

**Nextel
RoadRunners Scanner
(BRR-L)
by Baracoda**

Programming Guide



Nextel RoadRunners Scanner (BRR-L) Programming Guide

Contents

1 Introduction	1
2 General Configuration	2
2.1 Reset Default Settings:.....	2
2.2 Erase All Barcodes in Memory	2
2.3 Advanced Features.....	2
Switch-on Delay.....	2
No Data Loss Mode	3
Timestamp Option	3
2.4 Reading Mode	5
2.5 Usage Modes.....	5
Real Time Mode (standard mode).....	5
Batch Mode.....	6
2.6 Beep and LED Settings	7
2.6.1 Bluetooth® Commands	8
Sniff Settings.....	8
Power Emission Settings.....	8
Security (PIN code) Settings	9
2.7 Prefix and Suffix.....	9
3 Symbology Settings	11
3.1 Symbology Default Settings	11
3.2 Symbology Identifier	11
Voting.....	11
3.3 Disable All Symbologies	12
3.4 Codabar Settings.....	13
3.5 Code 11 Settings	14
3.6 Code 39 settings.....	15
3.7 Code 128 Settings	16
3.8 Code 93 Settings	16
3.9 Interleaved 2 of 5 Settings.....	17
3.10 MSI Code Settings.....	18
3.11 Standard 2 of 5 Settings	19
3.12 UPC/ EAN Settings.....	20
3.13 Set Min or Max Length Option.....	22
APPENDIX 1: Symbology Table	24
APPENDIX 2: ASCII Table (A-Z, a-z, 0-9, Punctuation, Control Characters)	25
APPENDIX 3	29

1 Introduction

This manual contains the necessary barcodes to configure the parameters of your scanner. You can either print out this document to scan its barcodes or in some cases you can even scan the barcodes right off your computer screen.

The RoadRunners scanner can be programmed by scanning barcode labels which contain commands for the 1D decoder.

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

Programmable options are divided into two groups:

- 1 Controls for the general behavior of the scanner;
- 2 Decoding parameters for each barcode symbology.

The scanner will acknowledge the correct and valid reading of a programming bar code label by emitting two beeps and both the RSL and BCL LEDs (see Figure 1) will light up green. The scanner will emit two other beeps (lower tone) and the red RSL LED will light up to indicate either an invalid or incorrect reading of the programming barcode.



Fig. 1

CAUTION: PLEASE DO NOT READ THE PROGRAMMING BARCODES WHILE PAIRED WITH A HANDSET OR CONNECTED TO THE BARACODAMANAGER.

2 General Configuration

2.1 Reset Default Settings:

Reading the "Default settings" label resets all scanner parameters to the default factory settings and switches it off.

CAUTION: SCANNING THIS BARCODE WILL RESET THE DEFAULT SETTINGS OF THE SCANNER AND MAY RESULT IN THE LOSS OF STORED DATA.

Reset defaults settings



2.2 Erase All Barcodes in Memory

The RoadRunners scanner can store barcodes in its internal memory (both in batch mode and in Real Time with "No Data Loss Mode" ON). Reading the following barcode empties the internal memory of the scanner.

CAUTION: SCANNING THIS BARCODE WILL ERASE ALL BARCODES STORED IN MEMORY AND WILL RESULT IN THE LOSS OF STORED DATA.

Empty memory



2.3 Advanced Features

Use of the "*" on any of the following barcodes indicates the default setting for the manufacturer.

Switch-on Delay

To switch on the scanner in its standard mode, simply press the trigger. It is possible to set up the scanner to be switched on only after holding the trigger pressed for two seconds by reading the appropriate barcode.

Switch on delay: 2 seconds



Switch on delay: 0 second (*)



No Data Loss Mode

Baracoda has developed a proprietary communication protocol for enhanced Bluetooth® transmission security. Every barcode sent to the handset must be acknowledged by the handset (i.e. the scanner will continue to transmit the barcode until acknowledgement is received).

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

“No Data Loss mode” ON



Enables the Baracoda header + “No Data Loss mode” OFF (*)



Timestamp Option

The timestamp can be configured (ON/OFF, set new date and new time) with the following configuration barcodes.

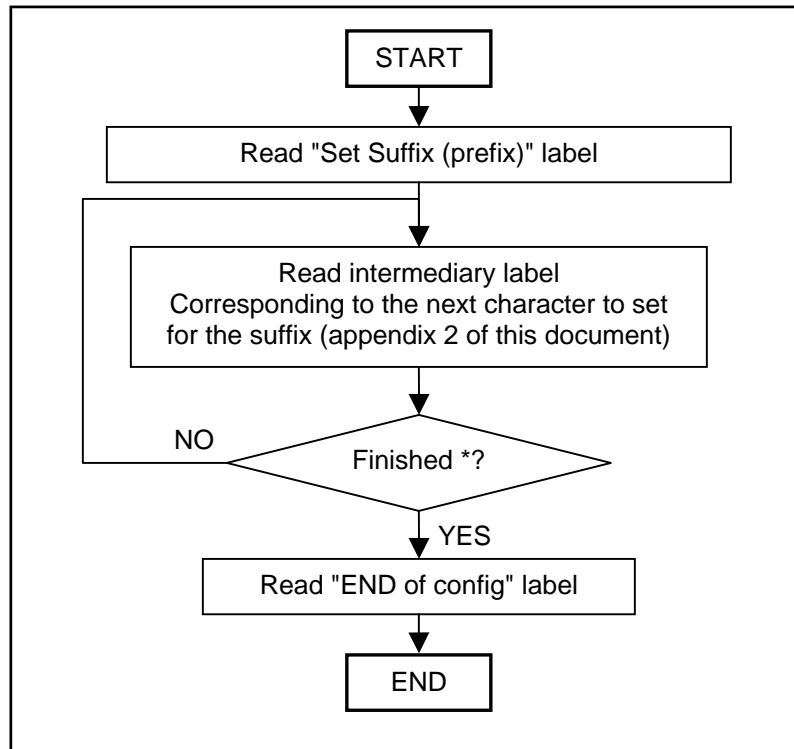
Timestamp on



Timestamp off (*)



Programming procedure for "Set Timestamp" option



Set Timestamp



"END of Config"



Note: The timestamp must comply with the following specific format:
{YY} {MM} {DD} {HH} {MM} {SS}

Setting the timestamp is accomplished by scanning the 0-9 labels (see Appendix 2), in accordance with the timestamp format shown above.

For example, to set the current time at May 16, 2007 3.25 P.M., the user will scan the following sequence:

- “Set Timestamp” label,
- “0” label, } {YY} : 2007
- “7” label, }
- “0” label, } {MM} : May
- “5” label, }
- “1” label, } {DD} : 16
- “6” label, }
- “1” label, } {HH} : 15 (3:00 PM)
- “5” label, }
- “2” label, } {MM} : 25
- “5” label, }
- “0” label, } {SS} : 00
- “0” label, }
- “END of config” label.

2.4 Reading Mode

The scanner can function in three operating modes:

- Trigger mode: pressing the trigger activates the beam.
- Autoscan mode: the beam remains permanently on.
- Smart Autoscan: to reduce battery consumption, the beam continuously flashes.



2.5 Usage Modes

The RoadRunners scanner can be operated in either Real Time or Batch Mode (see the following and Section 8.2 of the User Guide for more information):

Real Time Mode (standard mode)

Barcodes are transmitted in real time to the handset (with optional acknowledgment beep from the handset to the scanner).

If the scanner is not connected, the user can choose whether the scanner reads, memorizes and later automatically uploads the barcodes or does not read the barcodes (no beam).

Nextel RoadRunners Scanner Programming Guide

An important reminder: if an acknowledgement (ACK) beep or storage of codes in memory is needed, the scanner must first be set to "No data loss mode" (see section 2.3).

CAUTION: SCANNING ANY OF THE FOLLOWING THREE BARCODES WILL ERASE ALL CODES IN MEMORY.

- **REAL TIME mode:**

Erases all codes in memory and places the RoadRunners scanner in Real time mode. No other setting is changed.



- **REAL TIME with ACK beep**

Places the scanner in Real Time mode (with data acknowledgement). Erases all codes in memory. The scanner should have been previously set to "No data loss mode" ON (see section 2.3).



- **REAL TIME without ACK beep**

Forces the RoadRunners scanner to Real Time mode (without data acknowledgement). Erases all codes in memory. The scanner should have been previously set to "No data loss mode" ON (see section 2.3).



Batch Mode

Barcodes are stored in the scanner even if the reader is connected to a handset. In order to upload the data, the user will have to read the "discharge" barcode.

When in Batch mode, the scanner will wait for the appropriate command to start uploading the barcodes: to send this command to your scanner read the "Discharge" barcode shown below.

If this barcode is read when the reader is in Batch mode and connected, the reader will automatically upload all the data in its memory to the handset and empty the scanner's memory. If the scanner is not in Batch mode and not connected, it will ignore this barcode.

Batch mode. Places the scanner in Batch mode.
CAUTION: SCANNING THIS BARCODE ERASES ALL CODES IN MEMORY.



Discharge barcode.
CAUTION: SCANNING THIS BARCODE ERASES ALL CODES IN MEMORY



2.6 Beep and LED Settings

These options can be used to enable or disable the beep and/or the LED. It is also possible to invert (swap) LED positions.

LED CONFIG: default (*)



LED CONFIG: inverted



LED ON (*)



LED OFF



Good Read Beep ON



Good Read Beep OFF



ACK Beep ON



ACK Beep OFF



Beep Level Volume = LOW



Beep evel Volume = HIGH



2.6.1 Bluetooth® Commands

Sniff Settings

The higher the Sniff period, the higher the latency and the lower the power consumption. The default value is 150ms.

Sniff period = 100ms



Sniff period = 150ms (*)



Sniff period = 200ms



Sniff period = 300ms



Sniff period = 500ms



Power Emission Settings

You can configure your scanner to work at 20 dBm (default setting) or 10 dBm.

Local regulations in some countries outside of the USA prohibit the use of Bluetooth at 20 dBm settings.

Power = 10dBm



Power = 20dBm (*)



Security (PIN code) Settings

The initial PIN code can be disabled or enabled by scanning the following barcodes:

Disable BT security code



Enable BT security code (*)



2.7 Prefix and Suffix

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

The prefix/suffix is disabled in the default settings.

PREFIX on



PREFIX off (*)



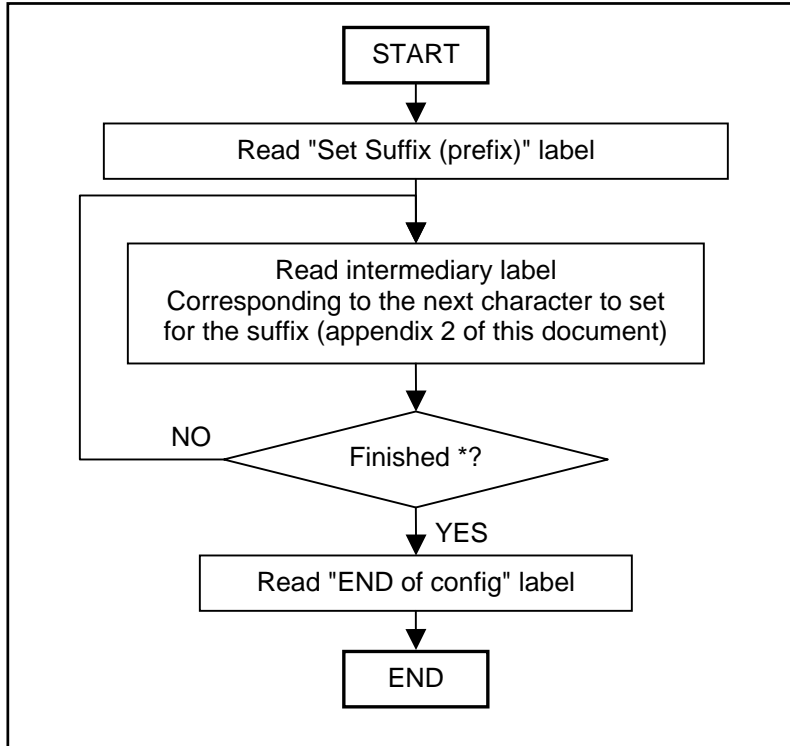
SUFFIX on



SUFFIX off (*)



Programming procedure for “set suffix (prefix)” option.



*= Max suffix (prefix) length is 32 characters

Set Timestamp



“END of Config”



3 Symbology Settings

3.1 Symbology Default Settings

Sets the default decoder settings for all the symbologies.

Set Decoder Default Settings



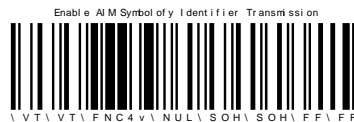
3.2 Symbology Identifier

The AIM Identifier (e.g. Code39, Code128) will be transmitted at the beginning of the barcode. More information about the AIM Identifier is available in Appendix 3.

Symbology identifier - AIM - not transmitted (*)



Symbology identifier - AIM - transmitted



Voting

The standard voting setting is 2. This means that a barcode is considered read by the decoder if the same data is decoded twice. Increasing this parameter will enable more secure barcode decoding.

Voting = 2 (*)



Voting = 3



Voting = 4



3.3 Disable All Symbologies

Even if all symbologies are disabled, the RoadRunners scanner will still be able to read the programming barcodes included in this document.

CAUTION: CARE SHOULD BE USED WHEN DISABLING ALL BARCODES AS IT MAY MAKE THE UNIT APPEAR TO BE MALFUNCTIONING SINCE NO SYMBOLOGY IS BEING READ.

Disable all symbologies



Enable all symbologies



3.4 Codabar Settings

Codabar - not active



Codabar – active (*)



Codabar - start/stop - not transmitted (*)



Codabar - start/stop - transmitted



Codabar - check digit (AIM recommendation) - not used (*)



Codabar - check digit (AIM recommendation) - checked and transmitted



Codabar - barcode length - any length



Codabar – barcode length Min=6(*)



Codabar - check digit (AIM recommendation) - checked but not transmitted



3.5 Code 11 Settings

Code 11 - not active (*)



Code 11 - check digits - checked and transmitted (*)



Code 11 - active



Code 11 - check digits - checked but not transmitted)



Code 11 - check digits - 1 digit (*)



Code 11 - barcode length - any length



Code 11 - check digits - 2 digits



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



3.6 Code 39 settings

Code 39 - active (*)



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



Code 39 - not active



Code 39 - start/stop - transmitted



Code 39 - format - standard 43 characters (*)



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



Code 39 - format - full ASCII



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



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



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



Code 39 - check digit - not used (*)



Code 39 - barcode length - any length (*)



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



Code 39 - barcode length - minimum length = 6



3.7 Code 128 Settings

Code 128 / EAN 128 - not active



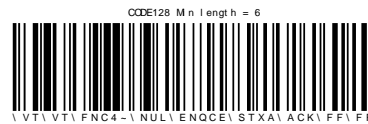
Code 128 / EAN 128 - barcode length - any length (*)



Code 128 / EAN 128 – active (*)



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



3.8 Code 93 Settings

Code 93 - not active



Code 93 - barcode length - any length



Code 93 – active (*)



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



3.9 Interleaved 2 of 5 Settings

Interleaved 2 of 5 - not active



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



Interleaved 2 of 5 – active (*)



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



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



Interleaved 2 of 5 – barcode length- any length



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



3.10 MSI Code Settings

MSI Code - not active (*)



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



MSI Code - active



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



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



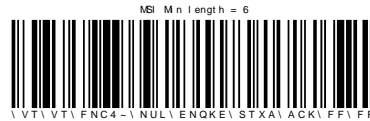
MSI Code - barcode length - any length



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



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



3.11 Standard 2 of 5 Settings

Standard 2 of 5 - not active



Standard 2 of 5 - barcode length - any length



Standard 2 of 5 – active *



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



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



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



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



3.12 UPC/ EAN Settings

UPC / EAN - active (*)



UPC / EAN - not active



UPC / EAN - UPC-A and EAN 13 deactivated



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



UPC / EAN - UPC-E deactivated



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



UPC / EAN - EAN-8 deactivated



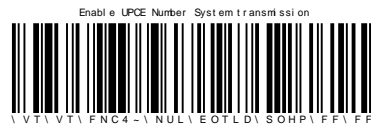
UPC / EAN - check digit - EAN-8 - not transmitted



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



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



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



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



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



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



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



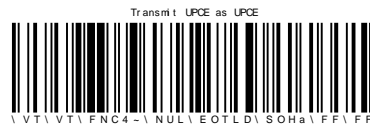
UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - UPC-A transmitted as EAN-13



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 (*)

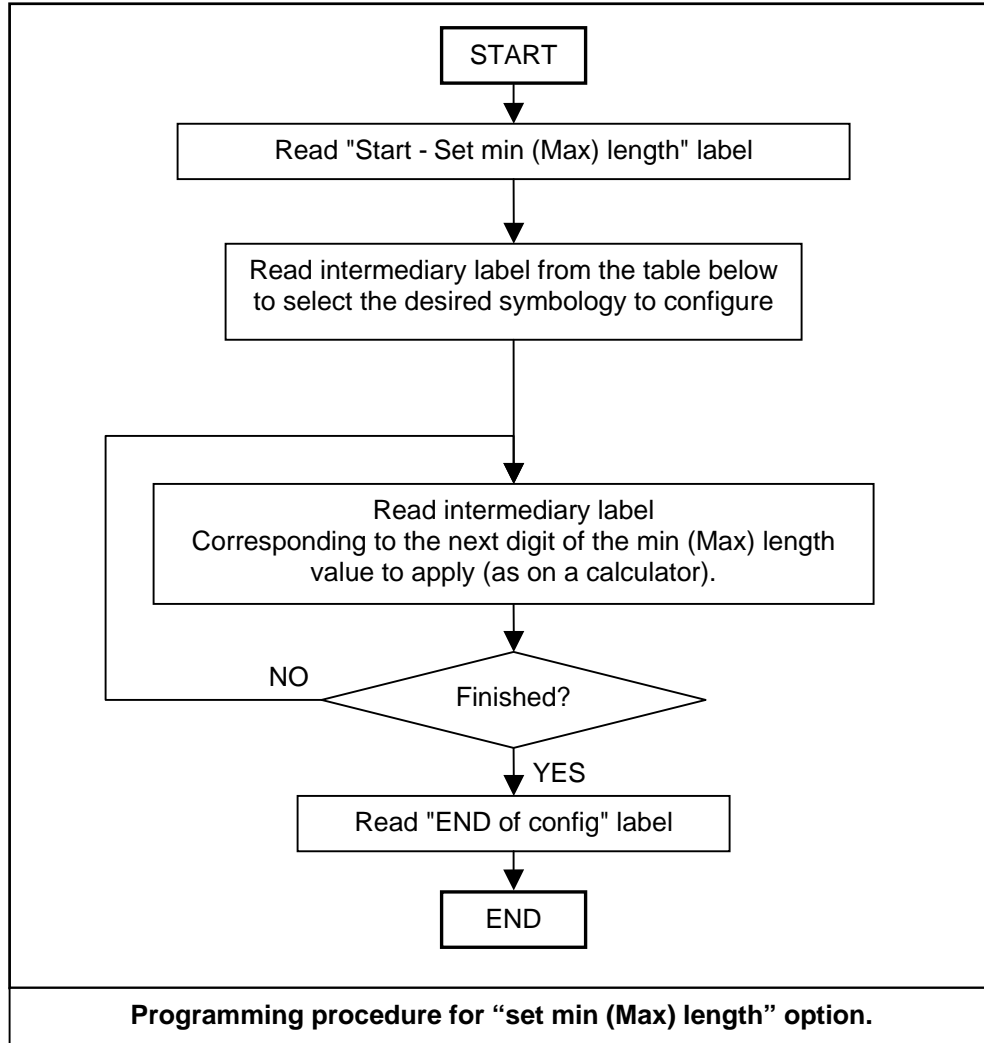


UPC / EAN - re-encoding UPC-A, UPC-E, EAN-8 - EAN-8 transmitted as EAN-1



3.13 Set Min or Max Length Option













The procedure to be followed for each barcode is shown below:



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<p style="text-align: center;">set min length</p> <p style="text-align: center;">\ VT \ VT \ FNC4 - \ NUL \ STX \ LF \ LF</p>	<p style="text-align: center;">Start – set min length</p>
<p style="text-align: center;">set max length</p> <p style="text-align: center;">\ VT \ VT \ FNC4 - \ NUL \ ETX \ LF \ LF</p>	<p style="text-align: center;">Start – Set Max length</p>
<p style="text-align: center;">END of Config</p> <p style="text-align: center;">\ LF \ LF \ END \ FF \ FF \ FF</p>	<p style="text-align: center;">End of config</p>














APPENDIX 1: Symbology Table

Header	Selected Symbology	Header	Selected Symbology
SELECT ALL	 \\ L F \\ L F A \\ L F \\ L F	Interleaved 2 of 5	 \\ L F \\ L F G \\ L F \\ L F
Code 93	 \\ L F \\ L F B \\ L F \\ L F	Standard 2 of 5 (Industrial 2 of 5)	 \\ L F \\ L F H \\ L F \\ L F
Code 128 / EAN 128	 \\ L F \\ L F C \\ L F \\ L F	Code 11	 \\ L F \\ L F J \\ L F \\ L F
EAN 13 / UPC A	 \\ L F \\ L F D \\ L F \\ L F	MSI	 \\ L F \\ L F K \\ L F \\ L F
Code 39	 \\ L F \\ L F E \\ L F \\ L F	UPC E	 \\ L F \\ L F L \\ L F \\ L F
Codabar	 \\ L F \\ L F F \\ L F \\ L F	EAN 8	 \\ L F \\ L F M \\ L F \\ L F

APPENDIX 2: ASCII Table (A-Z, a-z, 0-9, Punctuation, Control Characters)














Upper Case Letters (A-Z):














Name	Programming Bar Code
A	 \\ L F \\ L F A \\ L F \\ L F
B	 \\ L F \\ L F B \\ L F \\ L F
C	 \\ L F \\ L F C \\ L F \\ L F
D	 \\ L F \\ L F D \\ L F \\ L F
E	 \\ L F \\ L F E \\ L F \\ L F
F	 \\ L F \\ L F F \\ L F \\ L F
G	 \\ L F \\ L F G \\ L F \\ L F
H	 \\ L F \\ L F H \\ L F \\ L F
I	 \\ L F \\ L F I \\ L F \\ L F
J	 \\ L F \\ L F J \\ L F \\ L F
K	 \\ L F \\ L F K \\ L F \\ L F
L	 \\ L F \\ L F L \\ L F \\ L F
M	 \\ L F \\ L F M \\ L F \\ L F

Name	Programming Bar Code
N	 \\ L F \\ L F N \\ L F \\ L F
O	 \\ L F \\ L F O \\ L F \\ L F
P	 \\ L F \\ L F P \\ L F \\ L F
Q	 \\ L F \\ L F Q \\ L F \\ L F
R	 \\ L F \\ L F R \\ L F \\ L F
S	 \\ L F \\ L F S \\ L F \\ L F
T	 \\ L F \\ L F T \\ L F \\ L F
U	 \\ L F \\ L F U \\ L F \\ L F
V	 \\ L F \\ L F V \\ L F \\ L F
W	 \\ L F \\ L F W \\ L F \\ L F
X	 \\ L F \\ L F X \\ L F \\ L F
Y	 \\ L F \\ L F Y \\ L F \\ L F
Z	 \\ L F \\ L F Z \\ L F \\ L F

















Nextel RoadRunners Scanner Programming Guide















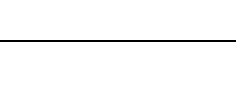
Lower Case Letters (a-z):

Name	Programming Bar Code
a	 \\ L F \\ L F a \\ L F \\ L F
b	 \\ L F \\ L F b \\ L F \\ L F
c	 \\ L F \\ L F c \\ L F \\ L F
d	 \\ L F \\ L F d \\ L F \\ L F
e	 \\ L F \\ L F e \\ L F \\ L F
f	 \\ L F \\ L F f \\ L F \\ L F
g	 \\ L F \\ L F g \\ L F \\ L F
h	 \\ L F \\ L F h \\ L F \\ L F
i	 \\ L F \\ L F i \\ L F \\ L F
j	 \\ L F \\ L F j \\ L F \\ L F
k	 \\ L F \\ L F k \\ L F \\ L F
l	 \\ L F \\ L F l \\ L F \\ L F
m	 \\ L F \\ L F m \\ L F \\ L F

Name	Programming Bar Code
n	 \\ L F \\ L F n \\ L F \\ L F
o	 \\ L F \\ L F o \\ L F \\ L F
p	 \\ L F \\ L F p \\ L F \\ L F
q	 \\ L F \\ L F q \\ L F \\ L F
r	 \\ L F \\ L F r \\ L F \\ L F
s	 \\ L F \\ L F s \\ L F \\ L F
t	 \\ L F \\ L F t \\ L F \\ L F
u	 \\ L F \\ L F u \\ L F \\ L F
v	 \\ L F \\ L F v \\ L F \\ L F
w	 \\ L F \\ L F w \\ L F \\ L F
x	 \\ L F \\ L F x \\ L F \\ L F
y	 \\ L F \\ L F y \\ L F \\ L F
z	 \\ L F \\ L F z \\ L F \\ L F






Punctuation:






Name	Programming Bar Code
Space	
!	
"	
#	
\$	
%	
&	
'	
(
)	
*	
+	
,	
-	
.	
/	

Name	Programming Bar Code
:	
;	
<	
=	
>	
?	
@	
[
]	
^	
_	
{	
	
}	
~	





Nextel RoadRunners Scanner Programming Guide





Decimal Numbers (0-9):

Number	Programming Bar Code
0	 \\ L F \\ L F 0 \\ L F \\ L F
1	 \\ L F \\ L F 1 \\ L F \\ L F
2	 \\ L F \\ L F 2 \\ L F \\ L F
3	 \\ L F \\ L F 3 \\ L F \\ L F
4	 \\ L F \\ L F 4 \\ L F \\ L F

Number	Programming Bar Code
5	 \\ L F \\ L F 5 \\ L F \\ L F
6	 \\ L F \\ L F 6 \\ L F \\ L F
7	 \\ L F \\ L F 7 \\ L F \\ L F
8	 \\ L F \\ L F 8 \\ L F \\ L F
9	 \\ L F \\ L F 9 \\ L F \\ L F

Control Characters:

Name	Programming Bar Code
CR	 \\ L F \\ L F \\ C R \\ L F \\ L F
EOT	 \\ L F \\ L F \\ E O T \\ L F \\ L F
ETX	 \\ L F \\ L F \\ E T X \\ L F \\ L F
LF	 \\ L F \\ L F \\ L F \\ L F \\ L F

Name	Programming Bar Code
NUL	 \\ L F \\ L F \\ N U L \\ L F \\ L F
SOH	 \\ L F \\ L F \\ S O H \\ L F \\ L F
STX	 \\ L F \\ L F \\ S T X \\ L F \\ L F
TAB	 \\ L F \\ L F \\ H T \\ L F \\ L F

APPENDIX 3

For more information, see Symbology Settings => Symbology Identifier.

The Symbology Identifier prefix is a two or three character string:

] c m where

]: SI indicator

c: Symbology Identification

m: Modifier characters (optional)

Symbology Character

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

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