

# DualRunners–L (1D) & -LA (Laser) Programming Guide

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## Revision History

Changes to the original manual are listed below.

<b>Document</b>	<b>Date</b>	<b>Description</b>
1.0	19 March 09	Initial release
1.1	27 march 09	correction of tapping error on 1.2 ;1.9
1.2	02 July 09	Modify "Operating Mode" section & Add "buffered data" section.
1.3	22 July 09	Add Autoscan barcode in the "Reading Mode" section.
1.4	10 Feb 10	Precision on 'No duplicate scan' feature
1.5	7 July 10	Modify "Define GS replacement character" barcode
1.6	22 Nov 10	1.4 : Add "Manual AutoScan" 1.6 : Complete "Master Mode" (ref to Master Connection Generator Software)

## Introduction

The DualRunners scanner can be programmed by scanning barcode labels which contain commands for the decoder.

Programming labels must be Code128, with specific starting and ending characters. These labels will always be read, even if Code128 symbology is disabled.

The scanner will acknowledge a good and valid programming barcode label reading with two beeps and a green enlightening of the led. It will give two other beeps (lower tone) and a red enlightening of the led for either an invalid or bad reading.

Please do not read the programming barcodes while being connected to the BaracodaManager software.

Programmable options are divided into 2 groups. The first group includes the options that show the general behaviour of the scanner. The second group sets the decoding parameters for each barcode symbology.

This document concerns the DualRunners 1D scanners ; that is to say : BDR-L and BDR-LA.

All our documentations can be downloaded from the Partners download section of Baracoda website (registration is required):

<http://www.baracoda.com>

# 1. General Configuration

## 1.1. General default settings

The reading of the "Reset to factory settings" label turns all the parameters of the scanner back to default settings and switches it off



## 1.2. Data capture capabilities

The DualRunners is able to capture two different nature of data : Barcode or RFID HF tag.

By default, the product is able to read both data. However, for application or power consumption reasons, the product can be configured

- As a barcode reader
- as a RFID HF tag reader / encoder
- or in both data capture capability (this is the default product mode)

⇒ Enable capture of both data, Barcode and RFID HF TagID (default):

switch dual to both



⇒ Disable reading of RFID HF TagID, scan just Barcode data:

switch dual to RRNA



⇒ Disable reading of Barcode data, scan just RFID TagID data:

switch dual to TagRunner



### 1.3. Baracoda advanced features

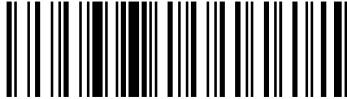
#### 1.3.1. Switch on delay

In order to switch on the scanner in its standard mode, you should just press the trigger. You can set up the scanner to be switched on only after keeping the trigger pressed for two (2) seconds by reading the appropriate barcode.

**Switch on delay : 2 seconds**



**Switch on delay : 0 second (\*)**



#### 1.3.2. Shutdown timers

There are two different 'shutdown timers':

- When connected timer: delay between the last captured data and the switch off when the scanner is connected to a host
- Not connected timer: delay between the last captured data and the switch off when the scanner is not connected to any host

It is possible to set those timers to 'infinite'. In this case, the scanner will stay all the time ON.

**Set shutdown timers to infinity**



By default, timers value are:

- When connected timer = 20 minutes
- Not connected timer = 10 minutes

**Set shutdown timers to defaults**



#### 1.3.3. Turn scanner OFF

To turn off the scanner, read the following barcode:

**Turn off scanner**



### 1.3.4. No data loss mode and Baracoda Header

**Baracoda header:**

It is a proprietary data encapsulation. It is necessary to activate it to use the Baracoda keyboard emulation (Kemul) and Terminal.

The Baracoda header is enabled in default settings

**No data loss mode:**

Baracoda has developed a proprietary communication protocol in order to enhance the security of the Bluetooth transmission.

Every barcode sent to the host must be acknowledged by the host (until then, the scanner will transmit it again and again).

This acknowledgment is disabled in default settings. It is strongly recommended to set this protocol acknowledgment on when using the scanner with the BaracodaManager.

**Enable Baracoda header + “No Data loss mode” ON****Enable Baracoda header + “No Data loss mode” OFF (\*)****Disable Baracoda header + “No data loss mode” OFF**

## 1.4. Reading Mode

In **Trigger mode**, pressing the trigger will activate the beam.

### Trigger (\*)



The **Aiming trigger mode** has been developed for users who need to scan barcodes very close one to another and they have to be sure to always read the correct one. 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.

### Aiming Trigger Mode



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

### Autoscan Mode



In **Smart Autoscan mode**, for a battery power consumption optimization issue, the scanner will be continuously flashing.

### Smart Autoscan



### 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.

### Enable Manual Autoscan



The “No duplicate scan” option has been developed for users who do not want to capture consecutively the same data twice.

**« no duplicate scans » disabled (\*)**



**« no duplicate scans » enabled + error signal**

→ If the same data is captured, an error signal is played (two beeps (lower tone) and a red enlightening of the led)



**« no duplicate scans » enabled + no reading**

→ If the same data is trying to be captured, it won't be. The laser beam / RF field will still be enlightening.



## 1.5. Operating Mode

### Real Time mode

In real time mode, the data is captured and transmitted to the remote host without any delay. If the scanner is not connected, the data is lost.

### 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) / RFID HF Tags and later automatically upload them to the remote host when a Bluetooth connection is established to the host.

Every captured 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 barcode 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 barcode has been successfully transmitted to the host.

### Batch mode

Barcodes are always stored in the scanner. Once the batch mode is selected, the BCL led (right) emits an orange flash. In batch mode, the barcode can read up to 20 000 barcodes (UPC format) / RFID HF Tags and store them into its non-volatile memory for later transmission to the host. When the internal memory is full, both Leds will be full orange (no blinking).

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

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

- The BaracodaManager: 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, two (2) different ways to upload barcodes 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 gives you the possibility to modify the name of the file in which you may want to save the data.

### 1.5.1. Real Time mode

Erases all captured data stored in memory and forces the scanner in Real time mode. No other setting is changed.

**Important reminder:** if an ACK beep or buffer is needed, the scanner must be set in the “no data loss mode” first.

#### Enable Real Time with « No Data Loss » mode



#### Enable Real Time without « No Data Loss » mode



### 1.5.2. No Data Loss mode - Enable “ACK” beep

Forces the scanner in Real Time mode (with data acknowledgement); Erases all captured data stored in memory. The scanner should have been previously set in the “No data loss mode” ON (So scan the “Enable Real Time with No Data Loss mode” barcode before).

#### Enable ACK beep



### 1.5.3. No Data Loss mode - Disable “ACK” beep

Forces the scanner in Real Time mode (without data acknowledgement); Erases all captured data stored in memory. The scanner should have been previously set in the “No data loss mode” ON (So scan the “Enable Real Time with No Data Loss mode” barcode before).

#### Disable ACK beep



### 1.5.4. Real Time - Buffered data option

It's possible to set the scanner in “Real Time with No Data Loss mode” but with no bufferisation (buffer configured to 0) when it's not connected. In this particular situation the trigger will not activate the beam: so impossible to read barcodes in this mode, and Both LEDs blinks orange.

Max Buffered Barcodes = 0



Max Buffered Barcodes = MAX



### 1.5.5. Batch mode

#### **BATCH MODE**

**Forces the DualRunners in Batch mode. Erases all codes in memory**



When in batch mode, the scanner will wait for the appropriate command in order to start uploading the barcodes: this command can come

- from the BaracodaManager
- from reading the “Upload batch data” barcode here after

If this barcode is read when the reader is in batch mode and connected, the reader will automatically upload to the host all the data in its memory. If not in batch mode or not connected, the scanner will ignore this barcode.

#### **Upload batch data (with No Data Loss on)**



When scanning this barcode, the scanner will send a message to the host, meaning that it wants to upload its data. Following this, the host will launch the upload process and grab the batch data.

If the host application has received all the expected data, it will acknowledge the upload to the scanner which will erase the data from its memory. If not, the host application will send a negative acknowledgment message to the scanner which will keep the data in memory, ready to retry an upload.

If the data transfer has been successful (the scanner has received the acknowledgment and erased its memory) and, for any reason, the user gets to realize that data has been lost at a higher level (keyboard emulation for example), it still has the possibility to recover the last batch data into the scanner’s memory, by scanning the below barcode.

#### **Restore last batch data**



#### **Restore last batch + launch upload**



Please note that the data recovering won’t be possible if other data have been captured or if the scanner has been shut down after the upload.

## 1.6. The different connection methods

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

- **Slave mode (by default)**

The Host (PC, BaracodaManager, ...) 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 (v3.35 and newer).
- o Via a scan of configuration barcodes.
- o Via *Baracoda Master Connection Generator* software (for PC)

All usage mode (Real Time, No Data Loss, Batch) are obviously available on those two different ways of connection.



The configuration of the Host Bluetooth address (BDA) is made by scanning the 0-9, a-f, A-F labels (Appendix 1) as on a calculator; following the timestamp format shown above.

For example: to set the following BDA: 00:c3:EF:44:a2:B9, the user will scan:

- "Set Remote BDA" label,
- "0" label,
- "0" label,
- "c" label,
- "3" label,
- "E" label,
- "F" label,
- "4" label,
- "4" label,
- "a" label,
- "2" label,
- "B" label,
- "9" label,
- "End of Config" label.



## 1.7. Buzzer and Led Settings

You can use these options to enable or disable the buzzer and / or the Led.

**LED ON (\*)**



**LED OFF**



**Good read beep on (\*)**



**Good read beep off**



**ACK beep on (\*)**



**ACK beep off**



**Beep level volume = HIGH (\*)**



**Beep level Volume = LOW**



**BUZZER ON (\*)**



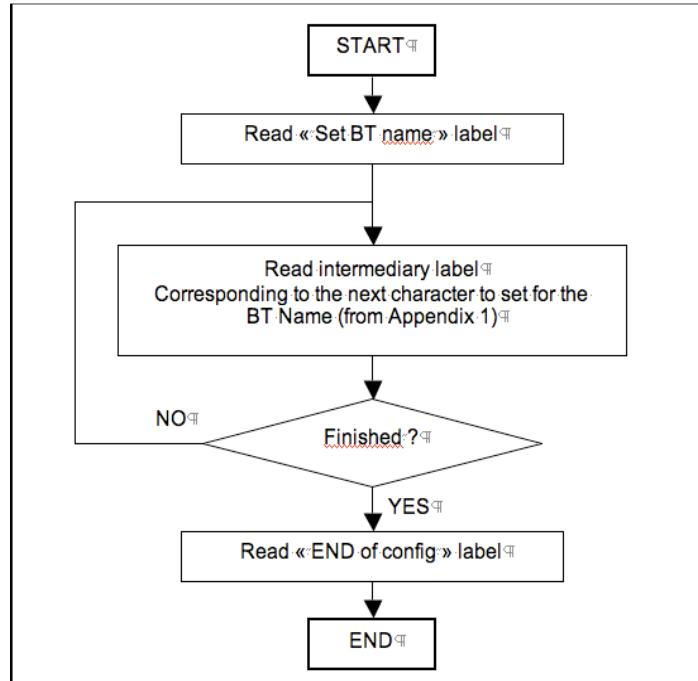
**BUZZER OFF**



## 1.8. Bluetooth settings

### 1.8.1. Bluetooth name

You can change the scanner Bluetooth name; name that you see during a search of Bluetooth peripheral.



Programming procedure for “Set Bluetooth Name”

**Set BT Name**



**End of config**



### 1.8.2. Sniff period settings

Change the Sniff period. If the higher is the latency and the smaller is the power consumption.  
Default value is 150ms.

**Sniff period = 150ms (\*)**



**Sniff period = 100ms**



**Sniff period = 200ms**



**Sniff period = 300ms**



**Sniff period = 500ms**



### 1.8.3. Security (code PIN) settings

Some Bluetooth device will not accept connections with devices that do not have a security code.

#### Disable BT security code



#### Enable BT security code (\*)



### 1.8.4. RF Power emission settings

For regulation purposes, some countries may limit the RF power emission to 10dBm (Class2 device).

#### Set device to Class1 power emission (20dBm)(\*)



#### Limit device to Class2 power emission (10dBm)



## 1.9. Data format

If the data is a barcode :

Code ID	Description	Payload
0x32–0x33	Barcode data	DATA string

Nature of data*	Timestamp	Data Prefix	Capture Prefix	Symbology Prefix	AIM Identifier	Barcode	Symbology suffix	Capture suffix	Data suffix
1 bytes	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

If the data is a RFID TagID :

Code ID	Description	Payload
0x34–0x35	RFID data (TagID)	DATA string

Nature of data*	Timestamp	Data Prefix	Capture Prefix	RFID Protocol Prefix	Protocol Identifier	RFID data	RFID Protocol Suffix	Capture suffix	Data suffix
1 bytes	12 bytes	0-32 bytes	0-32 bytes	0-4 bytes	0-3 bytes	-	0-4 bytes	0-32 bytes	0-32 bytes

**\*Nature of data:** this optional field can be used to distinguish Barcode data (0x30) from RFID TagID (0x31).  
By default this field is disabled.

### 1.9.1. Timestamp option

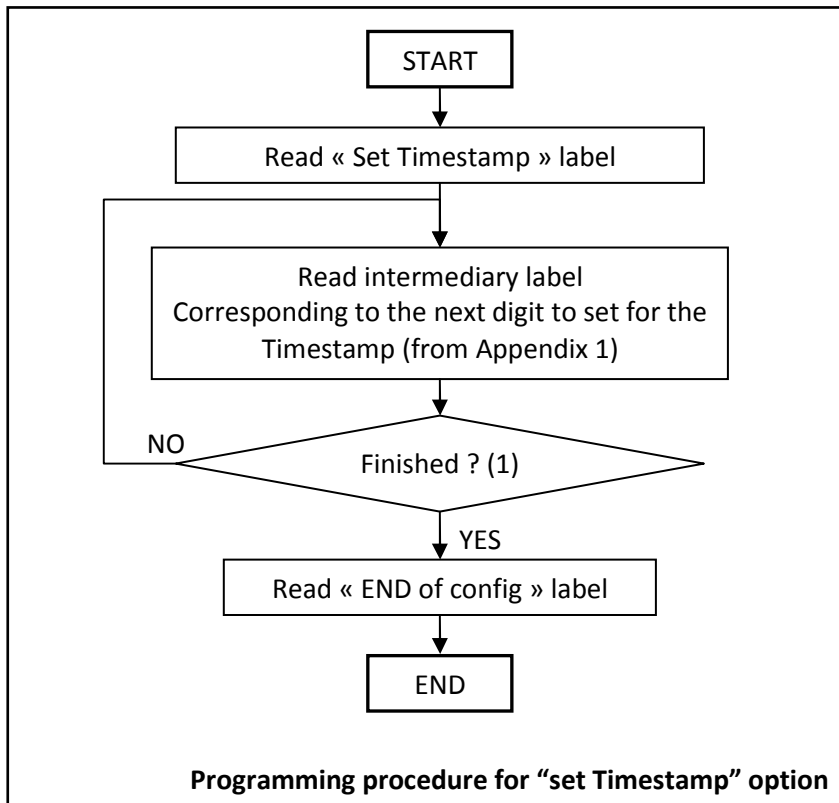
Timestamp can be configured (ON/OFF, set new date and new time) by the following configuration barcodes.

**Timestamp on**



**Timestamp off (\*)**





**Set Timestamp**



**END of configuration**



Noted that the timestamp must fit the specific following format:  
{YY}{MM}{DD}{HH}{MM}{SS}

The setting is made by scanning the 0-9 labels (Appendix 1) as on a calculator; following the timestamp format shown above.

*For example:* to set the current time at 16th May 2007, 3.25 pm, the user will scan:

- “Set Timestamp” label,
- “0” label,
- “7” label,
- “0” label,
- “5” label,
- “1” label,
- “6” label,
- “1” label,
- “5” label,
- “2” label,
- “5” label,
- “0” label,
- “0” label,
- “end of config” label.

### 1.9.2. Data Prefix/Suffix

You can add a data prefix and/or suffix (strings of more than 32 characters will not be accepted) to every barcode sent to the host device.

There is no data prefix or suffix in default settings.

**Enable data prefix**



**Disable data prefix (\*)**



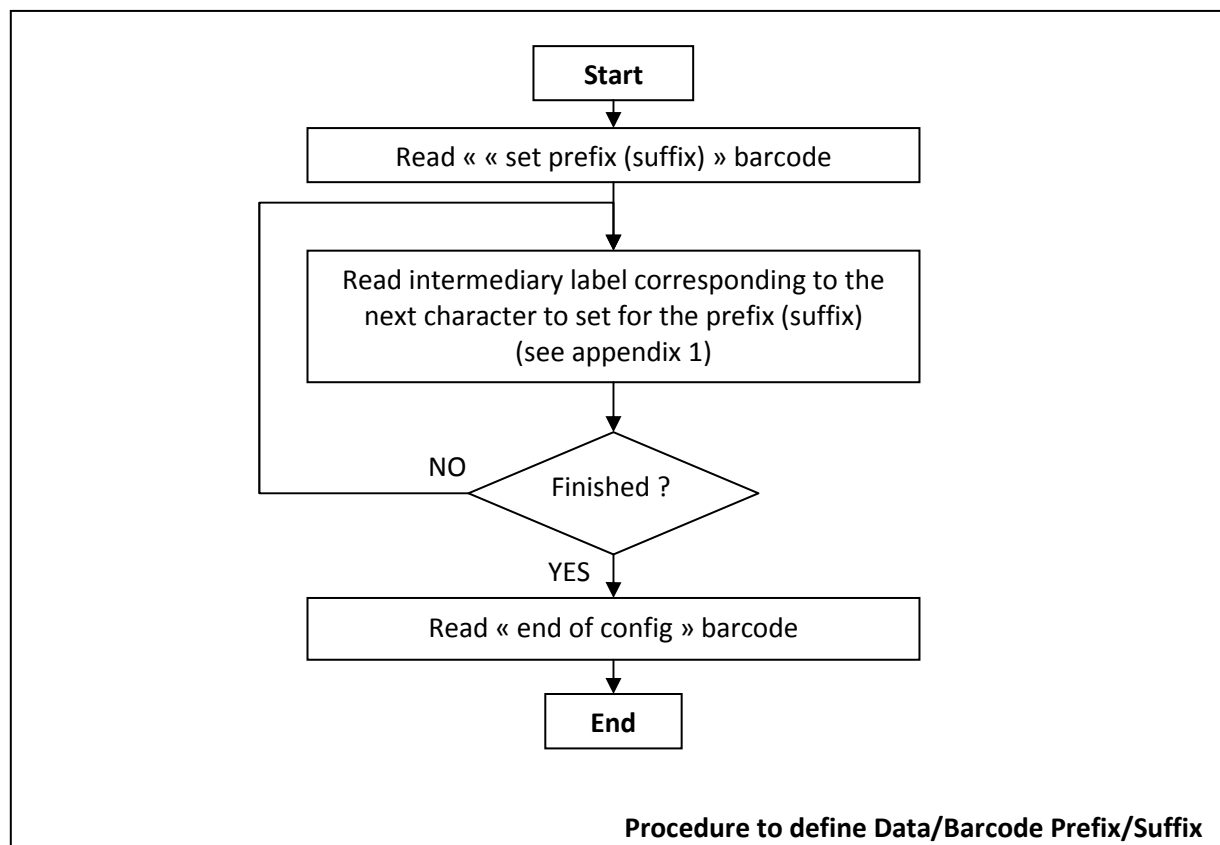
**Enable data suffix**



**Disable data suffix (\*)**



If enabled, a data prefix/suffix can be set as following:



**Set Data prefix****Set Data suffix****End of configuration****1.9.3. Capture Prefix/Suffix**

You can add a capture prefix and/or suffix (strings of more than 32 characters will not be accepted) to every data sent to the host device.

There is no capture prefix or suffix in default settings.

**Enable Capture prefix****Disable Capture prefix (\*)****Enable Capture suffix****Disable Capture suffix (\*)**

If enabled, a capture prefix/suffix can be set in the same manner as the Data prefix/suffix can be set:

**Set capture prefix****Set capture suffix****End of configuration**

#### 1.9.4. Nature of Data

DualRunners is able to capture data of different nature. It can be interesting to add a byte added to the captured data which clarifies the nature of data.

⇒ Don't transmit Nature Of Data byte (default):

DUAL : Nature Of Data OFF



⇒ Enable transmission of Nature Of Data byte :

DUAL : Nature Of Data ON



If enabled, Nature of data value is: 0x30 for Barcode and 0x31 for RFID TagID.

#### 1.9.5. AIM Symbology Identifier

AIM identifier is only available for Barcode data captured

AIM Identifier will be transmitted at the beginning of the barcode. More information about the AIM Identifier is available in Appendix2.

**AIM Symbology identifier - not transmitted (\*)**



**AIM Symbology identifier - transmitted**



#### 1.9.6. RFID protocol Identifier

Protocol ID will be transmitted at the beginning of the barcode. More information about the Protocol Identifier is available in Appendix 3.

Enable Protocol ID transmission barcode:

RFID ENABLE PROTO ID TRANSMISSION



Disable Protocol ID transmission barcode (by default):

RFID DISABLE PROTO ID TRANSMISSION

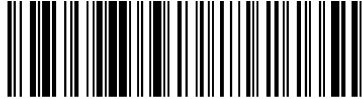


## 2. Barcode Decoder Parameters

### 2.1. Decoder default settings

Sets the defaults decoder settings for all the symbologies

**Set Decoder Default Settings**



### 2.2. Enable/Disable All Symbologies

Even if all symbologies are disabled, the scanner will always be able to read the programming barcodes of this document.

**Disable all symbologies**

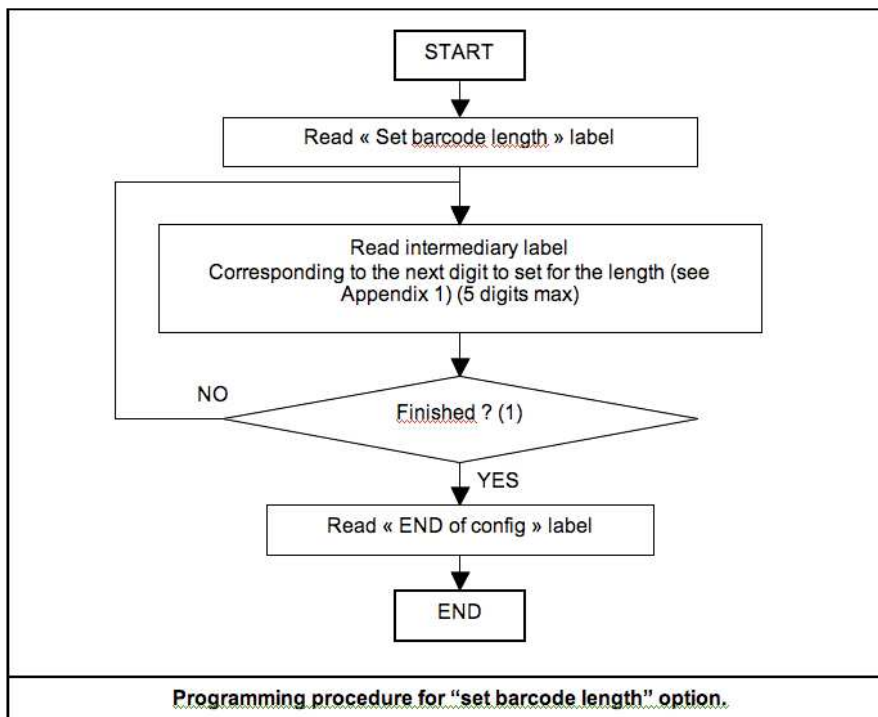


**Enable all symbologies (\*)**



### 2.3. Set decoder barcode length

You can set a fixed length for the barcode decoding. The scanner will only decode barcodes of this length, regardless the barcode symbology decoded.



**Set barcode length****END of config**

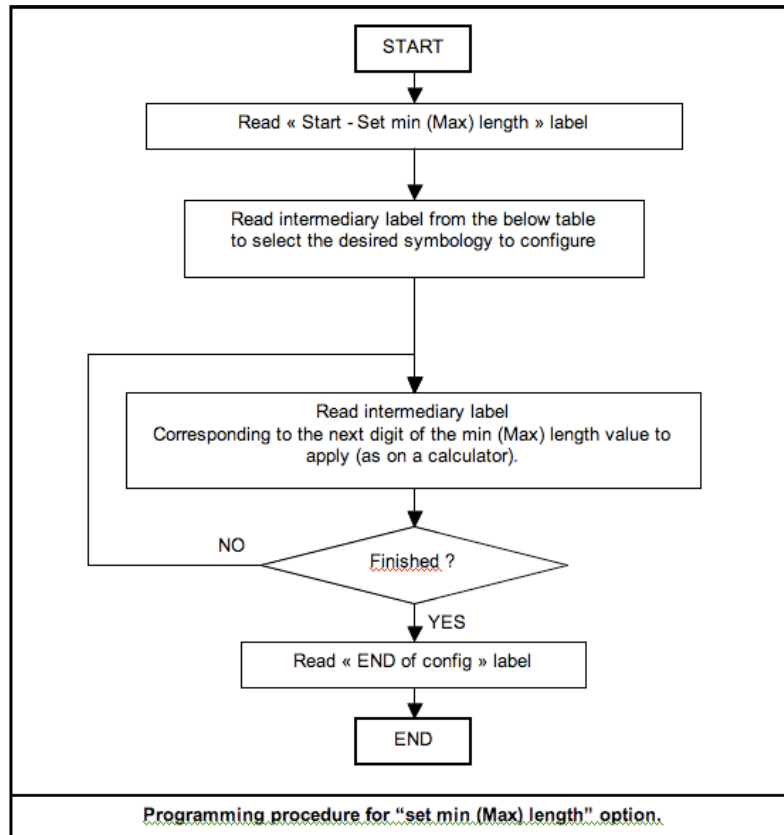
## 2.4. Voting

Standard voting set is two (2). This means that a barcode is considered read by the decoder if the same data is decoded twice. Changing this parameter will enable a stronger security on the decoding of the barcode.

**Voting = 2 (\*)****Voting = 3****Voting = 4**

## 2.5. Min/Max length per symbology

The following is a procedure to follow for every barcode symbology. The decoder offers the possibility to limit the reading of a barcode to a minimum and a maximum length, if it is for one given symbology type.



**Start – set min length**












**Start – Set Max length**



**End of config**



### 2.5.1. Symbology table

Header	Selected Symbology
	SELECT ALL
	Code 93
	Code 128 / EAN 128
	Code 39
	Codabar
	Interleaved 2 of 5
	Standard 2 of 5 (industrial 2 of 5)
	Code 11
	MSI

➔ Only the variable length symbologies appear.

## 2.6. Codabar settings

### 2.6.1. Enable/Disable Codabar

To enable or disable Codabar, scan the appropriate barcode below.

**Disable**



**Enable (\*)**



2.6.2. Codabar Start/Stop characters

Not transmitted (\*)



Transmitted



2.6.3. Codabar Check Digit Verification (AIM recommendation)

Not used (\*)



Checked and transmitted



Checked but not transmitted



2.6.4. Set Lengths for Codabar

Any length



Barcode length Min=6 (\*)



## 2.7. Code 11 Settings

### 2.7.1. Enable/Disable Code 11

To enable or disable Code 11, scan the appropriate barcode below.

**Code 11 - not active (\*)**



**Code 11 - active**



### 2.7.2. Code 11 check digit(s) verification

**1 digit (\*)**



**2 digits**



### 2.7.3. Transmit Code 11 check digit(s)

This feature selects whether or not to transmit the Code 11 check digit(s).

**Check and transmitted (Enable) (\*)**



**Check but not transmitted (Disable)**



### 2.7.4. Set Length for Code 11

This features check the length of the barcode.

**Code 11 - barcode length - any length**



**Code 11 - barcode length - Min = 6 (\*)**



## 2.8. Code 39 settings

### 2.8.1. Enable/Disable Code 39

To enable or disable Code 39, scan the appropriate barcode below.

#### Enable (\*)



#### Disable



### 2.8.2. Enable/Disable Code 39 Full ASCII

#### Code 39 - format - standard 43 characters (\*)



#### Code 39 - format - full ASCII



### 2.8.3. Code 39 Start/stop characters

#### Code 39 - start/stop - not transmitted (\*)



#### Code 39 - start/stop - transmitted



#### 2.8.4. Accepted Code 39 characters

Code 39 - start/stop - accepted characters - \* only (standard Code 39) (\*)



Code 39 - start/stop - accepted characters - \$ only (Trioptic Code 39)



Code 39 - start/stop - accepted characters - \$ and \* (standard and Trioptic Code 39)



#### 2.8.5. Code 39 Check Digit Verification

Code 39 - check digit - not used (\*)



Code 39 - check digit - modulo 43 - checked and transmitted



Code 39 - check digit - modulo 43 - checked but not transmitted



#### 2.8.6. Set lengths for Code 39

Code 39 - barcode length - any length (\*)



Code 39 - barcode length - minimum length = 6



### 2.8.7. Italian PharmaCode settings

Italian PharmaCode is based on Code39 encoding scheme, thus its settings are Code39 settings.

#### Code 39 – Italian Pharmacode – not active (\*)



#### Code 39 – Italian Pharmacode – active



#### Code 39 – Italian Pharmacode – Enable 'A' character transmission



#### Code 39 – Italian Pharmacode – Disable 'A' character transmission (\*)



## 2.9. Code 93 Settings

### 2.9.1. Enable/Disable Code 93

To enable or disable Code 93, scan the appropriate barcode below.

#### Code 93 - not active



#### Code 93 – active (\*)



### 2.9.2. Set Lengths for Code 93

#### Code 93 - barcode length - any length



#### Code 93 - barcode length - minimum length = 6 (\*)



## 2.10. Code 128 Settings

### 2.10.1. Enable/Disable Code 128/EAN 128

To enable or disable Code 128/EAN 128, scan the appropriate barcode below.

**Disable**



**Enable (\*)**



### 2.10.2. Set lengths for Code 128/EAN 128

**Code 128/EAN 128 - barcode length - any length (\*)**



**Code 128/EAN 128 - barcode length - minimum length = 6**



### 2.10.3. EAN 128: Group Separator

'FNC1' included in an EAN128 code is transmitted by default as 'GS' (Group Separator – 0x1D).

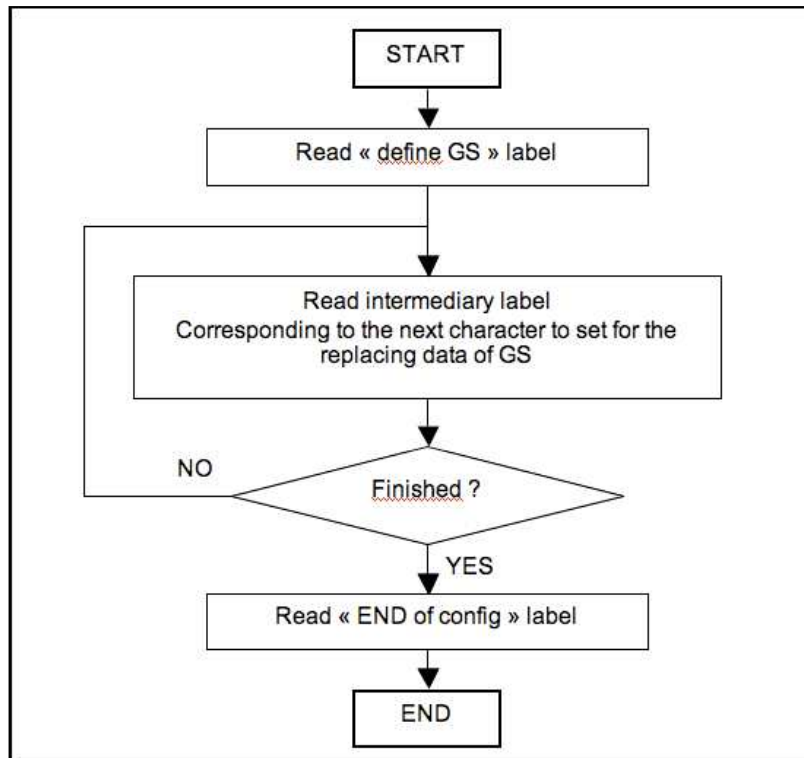
**Enable GS transmission (\*)**



**Disable GS Transmission**



There is also the possibility to replace this character by any other of the user's choice:



Define GS Replacement Character



**End of configuration**



The most common request to replace 'GS' by the | (pipe) can be done through the scan of:

**Define | as GS**



#### 2.10.4. Enable/Disable AIM ID Transmission

Even if the “AIM ID transmit” is disabled, it is possible to enable the AIM ID transmission for EAN128.

##### Enable AIM ID transmission for EAN128



##### Disable AIM ID transmission for EAN128 (\*)



### 2.11. Interleaved 2 of 5 Settings

#### 2.11.1. Enable/Disable Interleaved 2 of 5

To enable or disable Interleaved 2 of 5, scan the appropriate barcode below

##### Interleaved 2 of 5 - not active



##### Interleaved 2 of 5 – active (\*)



#### 2.11.2. Interleaved 2 of 5 Check Digit

##### Interleaved 2 of 5 - check digit - not used (\*)



##### Interleaved 2 of 5 - check digit - mod 10 - checked and transmitted



##### Interleaved 2 of 5 - check digit - mod 10 - checked but not transmitted



### 2.11.3. Set lengths for Interleaved 2 of 5

Interleaved 2 of 5 - barcode length - minimum length = 6 (\*)



Interleaved 2 of 5 – barcode length- any length



## 2.12. MSI Code Settings

### 2.12.1. Enable/Disable MSI

To enable or disable MSI code, scan the appropriate barcode below.

**MSI Code - not active (\*)**



**MSI Code – active**



### 2.12.2. MSI Check Digit

MSI Code - check digit - mod 10 - checked and transmitted (\*)



MSI Code - check digit - mod 10 - checked but not transmitted



MSI Code - check digit - double mod 10 - checked and transmitted



MSI Code - check digit - double mod 10 - checked but not transmitted



**2.12.3. Set lengths for MSI**

**MSI Code - barcode length - any  
length**



**MSI Code - barcode length - minimum length = 6  
(\* )**



**2.13. Standard 2 of 5 Settings**

**2.13.1. Enable/Disable Standard 2 of 5**

To enable or disable Standard 2 of 5 code, scan the appropriate barcode below.

**Standard 2 of 5 - not active**



**Standard 2 of 5 – active \***



**2.13.2. Standard 2 of 5 Check Digit**

**Standard 2 of 5 - check digit mod 10 - not used (\*)**



**Standard 2 of 5 - check digit mod 10 - checked and transmitted**



**Standard 2 of 5 - check digit mod 10 - checked but not transmitted**

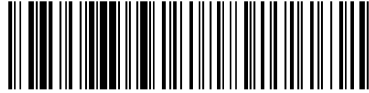


2.13.3. Set lengths for Standard 2 of 5

Standard 2 of 5 - barcode length - any  
length



Standard 2 of 5 - barcode length - minimum length = 6  
(\* )



2.14. UPC/ EAN Settings

2.14.1. Enable/Disable UPC/EAN

UPC / EAN - active (\*)



UPC / EAN - not active



UPC / EAN - UPC-A and EAN 13 deactivated



UPC / EAN - UPC-E deactivated



UPC / EAN - EAN-8 deactivated



**2.14.2. Transmit EAN13 Check Digit**

**UPC / EAN - check digit - UPC-A and EAN13 - transmitted (\*)**



**UPC / EAN - check digit - UPC-A/EAN 13 - not transmitted**



**2.14.3. Transmit UPC-E Check Digit**

**UPC / EAN - check digit - UPC-E - transmitted (\*)**



**UPC / EAN - check digit - UPC-E - not transmitted**



**2.14.4. Transmit EAN 8 Check Digit**

**UPC / EAN - check digit - EAN-8 - transmitted (\*)**



**UPC / EAN - check digit - EAN-8 - not transmitted**



**2.14.5. Transmit UPC-A Check Digit**

**UPC / EAN - UPC number system - UPC-A - transmitted (\*)**



**UPC / EAN - UPC number system - UPC-A - not transmitted**



**2.14.6. Transmit UPC number system for UPC-E**

**UPC / EAN - UPC number system - UPC-E - transmitted (\*)**



**UPC / EAN - UPC number system - UPC-E - not transmitted**



**2.14.7. UPC-A, UPC-E, EAN conversions**

**UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-A transmitted as EAN-13**



**UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-A transmitted as UPC-A (\*)**



**UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-E transmitted as UPC-E (\*)**



**UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-E transmitted as UPC-A**



**UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - EAN-8 transmitted as EAN 8 (\*)**



**UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - EAN-8 transmitted as EAN-13**



**2.14.8. ISSN/ISBN settings**

**UPC / EAN – ISSN/ISBN – Active (\*)**



**UPC / EAN – ISSN/ISBN – Not active**



**UPC / EAN – ISSN/ISBN – ISSN hyphen not transmitted (\*)**



**UPC / EAN – ISSN/ISBN – ISSN hyphen transmitted**



**UPC / EAN – ISSN/ISBN – ISSN price code not transmitted (\*)**



**UPC / EAN – ISSN/ISBN – ISSN price code transmitted**



**2.14.9. Add-on digits settings**

**UPC / EAN – Add-on digits – 2-digit add-ons not active (\*)**



**UPC / EAN – Add-on digits – 2-digit add-ons active**



**UPC / EAN – Add-on digits – 5-digit add-ons not active (\*)**



**UPC / EAN – Add-on digits – 5-digit add-ons not active**



**UPC / EAN – Add-on digits – not required but transmitted if read (\*)**



**UPC / EAN – Add-on digits – required and transmitted**



## 2.15. GS1 DataBar (RSS) 14 Settings

### 2.15.1. Enable/Disable GS1 DataBar 14

GS1 DataBar 14 - active (\*)



GS1 DataBar 14 – not active



### 2.15.2. GS1 DataBar 14 Check Digit Transmission

GS1 DataBar 14 - check digit - transmitted (\*)



GS1 DataBar 14 - check digit - not transmitted



### 2.15.3. GS1 DataBar 14 Linkage flag Transmission

GS1 DataBar 14 – Linkage Flag - not transmitted (\*)



GS1 DataBar 14 - Linkage Flag - transmitted



### 2.15.4. GS1 DataBar 14 Application ID Transmission

GS1 DataBar 14 – Application ID - transmitted (\*)



GS1 DataBar 14 - Application ID - not transmitted



## 2.16. GS1 DataBar (RSS) Limited Settings

### 2.16.1. Enable/Disable GS1 DataBar Limited

GS1 DataBar Limited - active (\*)



GS1 DataBar Limited – not active



### 2.16.2. GS1 DataBar Limited Check Digit Transmission

GS1 DataBar Limited - check digit - transmitted (\*)



GS1 DataBar Limited - check digit - not transmitted



### 2.16.3. GS1 DataBar Limited Linkage flag Transmission

GS1 DataBar Limited – Linkage Flag - not transmitted (\*)



GS1 DataBar Limited - Linkage Flag - transmitted



### 2.16.4. GS1 DataBar Limited Application ID Transmission

GS1 DataBar Limited – Application ID - transmitted (\*)



GS1 DataBar Limited - Application ID - not transmitted



### 3. RFID HF Parameters

#### 3.1. Enable/Disable reading tag in function of its RFID protocol

By scanning barcodes, it's possible to activate/deactivate ability to read certain RFID protocols. These protocols are identified by scanning alphabetic letter (ASCII character) corresponding to each protocol.

Enable specific protocol(s):

- Scan **RFID Set Enabled Protocols** barcode.
- Scan Alphabetic letter(s) barcode corresponding to protocol(s) you wish to activate.
- Then validate by scanning **End of configuration** barcode.

Disable specific protocol(s):

- Scan **RFID Set Disabled Protocols** barcode.
- Scan Alphabetic letter(s) barcode corresponding to protocol(s) you wish to deactivate.
- Then validate by scanning **End of configuration** barcode.

Protocols are identified by alphabetic letter as following:

ID string	Associated 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

Examples:

To activate only ISO/IEC 14443-A and ISO/IEC 15693 protocols, proceed as following:

- Scan RFID Set Enabled Protocols.
- Scan barcode corresponding to letter A and barcode corresponding to letter C.
- Scan End of configuration barcode.

To deactivate protocols NXP ICODE-1 and S.T. MicroElectronics SR:

- Scan RFID Set Disabled Protocols
- Scan barcode corresponding to letter D and barcode corresponding to letter F.
- Scan End of configuration barcode

RFID Set Enabled Protocols barcode:

RFID SET ENABLED PROTOCOLS





























RFID Set Disabled Protocols barcode:

RFID SET DISABLED PROTOCOLS





























## 4. APPENDIX 1: ASCII Table (A-Z, a-z, 0-9, punctuation, Control characters)
































### Capital letters (A-Z):

Name	Programming label	Name	Programming label
A		N	
B		O	
C		P	
D		Q	
E		R	
F		S	
G		T	
H		U	
I		V	
J		W	
K		X	
L		Y	
M		Z	










**Small letters (a-z):**

Name	Programming label	Name	Programming label
a		n	
b		o	
c		p	
d		q	
e		r	
f		s	
g		t	
h		u	
i		v	
j		w	
k		x	
l		y	
m		z	









**Ponctuation:**

Name	Programming label	Name	Programming label
Space		<	
!		=	
"		>	
#		?	
\$		@	
%		[	
&		]	
'		^	
(		_	
)		{	
*			
+		}	
,		~	
-		:	
.		;	
/			

Decimal numbers (0-9):

Name	Programming label
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	

**Control Characters:**

Name	Programming label
CR	
EOT	
ETX	
LF	
NUL	
SOH	
STX	
TAB	

## 5. APPENDIX 2 – AIM symbology identifiers structure

The SI prefix is a two (2) or three (3) character string:

] c m where

] : SI indicator

c : Symbology Identification

m : Modifier characters (optional)

Symbology Character	
A	Code 39
B	Telepen
C	Code 128
D	Code One
E	EAN/UPC
F	Codabar
G	Code 93
H	Code 11
I	ITF 25
K	Code 16K
L	PDF417
M	MSI code
N	Anker Code
O	Codablock
P	Plessey Code
R	Straight 2 of 5 (two bar start/stop codes)
S	Straight 2 of 5 (three bar start/stop codes)
T	Code 49
X	Other Bar code
Z	Non Barcode data

### Modifier Characters

The modifier character is determined by summing the option values of each symbology. If the sum is greater than 9, use A, B, C, D, E, F in the place of 10, 11, 12, 13, 14 and 15.

### Code 39 Option Values

- 0 No check character or Full ASCII
- 1 Reader has performed mod 43 check
- 2 Reader has performed mod 43 check and stripped the check character
- 4 Reader has performed Full ASCII conversion

### Telepen Option Values

- 0 Full ASCII mode
- 1 Double density numeric mode
- 2 Double density numeric followed by full ASCII
- 4 Full ASCII followed by double density numeric

### Code 128 Option Values

- 0 Standard
- 1 Function code 1 in first character position
- 2 Function code 2 in second character position
- 4 Concatenation according to ISBT specification has been performed, and concatenated data follows.

## 6. APPENDIX 3 – RFID protocol identifier

ID string	Associated 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