default PIN code is **0000**.

6.3 RFID Protocols List

You can enable/disable any type of RFID protocols supported by the reader with the BaracodaManager software (v3.36 min).

DualRunners Firmware version: v1.40 / RFID card: 1.49.1

RFID Protocols supported		TagRunners	
Protocols	Examples	Read Tag Id	Read / Write data memory
ISO/IEC 14443- A	Mifare 'classic' 1K / 4K	Yes	Yes
	Mifare Ultralight	Yes	Yes
	Mifare DESFire	Yes	No
	Mifare Pro, ProX, SmartMX	Yes	No
ISO/IEC 14443- B	Atmel Crypto RF	Yes	Yes
ASK CTS256B & CTS512B		Yes	No
S.T. MicroElectronics SR		Yes	No
Inside Contactless PicoTag		Yes	No
NXP ICODE-1		Yes	No
ISO /IEC 15693-3	KSW VarioSens®	Yes	Yes
ISO /IEC 15693	NXP ICODE SLI	Yes	Yes
	S.T. MicroElectronics LRI64	Yes	Yes
	TI Tag-it HF	Yes	Yes

6.4 Symbology

You can enable/disable any type of barcode decoders with both the BaracodaManager software (v3.36 min) or with the Programming Guide.

6.5 Data format

The data format is the following:

Nature of data*	Timestamp	Data Prefix	Capture Prefix	Symbology /ProtocolPrefix ***	AIM/Protocol Identifier **	Barcode / RFID TagID data	Symbology /ProtocolSuffix ***	Capture Suffix	Data Suffix
1 byte	12 bytes	0-32 bytes	0-32 bytes	0-4 bytes	0, 2 or 3 bytes	-	0-4 bytes	0-32 bytes	0-32 bytes

Nota :

* : Nature Of Data byte is available only for DualRunners scanner (to identify if data is RFID TagID or Barcode), by default this field is disabled.

** : These fields can be Symbology AIM if captured data is Barcode and RFID Protocol identifier if captured data is RFID TagID.

*** : These fields can be Symbology prefix/suffix if captured data is Barcode and RFID Protocol prefix/suffix if captured data is RFID TagID.

6.5.1 Baracoda Header

It is a proprietary data encapsulation. It is necessary to activate the Baracoda header in 2 cases:

- to use the Baracoda keyboard emulation (Kemul) and Terminal.
- to use the “No data loss” mode.

You can configure Baracoda Header through BaracodaManager software.

The Baracoda header is enabled in default settings.

6.5.2 Timestamp

Timestamp can be configured (ON/OFF, synchronise new time) by BaracodaManager software and by configuration barcodes.

Timestamp will be in the following format: YYMMDDhhmmss:

YY: YEAR MM: MONTH DD: DAY hh: Hours mm: Minutes ss: Seconds

6.5.3 General Prefix / Suffix

A prefix and/ or suffix can be added to every barcode sent to the host device. You can configure prefix/suffix through BaracodaManager software or with the Programming Guide.

There is no prefix/suffix in default settings.

6.5.4 Symbology Prefix / Suffix

A prefix and/or suffix can be added to a specific symbology barcode sent to a host device.

Meaning a certain prefix/suffix will be added while reading a specific symbology.

You can configure prefix/suffix through BaracodaManager software.

There is no “symbology prefix/suffix” in default settings.

6.5.5 Barcode Identifier

The scanner can transmit a maximum of 3 digit barcode identifier codes for different types of barcodes (symbolologies).

If the option is selected, the Barcode Identifier is added at the beginning of the barcode frame.

List of identifier codes can be found in the Programming Guide. You can activate barcode identifier through BaracodaManager software or with the Programming Guide.

The barcode identifier is disabled in default settings.

6.5.6 RFID Protocol Identifier

The reader can transmit a maximum of 3 (three) digit RFID Protocol Identifier codes for different types of RFID protocols. You can activate RFID Protocol Identifier through BaracodaManager software (v3.36 min). The RFID Protocol Identifier is disabled in default settings.

If the option is selected, the RFID Protocol Identifier is added at the beginning of the data frame.

List of RFID Protocol Identifier codes can be found in the following table:

Identifier	Associated RFID protocol
[A]	ISO/IEC 14443-A (or NXP Mifare)
[B]	ISO/IEC 14443-B
[C]	ISO/IEC 15693 (e.g. TI Tag-it or NXP ICODE-SLI)
[D]	NXP ICODE-1
[E]	Inside Contactless PicoTAG
[F]	S.T. MicroElectronics SR
[G]	ASK CTS256B/CTS512B
[H]	Calypso (Innovatron protocol)
[I]	EPC HF Version 2
[Z]	Unknown

6.5.7 Data Identifier

The DualRunners allows to identify the nature of the data scanned/readed: RFID or Barcode.

This option is the "DATA NATURE BYTE". When it enables, an identifier number is added before the data:

- "0" for a barcode data
- "1" for a RFID data.

You can enable this option through BaracodaManager software (v3.36 min) or with the Programming Guide.

By default, the DATA NATURE BYTE" option is disabled.

6.6 Beeps and LEDs

You can enable/disable Beeps / LED Lightening using both the BaracodaManager software (v3.36 min) or the Programming Guide.

6.7 Power management

Mutiple parameters exist to optimize the battery autonomy ("Sniff period", "Shutdown timer", etc...)

DualRunners is configured at 20dBm (Bluetooth Class.1) by default.

The BaracodaManager software (v3.36 min) can be used for multiple setting changes.

6.8 Low battery

An alternation of red and green blinking on the two (2) LEDs indicates that the battery level is low. Recharge battery immediately. If you continue using the scanner, it will continue working until a triple beep occurs: at that moment the reader will shut down and you will be forced to charge the scanner.

7. Quick Start up guide

7.1 How to read barcodes

In order to switch on the scanner, please press the trigger.

Position the scanner so the light beam fully overlaps and crosses the barcode. The scanner will emit a beep when the scan is successful.

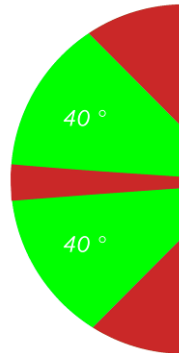
Sample Barcode



Proper scanning position

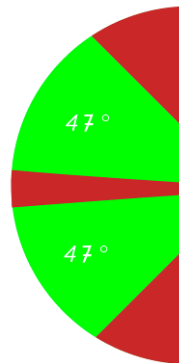
BDR –L Evolution : CMOS

40°



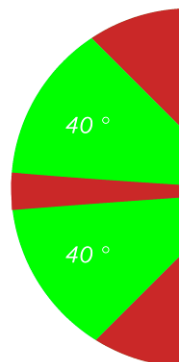
BDR-LA Evolution : Laser

47°



BDR-Fs Evolution : 2D Imager

40°



7.2 How to read Tags

In order to switch on the reader, please press the trigger button.

The reader will emit a beep when the read is successful.

The DualRunners is a **contact RFID Reader/Encoder**, and the RFID antenna is fixed on the top of the device.



Proper reading position

(40° to 130°)



RFID Tag

Correct



RFID Tag

Correct



RFID Tag

Correct



RFID Tag

Not correct

7.3 How to Read / Write TAG Memory

All RFID tags have a unique identifier (Tag ID), and some of them have also a non-volatile memory (TAG Memory) in which it is possible to read and write (with or without security).

Note: the TAG ID of a RFID tag is different from its TAG MEMORY.

Unlike reading a tag ID, the read / write memory (TAG MEMORY) operation is only possible in real time. As a consequence, the Host has to be connected to the DualRunners. This is the host that sends commands to read / write in the memory.

During this read/ write operation, the RSL led will be orange (solid). When there is a lack of data exchanges between the tag and the DualRunners (ie : interrogator), it will emit a "Tic" sound. In that case, approach it to the tag in order to complete successfully the 'read / write' operation.

7.4 The different usage modes

Real Time mode

In real time mode, the data is decoded and transmitted to the remote host without any delay. If the scanner is not connected, the data is lost (Status RSL Led: red flash).

Real Time mode with No Data Loss option

If the No Data Loss option is activated and if the scanner is not connected or out of Bluetooth range, the scanner will store the data. It can memorise up to 20 000 barcodes (UPC format) or TagID and later automatically upload them to the remote host when a Bluetooth connection is established to the host.

Every data sent to the host must be acknowledged by the host. If the host fails to send an acknowledgement, the scanner will continue to transmit the data until the host does send an acknowledgement.

This acknowledgment is disabled in the default settings. It is strongly recommended to set the No Data Loss mode to ON. This configuration can be set with the BaracodaManager software or with the Programming Guide.

Additionally, this protocol acknowledgment allows an end user to set an audio acknowledgment indicating that the data has been successfully transmitted to the host.

Batch mode

Datas are always stored in the scanner. Once the batch mode is selected, the BCL led (right) emits an orange flash. In batch mode, the DualRunners can read up to 20 000 barcodes (UPC format) or TagID and store them into its non-volatile memory for later transmission to the host.

To upload datas from the scanner, connect it to the host computer via Bluetooth. The BaracodaManager software is used to configure the location where the datas are sent once the datas are extracted from the scanner.

Once connected, the scanner will wait for the appropriate command in order to start uploading the data: this command can come from:

- The BaracodaManager software: The user has to click on the button "Upload".
- A configuration scan barcode: the user has to read the appropriate configuration barcode.

Be aware that with BaracodaManager (v3.36 min), two (2) different ways to upload data are possible:

- To an application window: In this case always double check before starting the upload procedure that the cursor in your text window is active. Otherwise you will lose all the data saved into your scanner.
- To a .txt file (default option). The BaracodaManager software gives you the possibility to modify the name of the file in which you may want to save the data.

The scanner can be configured to automatically reconnect with the BaracodaManager software.

Another connectivity parameter exists: Master mode (the scanner will create the connection to the Host), but only available in Both or Barcode modes.

7.5 The different Data Capture modes

The DualRunners is a contact RFID Reader/Encoder HF 13,56Mhz and Barcode scanner, so 2 solutions in the same product.

There are three (3) different ways to use the DualRunners:

- **BOTH mode (by default)**

In this mode, the RFID and Barcode modes are enabled. So you can scan barcode and read RFID Tag.

- **RFID mode**

In this mode, the RFID mode is enabled and the Barcode mode is disabled. So you read RFID Tag, but not scan barcode.

Note: in this mode, the MASTER mode option is not available.

- **BARCODE mode**

In this mode, the Barcode mode is enabled and the RFID mode is disabled. So you scan barcode, but not read RFID Tag.

The configuration of these Data Capture modes can be done:

- Via BaracodaManager software (v3.36 min).
- Via scan of barcodes (not if the RFID mode is only enabled).

All usage modes (Real Time, No Data Loss, Batch) are obviously available.

7.6 The different connection methods

There are two (2) different ways to create a connection from a Host and a scanner:

- **Slave mode (by default)**

The Host (PC, BaracodaManager software, ...) is creating the connection onto the scanner.

- **Master mode**

The scanner connects automatically to the *Bluetooth address recorded in its memory*. This connection attempt is launched after a scan of the connection barcode. The configuration of the host address (to which the scanner will connect) can be done:

- o Via the *BaracodaManager* software (v3.36 and newer).
- o Via a scan of configuration barcodes.
- o Via *Baracoda Master Connection Generator* software (for PC)

All usage modes (Real Time, No Data Loss, Batch) are available.

7.7 The different reading modes

DualRunners has four (4) reading modes. These modes can be changed through either the BaracodaManager software (v3.36min) or the Programming Guide.

Trigger mode (default setting)

Simply press the trigger when you want to scan a barcode or read a RFID Tag.

Via Bluetooth, a command can be sent to the scanner in order to emulate a press on the trigger to scan a barcode (see *remote trigger* cmd in communication protocol document)

Aiming mode (only available for DualRunners 1D & Laser, not for 2D Imager)

The Aiming mode has been developed for users who need to scan barcodes very close one to another and need to avoid reading a wrong code. Once in this mode, in order to read a barcode user will have to press the trigger twice. Pressing it the first time will switch on the beam but will not switch on the decoder (thus allowing user to aim at the correct barcode) while pressing the trigger the second time will activate the decoder thus allowing the scanner to actually decode the barcode.

Smart Autoscan mode

For a battery power consumption optimization issue, in this mode the beam and RFID antenna are not always activated, and the DualRunners scans/reads by intermittent.

Autoscan mode

This mode enables to scan/read continuously. In Autoscan mode, the scan beam and RFID antenna are continuously on.

Manual Autoscan mode

Scanner behavior: when this capture mode is selected, pressing the trigger will switch ON the capture module (beam & decoder) and keep it ON until the trigger is pressed again.

Note: in the case the trigger is not pressed the second time (to stop the manual autoscan) the beam will stay on until the shutdown timer expires. When the scanner is switched ON, pressing the trigger will switch the beam on continuously.

Option: DualRunners allows the “No duplicate scans” feature activation. It avoids user to scan consecutively twice in the same barcode/RFID TagID. By default, this option is disabled, but can be changed through either BaracodaManager software (v3.36min) or Programming Guide.

7.8 The different ways to connect Dualrunners to a host

Several connectivity solutions are proposed by Baracoda to connect the DualRunners.

7.8.1 For users: Complete Plug&Scan hardware solutions

The easiest way to connect a Baracoda scanner with a host computer is to use the Baracoda Plug and Scan Bluetooth dongles. Baracoda offers the RS232 Plug&Scan Bluetooth serial dongle or the USB Plug&Scan Bluetooth dongle to get connected to a host computer. To use one of these devices:

1. Plug the dongle into the USB port or into the RS232 port of the computer.
2. Wait 5 seconds for the host computer to recognize the Plug&Scan dongle.
3. Scan the “Connect barcode” available on the Plug & Scan dongle just once.
4. Within less than 20 seconds the LED on the scanner will start double flashing green: you are now paired and connected!

For the USB Plug and Scan Dongle: Once the dongle is connected to the scanner open the target application (such as Notepad, Excel and Word). Make sure the active cursor is where the user wants the data information to be placed and start scanning datas.

For the RS232 Plug and Scan Dongle, the application will have to receive the information from the serial port in order for the application to receive data from the serial port download the Kemul Software on the Baracoda Website <http://www.baracoda.com/>

Pease note that the scanners are set by the Baracoda Plug&Scan USB in “no data loss mode” ON by default. The No Data Loss mode allows the reader to buffer datas if the datas are scan/read out of range.

7.8.2 For users: LXE ‘Easy Pairing’, Psion Teklogix ‘pairing code’

A ‘Psion pairing barcode’ label can be found on Psion Teklogix terminals. Format of this Code 128 barcode is “<FNC4>LnkB xxxxxxxxxxxx” with xxxxxxxxxxxx corresponding to the Terminal Bluetooth address.

An ‘easy pairing’ barcode label can be found on LXE terminals. Format of this Code 128 barcode is “<FNC3>Yxxxxxxxxxxx” with

- XXXXXXXXXXXX - the Terminal Bluetooth address
- Y has possible values: ‘B’, ‘LNKB’, ‘LnkB’.

When the scanner reads one of the following barcodes (no control of barcode symbology):

- o LnKBxxxxxxxxxxx
- o LNKBxxxxxxxxxxx
- o Bxxxxxxxxxxx

it will:

- 1 Disable ‘No data loss mode’
- 2 Set the ‘Data format’ to raw (no Baracoda header)
- 3 Configure its *Host Bluetooth address*
- 4 Enable the Master mode (see paragraph: [different connection methods](#))
- 5 Create the Bluetooth connection to this BDA (even the reader is already connected)

Note: ‘Easy pairing’ compatibility is only supported on versions BRR-L & BRR-LA (that is 1D CMOS & Laser)

7.8.2 For users: software solutions

Baracoda provides two different software packages to manage the Baracoda Bluetooth barcode devices:

- K-Emul lets you insert the scanned data value in the selected field. It also allows adding a prefix and a suffix.
- BaracodaManager software is a user-friendly, advanced software that inserts the data in a text field of the target application (Kemul plug-in) or displaying the data (Terminal plug-in), presents the following features: very easy connection (one click connectivity), automatic reconnection, buffers data in memory and automatic re-transmission.

Please check the compatibility for some specific hosts (see BaracodaManager compatibility table on www.baracoda.com).

How to quickly verify that your scanner is working correctly, using the BaracodaManager:

1. Make sure that your host device (PC or PDA) is Bluetooth enabled. If not, please contact your reseller.
2. Install the BaracodaManager (updates can be downloaded from <http://www.baracoda.com/>). Refer to compatibility table for specific hosts.

If your Bluetooth software is not compatible, you can test your scanner with Hyperterminal or Kemul. Refer to Communication Protocol documentation. (Download on <http://www.baracoda.com/download>.)

3. Configure the BaracodaManager.
 - Start the BaracodaManager by selecting Start> Programs> BaracodaManager> BaracodaManager. The application automatically searches for wireless scanners.
 - Place the scanner in discovery mode by pressing the trigger button.
 - Highlight the scanner in the Devices in Range box and click the Add Button.
 - The Bluetooth Stack asks for the passkey. While the message displays, click on the Bluetooth connection icon in the system tray at right side of the task bar.
 - Enter **0000** as the default Bluetooth Passkey Request dialog box.
 - Look at the status of the scanner in the BaracodaManager application window. When the status changes to “connected”, the scanner is ready to be used.

4. The first time the scanner is configured, the BaracodaManager opens a terminal window. Scan/Read a data and the data will appear in the terminal window
 - Close the Terminal window by clicking on exit
 - Select the Kemul plug-in from the drop down menu. For more information, see the BaracodaManager documentation.
5. When you have finished your session, click on the Exit Button of the application to save your configuration.

7.8.3 For developers: Baracoda Software Development Kit (SDK)

The Baracoda SDKs are created for developers who want to integrate the scanner collection functions into their own program code, thus enabling end-users to run a single software program. This eliminates the need to run the Baracoda Manager software in addition to a third party application.

BaracodaManager uses libraries that provide an abstraction layer allowing developers to integrate Baracoda products into their own application very rapidly. Moreover, these libraries will deal with all the low-level routines, timeouts, connections and configuration management.

These libraries are available to developers for free (www.baracoda.com for more information)

8. Image & Signature Capture Start up guide

8.1 Image capture

Introduction:

DualRunners 2D (from firmware version v1.48) is able to take a picture by simply pressing the trigger button and scanning the Take Picture barcode first; pressing the trigger again will start picture capture.

The picture capture can be sent over Bluetooth in real time or stored in the scanner's memory (and wait for an upload command) in the same way as a scanned barcode.

How to take a picture ?

Here is the process to take a picture

1. Scan the 'take Picture' barcode

Take Picture



2. Press the trigger targeting the area that you want to capture

You will obtain the picture



Image characteristics :

- The output format is JPEG
- Full captured image resolution is VGA (640 x 480 pixels)

Note : . image Capture feature is supported from firmware v1.48
. batch mode & No Data Loss mode for such nature of captured data are supported from v1.52 firmware.

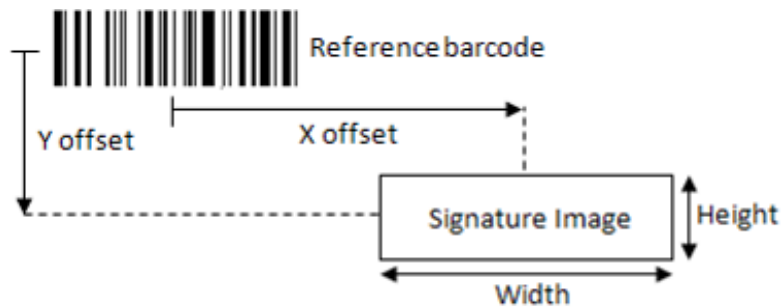
8.2 Signature capture

Introduction:

DualRunners 2D (from firmware version v1.48) is able to take a picture of a specific rectangle area ('*Signature Image*' area).

To perform this data capture, the scanner has to be configured to:

- Define the rectangle size of the area to capture
- Define the position of the *Signature Image* rectangle area from the *Reference barcode* position
- Define the properties of the *Reference barcode*.



Scanner behaviour description:

When the *Reference barcode* is scanned the scanner will:

1. Capture the picture (several frames)
2. Analyze it to look at the predefined *Signature Image* rectangle area
3. If the complete area is present, extract this area and treat it as a picture (send in real time or record in its memory).

Parameters to configure:

- ✓ **Reference barcode:**
 - *Encoding symbology:* It can be one of the following symbologies: PDF417, Code 39, Code 128, Aztec, Codabar or Interleaved 2 of 5
 - *Encoding value:* value is the barcode's content/text. When this value is read by the scanner it will launch the embedded process to extract the signature image area.
- ✓ **Aspect Ratio:**

It is the ratio of the *barcode height* to the *narrow element width* (=minimum bar width).
An incorrect value of this parameter will have a direct impact on picture quality (shrunk).
- ✓ **X offset:**
 - Horizontal barcode offset is the distance between the horizontal center of the *reference barcode* and the *Signature Image* rectangle area. This value is in multiples of the *minimum bar width*.
 - Negative (positive) value indicates that the *Signature Image* rectangle area is on the left (right) of the *reference barcode*.
- ✓ **Y offset:**
 - Vertical barcode offset is the distance between the vertical center of *reference barcode* and the *Signature Image* rectangle area. This value is in multiples of the *minimum bar width*.
 - Negative (positive) value indicates that the *Signature Image* rectangle area is above (below) the *reference barcode*.
- ✓ **Height:**

It is the height of the *Signature Image* rectangle area (in mm)

- ✓ **Width:**
It is the width of the *Signature Image* rectangle area (in mm)

- ✓ **Captured *Signature Image* resolution:**
 - This is the number of pixels that the scanner outputs per each minimum bar width.
 - The higher the Resolution value, the bigger the image size is.
 - This parameter has an impact on the file size (kBytes).

- ✓ **Bit per pixel:**
 - It indicates the number of bits per pixel in the transmitted image. (Possible values: 1, 8).
 - 1 bit per pixel, black and white image
 - 8bits per pixel : grayscale image.
 - This parameter has an impact on the file size (kBytes), too.

Note to have in mind:

- ➔ If the configured *Signature Image* rectangle area is not included in the captured image (when the reference barcode is scanned), the scanner cannot extract this pre-defined area, so it emits a wrong beep.

Image characteristics :

- The output format of this picture is .jpeg.
- Full captured image resolution is VGA (640 x 480 pixels)

Example :



Capture Result

'Signature capture' configuration parameters :

- Barcode reference: Baracoda (with capital 'B')
- Aspect ratio: 50
- X offset: 0
- Y offset: 78
- Width: 36
- Height: 18
- Resolution: 1
- Bits per pixel: 1

Some recommendations to practice this example:

- Take the scanner at ~15-20 cm from this sheet of paper
- Press the trigger and move the scanner from the 'Baracoda logo' area to the 'Reference barcode'.
(The idea is to come from far and to approach the scanner till there is a beep)
- Capture signature succeeds.

9. Safety / Regulatory.

FCC:

Product FCC Id: QSHAIRRFI

Interference statement:

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Modification statement:

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Baracoda Wireless Technology, may void the user's authority to operate the equipment.

Class B digital devices regulatory notice:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by 1 or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio or television technician for help

Wireless notice

This product emits radio frequency energy, but the radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact with the antenna during normal operation is minimized. The system antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

EU:

This equipment is intended to be commercialised in all the countries of the European Union and there is no commercialisation or operational restrictions in any of the countries.

Hereby, Baracoda Wireless Technology declares that this Bluetooth barcode scanner is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The declaration of conformity is in progress.

European countries, where this equipment can be used are : Austria (AT) - Belgium (BE) - Bulgaria (BG) - Switzerland/Liechtenstein (CH) - Cyprus (CY) - Czech Republic (CZ) - Germany (DE) – Denmark (DK) - Estonia (EE) - Finland (FI) - France (FR) - Greece (GR) - Hungary (HU) - Ireland (IE) - Iceland (IS) - Lithuania (LT) – Luxembourg (LU) - Latvia (LV) - Malta (MT) - Netherlands (NL) - Norway (NO) - Portugal (PT) - Romania (RO) - Sweden (SE) - Slovenia (SI) – Slovak Republic (SK) - United Kingdom (UK)-Italy (IT)-Poland (PO)-Spain (SP).

Laser notice

Use of controls or adjustments or performance of procedures other than those specified herein may result in exposure to hazardous visible laser light.

The laser scanner utilizes a low-power laser diode. Although staring directly at the laser beam momentarily causes no known biological damage, avoid staring at the beam as one would with any very strong light source, such as the sun. Avoid that the laser beam hits the eye of an observer, even through reflective surfaces such as mirrors, etc.

The following information is shown on the laser scanner device class label:



Others indications:

This device is a radio transmitter and receiver. It is designed and manufactured to not exceed the limits for exposure to radio-frequency (RF) energy, as recommended by the EU & FCC Councils. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population.

This device must **maintain a distance of at least 20cm** from the user’s body when transmitting **and/or capturing data from RFID Tag (Tag ID / memory)**

This directive includes as one of its essential requirements the protection of the health and safety of the user and any other person. In respect of these recommendations, the device should not be body worn (in the pocket for example) while it is operational. The unit should be turned off or not transmitting in those circumstances.

Limited Warranty.

Manufacturer warrants that the product will be free of defects in material and workmanship for one (1) year from the date of shipment. Manufacturer will, at its option, either repair, replace or refund the purchase price paid by buyer for the defective products.

Such repair, replacement or refund shall be buyer's sole remedy in the event of Manufacturer's breach of this limited warranty. Repaired or replaced parts or product may include new, reconditioned or remanufactured parts and equipment at Manufacturer's option. All costs associated with shipment to Manufacturer for warranty service, including but not limited to freight, duties, insurance and customs fees are buyer's responsibility. Manufacturer will pay the freight costs (duties, insurance, customs and any other fees are buyer's responsibility) associated with the return shipment to buyer. The method of shipment will be at Manufacturer's discretion. Repair or replacement of any parts or equipment does not extend the period of warranty provided for herein. THIS LIMITED WARRANTY IS MANUFACTURER'S ONLY WARRANTY. MANUFACTURER DOES NOT GIVE WARRANTIES OF MERCHANTABILITY OR WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. To take advantage of this warranty, buyer should contact the seller not the Manufacturer. The warranty set forth herein does not cover and Manufacturer will have no obligations hereunder if any non-conformance is caused in whole or in part by; accident, transportation, neglect, misuse, alteration, modification, or enhancement of the products or incorporation, interfacing, attachment of any feature, program, or device to the Products by a person or entity other than Manufacturer, failure to provide a suitable installation environment, use of the products for other than the specific purpose for which the products are designed or any use of the product not in accordance with the User Guide or other misuse or abuse of the product. The warranty does not cover problems linked to batteries.