

## RoadRunners BRR-F Programming Guide



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### Introduction

Scanning a series of programming bar code labels can configure the scanner.

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

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

### PROGRAMMING OPTIONS:

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

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## RoadRunners BRR-F Programming Guide

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## 1/ Introduction

Please verify that your Roadrunners has a firmware version equal or superior to 3.10 before using it with this programming Guide. Some functionality may not work with older versions of the firmware. Refer to the BaracodaManager documentation in order to know how to upgrade your scanner.

The RoadRunners can be programmed by scanning barcode labels. Most of programming labels are in Code128 symbology. Thanks to make sure that this symbology is enable on your scanner.

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

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

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.

## 2/ General Configuration

### 2.1/ Reset all parameters:

The reading of the "Default settings" label turns all the parameters of the BRR-L back to default settings and switches it off.



### 2.2/ Erase all barcodes in memory

The RoadRunners has the ability to store barcodes in its internal memory (both in batch mode and in Real Time with "No Data Loss Mode" ON). By reading the following barcode you will empty the internal memory of the scanner.



### 2.3/ Baracoda advanced features

#### 2.3.1/ Switch on delay

In order to switch on the BRR-L 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 seconds by reading the appropriate barcode.



**2.3.2/ Shutdown timers**

There are two different 'shutdown timers' :

- **when connected timer** : delay between the last scanned barcode and the switch off when the scanner is connected to a host
- **Not connected timer** : delay between the last scanned barcode and the switch off when the scanner is not connected to any host

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



By default, timers value are :  
 when connected timer = 20 minutes  
 Not connected timer = 10 minutes



**2.3.3/ 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 Hyper terminal. The Baracoda header is enabled in default settings

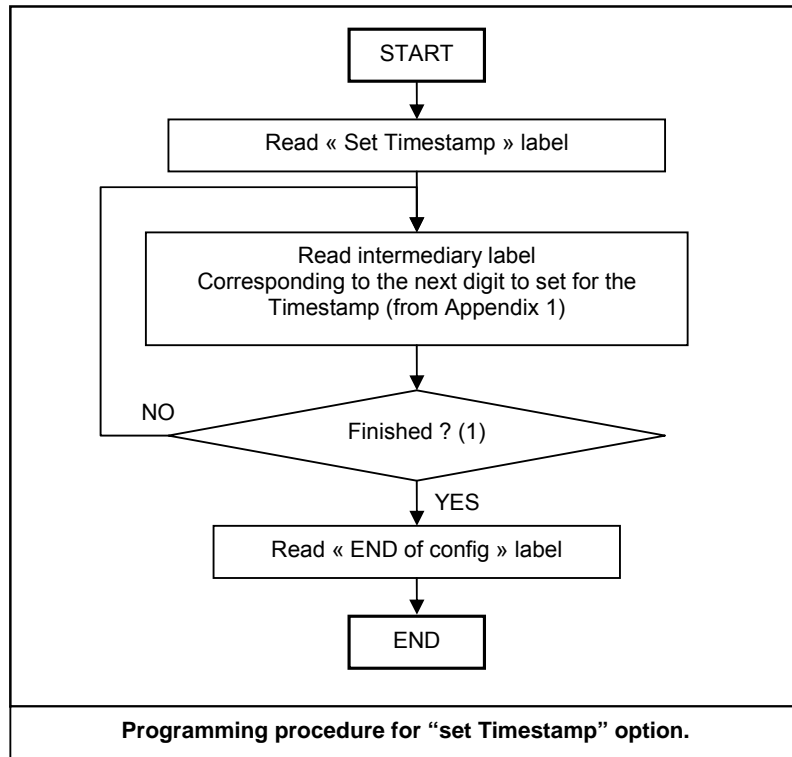
**No data loss mode:**

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.



### 2.3.4/ Timestamp Option

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



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.

## 2.4/ Reading Mode

- In trigger mode, pressing the trigger will activate the beam.
- The Aiming trigger mode has been developed for users who need to scan barcodes very close each others 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 RoadRunners to actually decode the barcode.
- In autoscan mode the beam will be continuously on
- In Smart Autoscan, for a battery power consumption optimisation issue, the scanner will be continuously flashing.



## 2.5/ Operating Mode

**Real Time mode** (standard mode): barcodes are transmitted in real time to the remote host device/terminal (with optional acknowledgment beep from the host to the scanner).

User can choose if the scanner, when not connected, should read, memorize and later automatically upload the barcodes or shouldn't read the barcodes (no beam).

**Batch mode:** Barcodes are stored in the scanner even if the reader is connected to a device. In order to upload the data the user will have to read the "discharge" barcode

### 2.5.1/ Real time mode

Important reminder: if an ACK beep or bufferisation is needed, the scanner must be set in the "no data loss mode" first. (See part 1.2.2.)

**REAL TIME mode:**

Erases all codes in memory and forces the RoadRunners in Real time mode.

No other setting is changed.



**REAL TIME with ACK beep and bufferisation.**

Forces the RoadRunners in Real Time mode (with data acknowledgement). Erases all codes in memory. The BRR should have been previously set in the "No data loss mode" ON.



**REAL TIME without ACK beep and bufferisation.**

Forces the RoadRunners in Real Time mode (without data acknowledgement). Erases all codes in memory. The BRR should have been previously set in the "No data loss mode" ON.



## 2.5.2/ Batch mode

**BATCH MODE.** Forces the RoadRunners in Batch mode.  
Erases all codes in memory.



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

- from the Baracoda Manager
- from reading the “discharge” 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 and not connected, the BRR-L will ignore this barcode.

→ For CPU firmware versions <3.16, only the following upload barcode is available:



When scanning this barcode, the BRR will send all barcodes in memory using the Baracoda header, with “no data loss mode” OFF.

→ For CPU firmware versions ≥3.16, this upload barcode is available:



This upload process consists in switching temporarily the BRR into Real time with “no data loss mode” ON (all the barcodes in memory will be sent using the no data loss protocol). Then the BRR switches back to batch mode when all the barcodes are properly sent.

## 2.6/ Cradle / RS232 jack

### 2.6.1/ Cradle

By default, the scanner Bluetooth is always ON. *(It wasn't the case for CPU version < 3.00)*



### 2.6.2/ RS232 jack

To communicate with the scanner through the RS232 cable instead of Bluetooth way, you have to scan this barcode.



Parameters are :  
 Baud rate : 115200  
 Parity : none  
 Data bits : 8  
 Stop bit : 1

Note : When the RS232 cable is not connected, it is possible to communicate with the scanner over Bluetooth.

## 2.7/ Buzzer and Led Settings

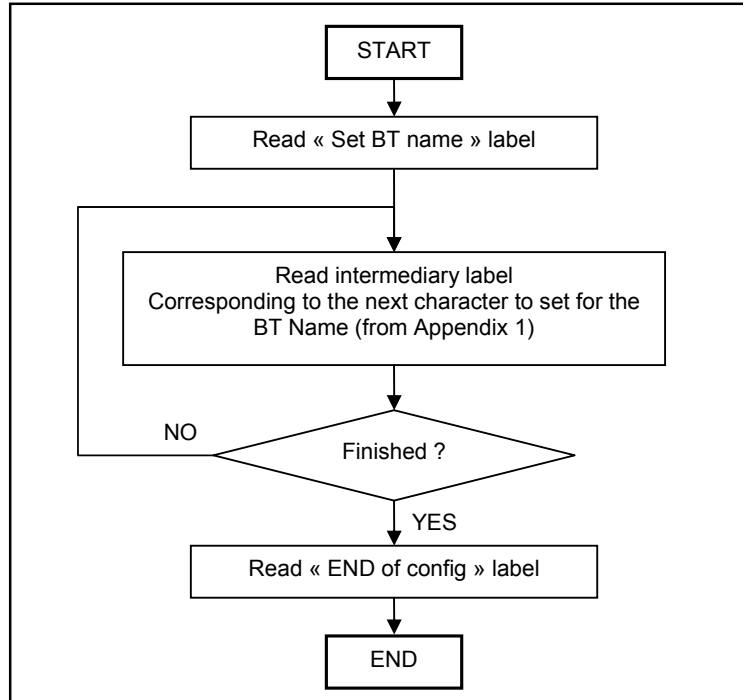
You can use these options to enable or disable the buzzer and / or the Led. You can also invert the led position.



## 2.8/ Bluetooth commands

### 2.8.1/ Bluetooth name

You can change the scanner Bluetooth name; name that you see during a search of Bluetooth peripheral.  
*(Feature enabled for CPU firmware version > 3.00)*



Set BT Name

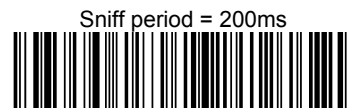


End of config



### 2.8.2/ Sniff settings

The higher the Sniff period, the higher is the latency and the smaller is the power consumption.  
Default value is 150ms.



### 2.8.3/ Power emission settings

You can configure your scanner to work at 20 dBm (default setting) or 10 dBm.  
Due to local laws, you may not use 20 dBm in some countries



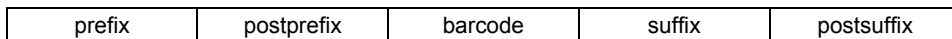
### 2.8.4/ Security (code PIN) settings

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



## 2.9/ Prefix and suffix

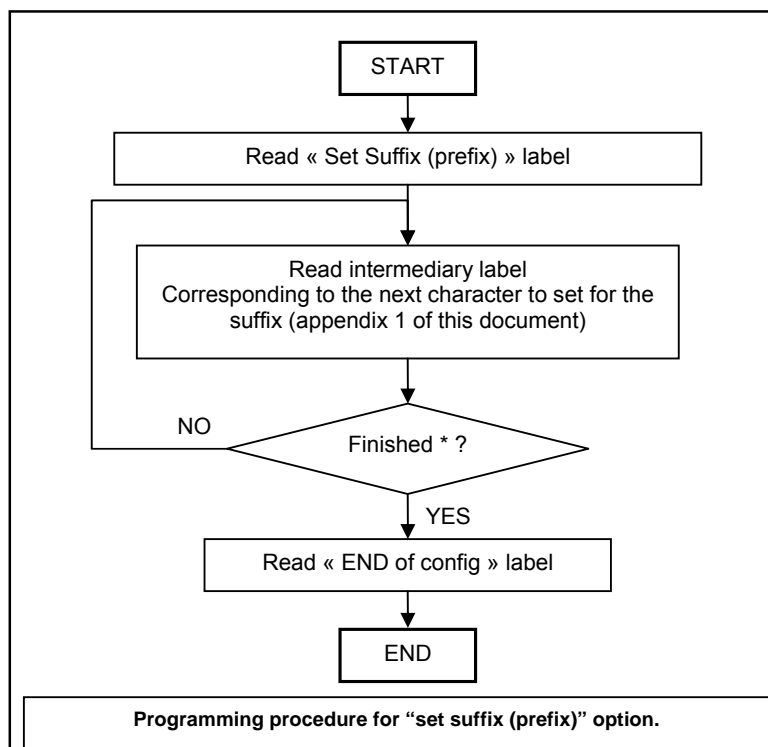
The barcode string can be added a prefix, a postprefix, a suffix and/or a postsuffix. These can come as described below:



### 2.9.1/ Prefix/suffix

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

There is no prefix/suffix in default settings.



\*= max length of the Suffix (Prefix) is 32 characters

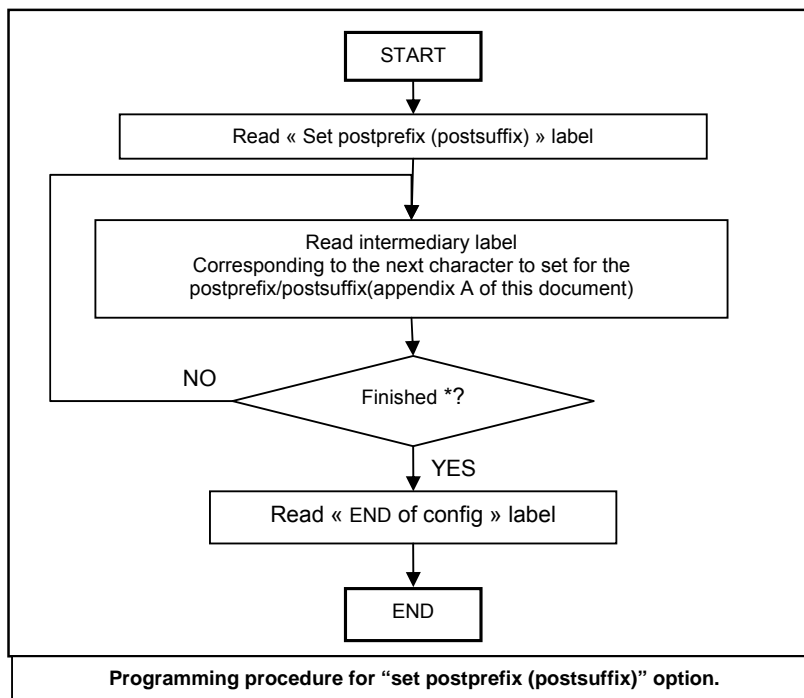
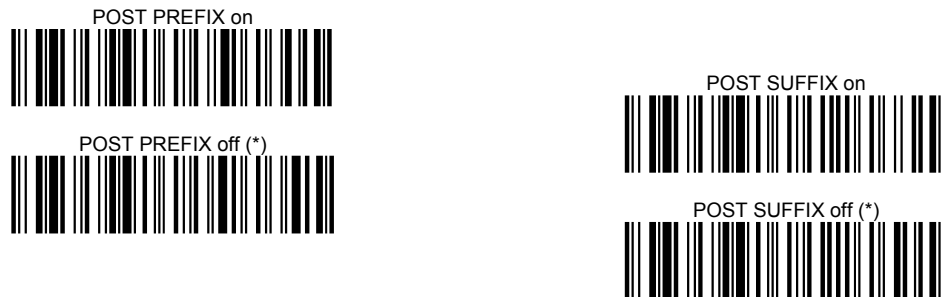


### 2.9.2/ Postfix/postsuffix

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

*(Feature enabled for CPU firmware version ≥ 3.16)*

There is no postfix/postsuffix in default settings.



\*= max length of the Suffix (Prefix) is 32 characters



### 3/ Decoder settings

This programming section contains the following menu selections

**Linear barcodes**

Codabar, Code 39, Interleaved 2 of 5, Code 93, EAN, Code 2 of 5, IATA Code 2 of 5, Matrix 2 of 5, Code 11, Code 128, Telepen, UPC A, UPC-A/EAN-13 with Extended Coupon Code, EAN/JAN 13, EAN/JAN 8, MSI, Plessey Code, RSS-14, RSS Limited, RSS Expanded, PosiCode A and B

**Stacked barcodes**

Code49, Code 16K, PDF417, Macro PDF417, Micro PDF417, EAN/UCC composite codes, RSS stacked and composite, Trioptic, TLC39, Codablock F

**Postal Barcodes**

Postnet, Planet Code, British Post, Canadian Post, Kix (Netherlands)Post, Australian Post, Japanese Post, China Post, Korea Post,

**2D Barcodes**

QR Code, DataMatrix, MaxiCode, Aztec Code

#### 3.1/ Symbology default settings

Sets the defaults decoder settings for all the symbologies

The reading of the "Reset Decoder factory Default" label turns all the parameters of the decoder of the BRR-F back to default settings.

Reset decoder factory defaults



#### 3.2/ Disable All Symbologies

If you want to decode all the symbologies allowable for your imager, scan the All Symbologies On code. If on the other hand, you want to decode only a particular symbology, scan All Symbologies Off followed by the On symbol for that particular symbology.

Disable all symbologies

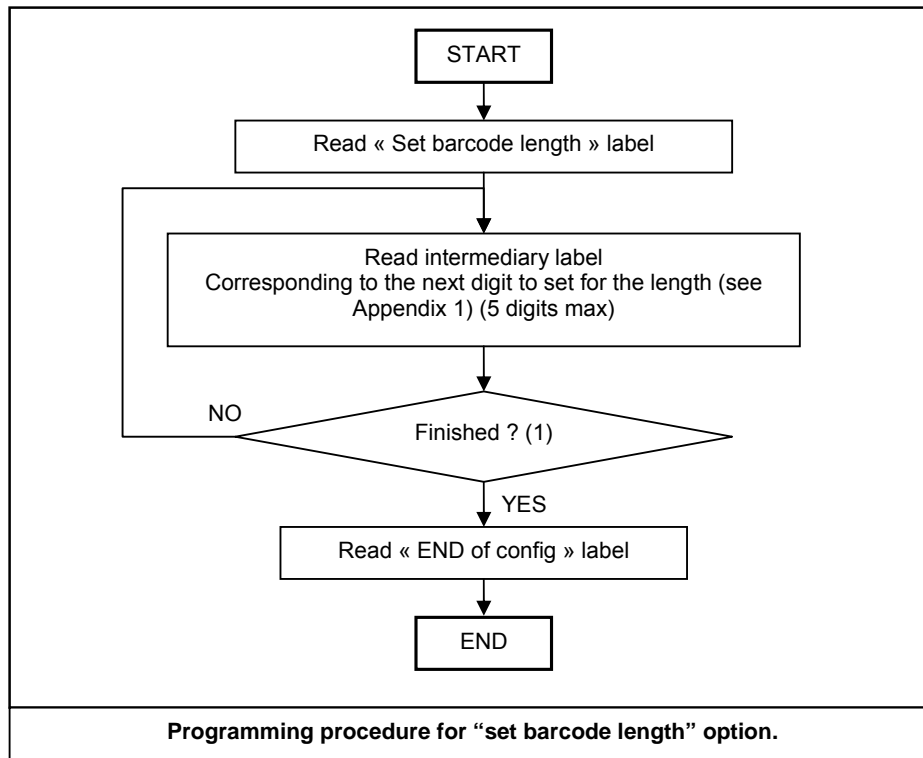


Enable all symbologies



### 3.3/ Set decoder barcode length

You can set a fixed length for the barcode decoding. The scanner will only decode barcodes of this length.  
*(Feature enabled for CPU firmware version ≥ 3.16)*



### 3.4/ Linear symbologies

#### 3.4.1/ Codabar

OFF



ON (\*)



**Codabar Start/Stop Characters**

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters



**Codabar Check Character**

Codabar check characters are created using different “modulos.” You can program the imager to read only Codabar bar codes with Modulo 16 check characters. Default = No Check Character.

No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate and Transmit, the imager will only read Codabar bar codes printed with a check character, and will transmit this character at the end of the scanned data.

When Check Character is set to Validate, but Don't Transmit, the unit will only read Codabar bar codes printed with a check character, but will not transmit the check character with the scanned data.



**3.4.2/ Code 39**



**Code 39 Start/Stop Characters**

Start/Stop characters identify the leading and trailing ends of the bar code. You may either transmit, or not transmit Start/Stop characters. Default = Don't Transmit.

Don't Transmit (\*)



Transmit



**Code 39 Check Character**

No Check Character indicates that the imager reads and transmits bar code data with or without a check character.

When Check Character is set to Validate, but Don't Transmit, the unit only reads Code 39 bar codes printed with a check character, but will not transmit the check character with the scanned data.

When Check Character is set to Validate and Transmit, the imager only reads Code 39 bar codes printed with a check character, and will transmit this character at the end of the scanned data. Default = No Check Character

No Check Character (\*)



Validate but Don't Transmit



Validate and Transmit



**3.4.3/ Interleaved 2 of 5**

OFF



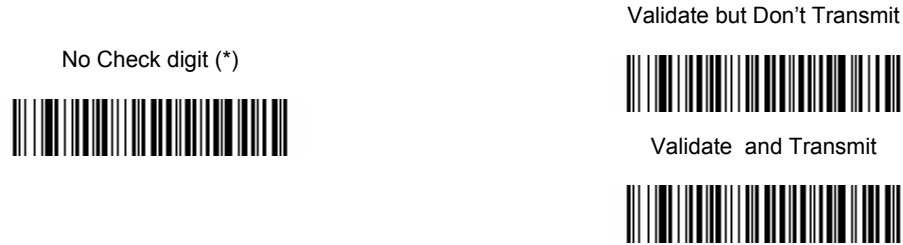
ON (\*)



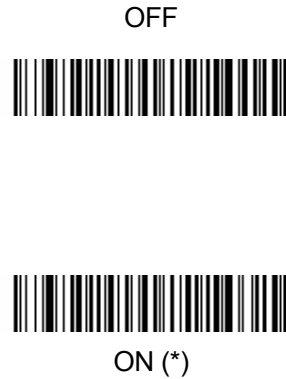
**Check Digit**

No Check Digit indicates that the imager reads and transmits bar code data with or without a check digit. When Check Digit is set to Validate, but Don't Transmit, the unit only reads Interleaved 2 of 5 bar codes printed with a check digit, but will not transmit the check digit with the scanned data.

When Check Digit is set to Validate and Transmit, the imager only reads Interleaved 2 of 5 bar codes printed with a check digit, and will transmit this digit at the end of the scanned data. Default = No Check Digit



**3.4.4/ Code 93**



**3.4.5/ Code 2 of 5**



**3.4.6/ IATA Code 2 of 5,**

OFF (\*)



ON



**3.4.7/ Matrix 2 of 5**

OFF(\*)



ON



**3.4.8/ Code 11**

OFF (\*)



ON



**Check Digits Required**

This option sets whether 1 or 2 check digits are required with Code 11 bar codes.

Default = Two Check Digits

One Check Digits



Two Check Digits (\*)



**3.4.9/ Code 128**

OFF



ON (\*)



**3.4.10/ Telepen**

OFF (\*)



ON



### 3.4.11/ UPC A

OFF



ON (\*)



#### **UPC-A Check Digit**

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. Default = On.

OFF



ON (\*)



#### **UPC-A Number System**

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but the unit can be programmed so it will not

OFF (\*)



ON



#### **UPC-A Addenda**

This selection adds 2 or 5 digits to the end of all scanned UPC-A data. Default = Off for both 2 Digit and 5 Digit Addenda.

2 Digit Addenda Off (\*)



2 Digit Addenda On



5 Digit Addenda Off (\*)



5 Digit Addenda On



**Addenda Required**

When Required is scanned, the imager will only read UPC-A bar codes that have addenda. You must then turn on a 2 or 5 digit addenda listed on page 820.

Not required (\*)



Required

**3.4.12/ UPC-A/EAN-13 with Extended Coupon**

OFF



ON (\*)

**3.4.13/ UPC-E0**

Most U.P.C. bar codes lead with the 0 number system. For these codes, use the UPC-E0 selection. If you need to read codes that lead with the 1 number system, use UPC-E1 (page 8-24). Default = On.

OFF



ON (\*)



**UPC-E0 Expand**

UPC-E Expand expands the UPC-E code to the 12 digit, UPC-A format.

OFF



ON

**UPC-E0 Addenda Required**

When Addenda Required is set to on, the imager will only read UPC-E barcodes that have addenda.

Default = not required

Not Required (\*)



Required

**UPC-E0 Check Digit**

Check Digit specifies whether the check digit should be transmitted at the end of the scanned data or not. Default = On.

Off



On (\*)

**UPC- E0 Number System**

The numeric system digit of a U.P.C. symbol is normally transmitted at the beginning of the scanned data, but the unit can be programmed so it will not transmit it. Default = On.

Off



On (\*)



**UPC-E0 Addenda**

This selection adds 2 or 5 digits to the end of all scanned UPC-E data. Default = Off for both 2 Digit and 5 Digit Addenda.

2 Digit Addenda Off (\*)



2 Digit Addenda On



5 Digit Addenda Off (\*)



5 Digit Addenda On



**3.4.14/ UPC-E1**

Most U.P.C. bar codes lead with the 0 number system. For these codes, use UPC-E0 (page 8-22). If you need to read codes that lead with the 1 number system, use the UPC-E1 selection. Default = Off.

OFF (\*)



ON



**3.4.15/ EAN/JAN 13**

OFF



ON (\*)



**EAN/JAN-13 Check Digit**

This selection allows you to specify whether the check digit should be transmitted at the end of the scanned data or not. Default = On.

Off



On (\*)

**EAN/JAN-13 Addenda**

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-13 data. Default = Off for both 2 Digit and 5 Digit Addenda

2 Digit Addenda Off (\*)



2 Digit Addenda On



5 Digit Addenda Off (\*)



5 Digit Addenda On

**ISBN Translate**

This selection causes EAN-13 Bookland symbols to be translated into their equivalent ISBN number format. Default = Off.

Off (\*)



On

**3.4.16/ EAN/JAN 8**

OFF



ON (\*)



**Check Digit**

Off



On



**EAN/JAN-8 Addenda**

This selection adds 2 or 5 digits to the end of all scanned EAN/JAN-8 data. Default = Off for both 2 Digit and 5 Digit Addenda.

2 Digit Addenda Off (\*)



2 Digit Addenda On



5 Digit Addenda Off (\*)



5 Digit Addenda On



**3.4.17/ MSI**

OFF (\*)



ON



**3.4.18/ Plessey Code**

OFF (\*)



ON



**3.4.19/ RSS-14**

OFF



ON (\*)



**3.4.20/ RSS Limited**

OFF



ON (\*)



**3.4.21/ RSS Expanded**

OFF



ON (\*)



### 3.4.22/ PosiCode A and B

OFF



ON (\*)



### 3.5/ Stacked barcodes

#### 3.5.1/ Code49

OFF



ON (\*)



#### 3.5.2/ Code 16K

OFF (\*)



ON



### 3.5.3/ PDF417

OFF



ON (\*)



### 3.5.4/ Micro PDF417

OFF



ON (\*)



### 3.5.5/ EAN/UCC composite codes

OFF (\*)



ON



#### *UPC/EAN Version*

Scan the UPC/EAN Version On bar code to decode EAN~UCC Composite symbols that have a UPC or EAN linear component. (This does not affect EAN~UCC Composite symbols with a UCC/EAN-128 or RSS linear component)

UPC/EA Version Off



UPC/EAN Version On



**EAN-UCC Emulation**

The imager can automatically format the output from any EAN-UCC data carrier to emulate what would be encoded in an equivalent UCC/EAN-128 or RSS and Composite symbol. EAN-UCC data carriers include UPC-A and UPC-E, EAN-13 and EAN-8, ITF-14, UCC/EAN-128, and EAN-UCC RSS and Composites. Data from 2D symbols such as Aztec Code, Data Matrix, or QR Code, which encode a leading FNC1, also invoke EAN-UCC emulation. If UCC/EAN-128 Emulation is selected, the AIM Symbology Identifier is reported as "JC1". If RSS Emulation is selected, the AIM Symbology Identifier is reported as "je0". Any application that accepts EAN-UCC data can be simplified since it only needs to recognize one data carrier type. Default = No Emulation.

\*EAN/UCC Emulation OFF



RSS Emulation



128 Emulation

**3.5.6/ Trioptic**

OFF (\*)



ON



**3.5.7/ TLC39**

OFF



ON (\*)



### 3.5.8/ Codablock F

OFF (\*)



ON



### 3.6/ Postal Barcodes

#### 3.6.1/ Postnet

OFF (\*)



ON



#### 3.6.2/ Planet Code

OFF (\*)



ON



### 3.6.3/ British Post

OFF (\*)



ON



### 3.6.4/ Canadian Post

OFF (\*)



ON



### 3.6.5/ Kix (Netherlands) Post

OFF (\*)



ON



### 3.6.6/ Australian Post

OFF (\*)



ON



### 3.6.7/ Japanese Post

OFF (\*)



ON



### 3.6.8/ China Post

OFF (\*)



ON



### 3.6.9/ Korea Post

OFF (\*)



ON



### 3.7/ 2D Barcodes

#### 3.7.1/ QR Code

The BRR-F can decode QR codes if their message length is smaller than 3500 characters

OFF (\*)



ON



#### 3.7.2/ DataMatrix

The BRR-F can decode DataMatrix codes if their message length is smaller than 1500 characters

OFF



ON (\*)



### 3.7.3/ MaxiCode

The BRR-F can decode Maxicodes if their message length is smaller than 150 characters

OFF



ON (\*)



### 3.7.4/ Aztec Code

The BRR-F can decode Aztec codes if their message length is smaller than 3750 characters

OFF



ON (\*)



#### ***Aztec Runes***

Select Runes ON if you are scanning Aztec runes, which are the smallest type of Aztec Code symbol with the ability to encode a very short license plate message.

Runes OFF (\*)
















Runes ON































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














Capital letters (A-Z) :

Name	Programming label
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	
M	

Name	Programming label
N	
O	
P	
Q	
R	
S	
T	
U	
V	
W	
X	
Y	
Z	

Small letters (a-z) :















Name	Programming label
a	
b	
c	
d	
e	
f	
g	
h	
i	
j	
k	
l	
m	














Name	Programming label
n	
o	
p	
q	
r	
s	
t	
u	
v	
w	
x	
Y	
z	

Punctuation






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	