Serial Programming Command Manual

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Revisions

Version	Description	Date
V1.0	Initial release	2008-07-12
V1.1	Add “Return Value”	2010-02-04
V1.2	Add Note to “Maximum allowed length of setting syntax”, Add “Engine commands control”	2010-08-11
V1.2.1	Renew the “Query Syntax 1”	2010-12-02
V1.2.2	Renew the “ Query Command list” and “ Type Number of Code”	2011-08-08
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V1.2.6	Modify the default Max - Min length list, Symbols ID Number , modify the 1d, 2D, OCR Query command description, added query command, added Message Interception, added HID-KBW selection, ASCII Function Key Mapping Table, added 1D Bar Code Selection.	2012-07-11
V1.2.7	Delete China post25 settings, and increase Matrix 25.settings.	2012-07-24
V1.2.8	Modify Settings Syntax	2013-09-02
V1.2.9	Describe the differences in the commands among different types of scan engines.	2013-12-11
V1.3.0	Modified the “Scope of Application” section in Chapter 1 and the “1D Bar Code Selection” and “2D Bar Code Selection” sections in Chapter 7.	2016-11-15

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Chapter 1 Overview

Introduction

The programming commands can be used in place of the setting code. Both the programming commands and the programming barcode will set the device. The complete descriptions and functions of the programming commands refer to the corresponding ***User Manual***.

From the point of application, the customer can understand the communication protocol and the command list quickly, then the customer can control the device through program corresponding application software

The following commands can be sent via a PC COM port using terminal emulation software or the users' application.

Reader

This manual is for the application software development engineers or the engineers who want to understand the device.

Scope of Application

This manual is applicable to the EM2028, EM2037, EM2039, EM2095, EM2096, EM20, EM30-M, EM3000, EM3070, EM3090, EM3096, EM3296 and EM3396 barcode scan engines.

Convention

The following conventions are used for item and query command descriptions:

Name	Descriptions
Prefix	Prefix (or sign) Prefix1: 0x7E 0x00 Prefix2: 0x02 0x00
Lens	Length of the data，2bytes(len0,len1) ,namely,Len0 <<8 + len1 = lens E.g. If Lens=8，then len0= 0x00, len1= 0x08.
Types	Data types, 1byte, Query Syntax types are "0x33", Response types are "0x34"
Data 1	Data, the length is within 32 bytes
LRC	Data checkout value 1 bytes(Computing method: 0xff^lens^types^data)
ASK	Detect device "?"
Reply	The character of the device reply "!"
Other stipulations	After a command is sent out, the interval of time depends on the following two factors: **1. Received the reply information** The natural waiting time of reply should be 500ms, if excess 500ms it can be thought as connect fail or access jam **2. The longest waiting time** The longest waiting time is 500ms.

Chapter 2 Query Syntax

Query Syntax 1

Enter: {prefix1}{lens} {types} {data1} {LRC}

Response: {prefix2}{lens} {types} {data1} {LRC}

NOTE: The prefix 1 of all the Query Syntax 1 are ”0x7E\0X00”, types are ”0x33”, the prefix 2 of all the Response are ”0x02\0X00”, types are ”0x34”, the lens value is the length of data 1+1.

The syntax are used for Query parameters of Communication, Disable or Enable of 1D Bar codes, Disable or Enable of 2D Bar codes, Light and aiming, Self-suffix and self-prefix, Code ID, AIM, suffix of terminal character, Maximum and Minimum length, Prefix order, Reading mode, Sensibility, Delay Time Of Each Reading, No Duplicate Reading, version, ESN, S/N, Date, OCR etc.

E.g.: Query ESN of the device

The syntax structure:

Enter: prefix1 + lens + types (0x33) +data1(0x48+0x30+0x32+0x30 (refer to Chapter6)） + LRC

Response: prefix2 + lens + types (0x34) + data1(0x30+0x32+ Datalength of ESN(2bytes, decimal)＋Data of ESN (refer to Chapter6))+LRC

The input and response:

Input (HEX):

\7E\00\00\05\33\48\30\32\30\B3

Response (HEX):

\02\00\00\12\34\30\32\31\33\53\57\30\35\38\33\38\33\4B\48\2D\35\36\F5

That means:

The ESN of the device is SW058383KH-56.

Query Syntax 2

Input: {ASK}

Response: {Reply}

E.g.: Query the device is in the state of connection or not

The input and response:

Input: ?

Response: !

The result of the Query is only, if the answer is not “!” or there is no answer, that means the communication parameter between the device is not consistent or the device is in the state of reading barcode or sending the information..

Chapter 3 Setting Syntax

Multi-command is allowed, with semicolons following each command.

NOTE: For this setting syntax, the maximum length for batch command is 100 bytes.

Command structure: “nls” or “NLS” + command (+ equal mark + setting information). There are 4 setting syntaxes, which are described as below:

Setting syntax 1: Command

The most command is the one can be set at one time without the command.

E.g.: The command setting the baud rate as 38400 bps: NLS0100060;

The command setting auto barcode reading: NLS0302010;

Setting syntax 2: Command + equal mark + number

This command is used for setting the value of parameter, including the longest and shortest length of the barcode, barcode reading delay setting, same delay time setting, sensitive value setting, barcode reading times setting, non-standard parameter, etc.

E.g.: The command setting the delay of barcode reading as 3000ms: NLS0313000 = 3000;

The command setting the sensitive value as 10: NLS0312040 = 10;

Setting syntax 3: command + equal mark + hex (e.g. 0x101a, 0x2C03)

This command can be used as setting the user-defined prefix, user-defined suffix, ending suffix, Code ID, increase or cancel the barcode length value, information intercepting, etc. NOTE: every two hexes in the command stand for a setting character

E.g.: Append the fixed length 4 of interleaved 2of 5 to 26: NLS0405160 = 0x041a;

Setting the suffix information of the ending as CR/LF: NLS0310000 = 0x0d0a;

Setting syntax 4: command + equal mark+ double quotation marks

If the setting information is viewable character, then this mode of setting is appropriate.

E.g.: The command setting the user-defined prefix information as AUTO-ID: NLS0300000 = “AUTO-ID”;

Chapter 4 Return Value

When receiving a command, the equipment will process it and return a byte of response data.

0x06 indicates success;

0x15 indicates failure.

Chapter 5 Common Functions and Programming Commands

Engine commands control

Analog trigger setting

Send "0x1b, 0x31" to the device through the serial port such as to press analog-trigger buttons. If the device answers "0x06" that setting is successful. The default trigger timeout is 3000ms. Time-out can be changed by "Set Delay Of Reading". (Via serial port to send "nls0313000 = timeout," timeout unit is ms.) **Note that command programming must be first enabled. See the Overall table in Chapter 7 for the corresponding command.**

Trigger stop settings

Send "0x1b, 0x30" to the device through the serial port such as to release the analog-trigger buttons. If the device answers "0x06" that setting is successful and the device will stop reading barcode (The device will wait for hardware triggering or the triggering command).

Automatic reading settings

Device through the serial port to send "0x1b, 0x32" such as to press analog trigger button. If the device answers "0x06" that setting is successful.

Continuous reading settings

Device through the serial port to send "0x1b, 0x33" such as to press analog trigger button, if the device answers "0x06" that setting is successful.

Chapter 6 Query Command List

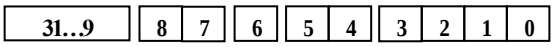
Query syntax 1

Enter: ｛prefix1｝{lens} {types} {data1} {LRC}

Response:｛prefix2｝{lens} {types} {data1} {LRC}

NOTE: The prefix 1 of all the Query Syntax 1 are ”0x7E\0X00”, types are ”0x33”, the prefix 2 of all the Response are ”0x02\0X00”, types are ”0x34”, the lens value is the length of data 1+1.

Query Syntax 1 command list

<table>
<tr><th>Selection</th><th colspan="4">Length and information of the Query command</th></tr>
<tr><td rowspan="11">RS232
Communication</td><td rowspan="2">Query</td><td>Byte</td><td colspan="2">1</td></tr>
<tr><td>Data1</td><td colspan="2">0x30</td></tr>
<tr><td rowspan="9">Response</td><td>Byte</td><td colspan="2">4</td></tr>
<tr><td rowspan="9">Data1</td><td colspan="2">32 Bits
  </td></tr>
<tr><td>Bit 3-0: Baud Rate</td><td>0000: 1200
0001: 2400
0010: 4800
0011: 9600
0100: 14400
0101: 19200
0110: 38400
0111: 57600
1000: 115200
1001…1111: Reserved</td></tr>
<tr><td>Bit 5-4:
check bits</td><td>00: None
01: even
10: odd</td></tr>
<tr><td>Bit 6: Stop bits</td><td>0: 1
1: 2</td></tr>
<tr><td>Bit 8-7: data bits</td><td>00: 5
01: 6
10: 7
11: 8</td></tr>
<tr><td>Bit 31-9:</td><td>Reserved</td></tr>
</table>

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

<table>
<tr><th>Selection</th><th colspan="3">Length and information of the Query command</th></tr>
<tr><td rowspan="4">Disable or Enable of 1D Bar codes</td><td rowspan="2">Query</td><td>Byte</td><td>1</td></tr>
<tr><td>Data1</td><td>0x32</td></tr>
<tr><td rowspan="2">Response</td><td>Byte</td><td>4</td></tr>
<tr><td>Data1</td><td>Value=1 means to enable the barcode type; value=0 means to disable it.
Byte 1:
<table>
<tr><td>Bit0*</td><td>ZASETUP</td></tr>
<tr><td>Bit1*</td><td>SETUP 128</td></tr>
<tr><td>Bit2</td><td>CODE 128</td></tr>
<tr><td>Bit3</td><td>UCC/EAN 128</td></tr>
<tr><td>Bit4</td><td>EAN-8</td></tr>
<tr><td>Bit5</td><td>EAN-13</td></tr>
<tr><td>Bit6</td><td>UPC-E</td></tr>
<tr><td>Bit7</td><td>UPC-A</td></tr>
</table>
Byte 2:
<table>
<tr><td>Bit0</td><td>Interleaved 2 OF 5</td></tr>
<tr><td>Bit1</td><td>ITF-14</td></tr>
<tr><td>Bit2</td><td>ITF-6</td></tr>
<tr><td>Bit3</td><td>MATRIX 25</td></tr>
<tr><td>Bit4</td><td>Reserved</td></tr>
<tr><td>Bit5</td><td>CODE 39</td></tr>
<tr><td>Bit6</td><td>Reserved</td></tr>
<tr><td>Bit7</td><td>CODABAR</td></tr>
</table>
Byte 3:
<table>
<tr><td>Bit0</td><td>Reserved</td></tr>
<tr><td>Bit1</td><td>CODE 93</td></tr>
<tr><td>Bit2</td><td>Reserved</td></tr>
<tr><td>Bit3</td><td>Reserved</td></tr>
<tr><td>Bit4</td><td>Reserved</td></tr>
<tr><td>Bit5</td><td>Reserved</td></tr>
<tr><td>Bit6</td><td>Reserved</td></tr>
<tr><td>Bit7</td><td>Reserved</td></tr>
</table>
Byte 4:
<table>
<tr><td>Bit0</td><td>ISBN</td></tr>
<tr><td>Bit1</td><td>INDUSTRIAL 25</td></tr>
<tr><td>Bit2</td><td>STANDARD 25</td></tr>
<tr><td>Bit3</td><td>PLESSEY</td></tr>
<tr><td>Bit4</td><td>CODE 11</td></tr>
<tr><td>Bit5</td><td>MSI PLESSEY</td></tr>
<tr><td>Bit6</td><td>EAN-UCC Composite</td></tr>
<tr><td>Bit7</td><td>RSS</td></tr>
</table></td></tr>
</table>

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

<table>
<tr><th>Selection</th><th colspan="3">Length and information of the Query command</th></tr>
<tr><td rowspan="4">Disable or Enable of 2D Bar codes</td><td rowspan="2">Query</td><td>Byte</td><td>1</td></tr>
<tr><td>Data1</td><td>0x33</td></tr>
<tr><td rowspan="2">Response</td><td>Byte</td><td>4</td></tr>
<tr><td>Data1</td><td>Value=1 means to enable the barcode type; value=0 means to disable it.
Byte 1:
Bit0 PDF 417
Bit1 QR Code
Bit2* AZTEC
Bit3 Data Matrix
Bit4* Maxicode
Bit5 Reserved
Bit6 Reserved
Bit7* Chinese Sensible Code
Byte 2: Reserved
Byte 3: Reserved
Byte 4: Reserved</td></tr>
</table>

Barcode parameter query

<table>
<tr><th>Selection</th><th colspan="3">Length and information of the Query command</th></tr>
<tr><td rowspan="4">ZASETUP*</td><td rowspan="2">Query</td><td>Byte</td><td>3</td></tr>
<tr><td>Data1</td><td>0x43 + 0x30 + 0x30 (2-3 bytes are Symbols ID Number)</td></tr>
<tr><td rowspan="2">Response</td><td>Byte</td><td>6</td></tr>
<tr><td>Data1</td><td>0x30 + 0x30 + parameter(4bytes) (1-2bytes are Symbols ID Number)
Parameters:
Byte 1: Reserved
Byte 2: Reserved
Byte 3: Reserved
Byte 4:
Bit 0: 0 = Do Not Send Pro Code Value
1 = Send Pro Code Value
Bit 1: 0 = Code Programming ON
1 = Code Programming OFF</td></tr>
<tr><td rowspan="4">Codabar</td><td rowspan="2">Query</td><td>Byte</td><td>3</td></tr>
<tr><td>Data1</td><td>0x43 + 0x31 + 0x35 (2-3 bytes are Symbols ID Number)</td></tr>
<tr><td rowspan="2">Response</td><td>Byte</td><td>6</td></tr>
<tr><td>Data1</td><td>0x31 + 0x35 + parameter(4bytes) (1-2bytes are Symbols ID Number)
Parameters:
Byte 1: Reserved
Byte 2: Reserved
Byte 3:</td></tr>
</table>

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			Bit 0: 0 = Use ABCD/ABCD As Start & Stop Character 1 = Use ABCD/TN*E As Start & Stop Character Bit 1: 0 = Use Upper Letter 1 = Use Lower Letter Byte 4: Bit 1-0: 0 = NO Check 1 = Check, Do not transmit Check Digit 3 = Check, Transmit All Bit 2: 0 = Transmit Neither Start & Stop Character 1 = Transmit Both Start & Stop Character
Matrix25	Query	Byte	3
		Data1	0x43 + 0x31 + 0x31 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x31 + 0x31 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1; Reserved Byte 2; Reserved Byte 3; Reserved Byte 4; Bit 1-0: 0 = NO Check 2 = Check, Do not transmit Check Digit 3 = Check, Transmit All
Code39	Query	Byte	3
		Data1	0x43 + 0x31 + 0x33 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x31 + 0x33+ parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 1-0: 0 = NO Check 1 = Check, Do not transmit Check Digit 3 = Check, Transmit All Bit 2: 0 = Transmit Neither Start & Stop Character 1 = Transmit Both Start & Stop Character Bit 3: 0 = Partial ASCII Decode 1 = Full ASCII Decode
EAN-8	Query	Byte	3
		Data1	0x43 + 0x30 + 0x34 (2-3 bytes are Symbols ID Number)
	Response	Byte	6

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***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

		Data1	0x30 + 0x34 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Bit 0: 0 = Do Not Expand to EAN-13 1 = Expand to EAN-13 Byte 4: Bit 0: 0 = Do not transmit Check Digit 1 = Transmit Check Digit Bit 1: 0 = Disable 2 Digits Addenda Code 1 = Enable 2 Digits Addenda Code Bit 2: 0 = Disable 5 Digits Addenda Code 1 = Enable5 Digits Addenda Code
EAN-13	Query	Byte	3
		Data1	0x43 + 0x30 + 0x35 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x30 + 0x35 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 0: 0 = Do not transmit Check Digit 1 = Transmit Check Digit Bit 1: 0 = Disable 2 Digits Addenda Code 1 = Enable 2 Digits Addenda Code Bit 2: 0 = Disable 5 Digits Addenda Code 1 = Enable5 Digits Addenda Code
UPC-E	Query	Byte	3
		Data1	0x43 + 0x30 + 0x36 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x30 + 0x36 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Bit 0: 0 = Do Not Expand to UPC - A 1 = Expand to UPC - A Byte 4: Bit 0: 0 = Do not transmit Check Digit

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***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			1 = Transmit Check Digit Bit 1: 0 = Disable 2 Digits Addenda Code 1 = Enable 2 Digits Addenda Code Bit 2: 0 = Disable 5 Digits Addenda Code 1 = Enable5 Digits Addenda Code Bit: 3 0 = Do Not Transmit “0”’ 1 = Transmit “0”
UPC-A	Query	Byte	3
		Data1	0x43 + 0x30 + 0x37 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x30 + 0x37 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 0: 0 = Do not transmit Check Digit 1 = Transmit Check Digit Bit 1: 0 = Disable 2 Digits Addenda Code 1 = Enable 2 Digits Addenda Code Bit 2: 0 = Disable 5 Digits Addenda Code 1 = Enable5 Digits Addenda Code Bit 3: 0 = Do Not Transmit “0”’ 1 = Transmit “0”
ITF25 / ITF14 / ITF6	Query	Byte	3
		Data1	0x43 + 0x30 + 0x38 (2-3 bytes are Symbols ID Number)
	Response	Byte	11
		Data1	0x30 + 0x38 + parameter(9bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Bit 0: 0 = Disable Specified Length 1 = Enable Specified Length Byte 4: Bit 1-0: 0 = NO Check 1 = Check, Do not transmit Check Digit 3 = Check, Transmit All Bit 2: 0 = ITF14 Do not transmit Check Digit 1 = ITF14 Transmit Check Digit Bit 3: 0 = ITF6 Do not transmit Check Digit

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
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***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			1 = ITF6 Transmit Check Digit Byte 5: Reserved Byte 6: Bit 0: 0 = Do not read ITF25 which are 2 bytes. 1 = Read ITF25 which are 2 bytes. Bit 1: 0 = Do not read ITF25 which are 4 bytes. 1 = Read ITF25 which are 4 bytes. Bit 2: 0 = Do not read ITF25 which are 6 bytes. 1 = Read ITF25 which are6 bytes. Bit 3: 0 = Do not read ITF25 which are 8 bytes. 1 = Read ITF25 which are 8 bytes. Bit 4: 0 = Do not read ITF25 which are 10 bytes. 1 = Read ITF25 which are 10 bytes. Bit 5: 0 = Do not read ITF25 which are 12 bytes. 1 = Read ITF25 which are 12 bytes. Bit 6: 0 = Do not read ITF25 which are 14 bytes. 1 = Read ITF25 which are 14 bytes. Bit 7: 0 = Do not read ITF25 which are 16 bytes. 1 = Read ITF25 which are 16 bytes Byte 7: Bit 0: 0 = Do not read ITF25 which are 18 bytes. 1 = Read ITF25 which are 18 bytes Bit 1: 0 = Do not read ITF25 which are 20 bytes. 1 = Read ITF25 which are 20 bytes Bit 2: 0 = Do not read ITF25 which are 22 bytes. 1 = Read ITF25 which are 22 bytes Bit 3: 0 = Do not read ITF25 which are 24 bytes. 1 = Read ITF25 which are 24 bytes Bit4: 0 = Do not read ITF25 which are 26 bytes. 1 = Read ITF25 which are 26 bytes 6 Bit 5: 0 = Do not read ITF25 which are 28 bytes. 1 = Read ITF25 which are 28 bytes Bit 6: 0 = Do not read ITF25 which are 30 bytes. 1 = Read ITF25 which are 30 bytes Bit 7: 0 = Do not read ITF25 which are 32 bytes. 1 = Read ITF25 which are 32 bytes Byte 8: Bit 0: 0 = Do not read ITF25 which are 34 bytes. 1 = Read ITF25 which are 34 bytes Bit 1: 0 = Do not read ITF25 which are 36 bytes.

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****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			1 = Read ITF25 which are 36 bytes Bit 2: 0 = Do not read ITF25 which are 38 bytes. 1 = Read ITF25 which are 38 bytes Bit 3: 0 = Do not read ITF25 which are 40 bytes. 1 = Read ITF25 which are 40 bytes Bit 4: 0 = Do not read ITF25 which are 42 bytes. 1 = Read ITF25 which are 42 bytes Bit 5: 0 = Do not read ITF25 which are 44 bytes. 1 = Read ITF25 which are 44 bytes Bit 6: 0 = Do not read ITF25 which are 46 bytes. 1 = Read ITF25 which are 46 bytes Bit 7: 0 = Do not read ITF25 which are 48 bytes. 1 = Read ITF25 which are 48 bytes Byte 9: Bit 0: 0 = Do not read ITF25 which are 50 bytes. 1 = Read ITF25 which are 50 bytes Bit 1: 0 = Do not read ITF25 which are 52 bytes. 1 = Read ITF25 which are 52 bytes Bit 2: 0 = Do not read ITF25 which are 54 bytes. 1 = Read ITF25 which are 54 bytes Bit 3: 0 = Do not read ITF25 which are 56 bytes. 1 = Read ITF25 which are 56 bytes Bit 4: 0 = Do not read ITF25 which are 58 bytes. 1 = Read ITF25 which are 58 bytes Bit 5: 0 = Do not read ITF25 which are 60 bytes. 1 = Read ITF25 which are 60 bytes Bit 6: 0 = Do not read ITF25 which are 62 bytes. 1 = Read ITF25 which are 62 bytes Bit 7: 0 = Do not read ITF25 which are 64 bytes. 1 = Read ITF25 which are 64 bytes
Code93	Query	Byte	3
		Data1	0x43 + 0x31 + 0x37 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x31 + 0x37 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 1-0: 0 = NO Check

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****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			1 = Check, Do not transmit Check Digit 3 = Check, Transmit All
ISBN	Query	Byte	3
		Data1	0x43 + 0x32 + 0x34 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x32+ 0x34+ parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 0: 0 = Transmit 13 digits 1 = Transmit 10 digits
INDUSTRIAL25	Query	Byte	3
		Data1	0x43 + 0x32 + 0x35 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x32 + 0x35 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 1-0: 0 = NO Check 1 = Check, Do not transmit Check Digit 3 = Check, Transmit All
STANDARD25	Query	Byte	3
		Data1	0x43 + 0x32 + 0x36 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x32 + 0x36 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 1-0: 0 = NO Check 1 = Check, Do not transmit Check Digit 3 = Check, Transmit All
PLESSEY	Query	Byte	3
		Data1	0x43 + 0x32 + 0x37 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x32 + 0x37+ parameter(4bytes) (1-2bytes are Symbols ID Number)

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 1-0: 0 = NO Check 1 = Check, Do not transmit Check Digit 3 = Check, Transmit All
MSI_PLESSEY	Query	Byte	3
		Data1	0x43 + 0x32 + 0x39 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x32 + 0x39 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 1-0: 0 = NO Check 1 = Single Check Digit，MOD10 2 = Double Check Digits，MOD10/MOD10 3 = Double Check Digits，MOD10/MOD11 Bit 2: 0 = NO Transmit Check Digits 1 = Transmit Check Digits
COMPOSITE	Query	Byte	3
		Data1	0x43 + 0x33 + 0x30 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x33 + 0x30 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 0: 0 = Disable UPC/EAN 1 = Enable UPC/EAN
RSS (GS1 Databar)	Query	Byte	3
		Data1	0x43 + 0x33 + 0x31 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x33 + 0x31 + parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			Byte 3: Reserved Byte 4: Bit 0: 0 = Do not Transmit AI (01) Character 1 = Transmit AI(01) Character
CODE11	Query	Byte	3
		Data1	0x43 + 0x32 + 0x38 (2-3 bytes are Symbols ID Number)
	Response	Byte	6
		Data1	0x32 + 0x38+ Parameter(4bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Reserved Byte 2: Reserved Byte 3: Reserved Byte 4: Bit 2-0: 0 = NO Check 1 = Single Check Digit，MOD11 2 = Double Check Digits, MOD11/MOD11 3 = Double Check Digits, MOD11/MOD9 4 = Single Check Digit MOD11(Len <= 10) Double Check Digits MOD11/MOD11 (Len > 10) 5 = Single Check Digit MOD11(Len <= 10),Double Check Digits MOD11/MOD9 (Len > 10) Bit 3: 0 = Do not transmit Check Digit 1 = Transmit Check Digit
PDF417	Query	Byte	3
		Data1	0x43 + 0x33 + 0x32 (2-3 bytes are Symbols ID Number)
	Response	Byte	5
		Data1	0x33 + 0x32 + Parameter(3bytes) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Bit 1-0: 0 = Single PDF417 Only 1 = Twin PDF417 Only 2 = Both Single & Twin Byte 2: Bit 1-0: 0 = Forward Direction Barcode Only 1 = Backward Direction Barcode Only 2 = Both Forward & Backward Byte 3: Bit 0: 0 = Decode Mirror Images Off 1 = Decode Mirror Images On
QR	Query	Byte	3
		Data1	0x43 + 0x33 + 0x33 (2-3 bytes are Symbols ID Number)

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****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	Response	Byte	3
		Data1	0x33 + 0x33 + Parameter(1byte) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Bit 1-0: 0 = Single QR Only 1 = Twin QR Only 2 = Both Single & Twin
Aztec*	Query	Byte	3
		Data1	0x43 + 0x33 + 0x34 (2-3 bytes are Symbols ID Number)
	Response	Byte	4
		Data1	0x33 + 0x34+ Parameter(2byte) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Bit 1-0: 0 = Mode 1, Read one barcode only. 1 = Mode 2, Read fixed number of barcodes only. 2 = Mode 3, Composite Reading. Read fixed number of barcodes first, if failed, read one barcode only. Byte 2: Bit 2-0: 0 = The number of Multi-barcodes is 1 1 = The number of Multi-barcodes is 2 2 = The number of Multi-barcodes is 3 3 = The number of Multi-barcodes is 4 4 = The number of Multi-barcodes is 5 5 = The number of Multi-barcodes is 6 6 = The number of Multi-barcodes is 7 7 = The number of Multi-barcodes is 8
Data Matrix	Query	Byte	3
		Data1	0x43 + 0x33 + 0x35 (2-3 bytes are Symbols ID Number)
	Response	Byte	8
		Data1	0x33 + 0x35 + Parameter(6byte) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Bit 1-0: 0 = Single QR Only 1 = Twin QR Only 2 = Both Single & Twin Byte 2: Bit 1-0: 0 = Forward Direction Barcode Only 1 = Backward Direction Barcode Only 2 = Both Forward & Backward Byte 3: Bit 0: 0 = Decode Mirror Images Off

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			1 = Decode Mirror Images On Byte 4: Reserved Byte 5: Bit 0: 0 = Enable Rectangular Symbols 1 = Disable Rectangular Symbols Byte 6: Bit 0: 0 = Does not add the code word behind PAD 1 = Add the code word behind PAD
Chinese Sensible Code***	Query	Byte	3 bytes
		Data1	0x43 + 0x33 + 0x39 (2-3 bytes are Symbols ID Number)
	Response	Byte	4 bytes
		Data1	0x33 + 0x39+ Parameter(4byte) (1-2bytes are Symbols ID Number) Parameters: Byte 1: Bit 1-0: 0 = Single QR Only 1 = Twin QR Only 2 = Both Single & Twin Byte 2: Bit 1-0: 0 = Forward Direction Barcode Only 1 = Backward Direction Barcode Only 2 = Both Forward & Backward

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Selection	Length and information of the Query command		
1D Barcode twin code query*	Query	Byte	3 bytes
		Data1	0x48 + 0x30 + 0x31
	Response	Byte	3bytes
		Data1	Byte1: 0x30 Byte2: 0x31 Byte3: 0x30 - Only read single 1D bar code 0x31 - Read single and double 1D bar codes (the same type) 0x32 - Only read double 1D bar codes(the same type)
Power ON, Send Product Info	Query	Byte	3 byte
		Data1	0x48 + 0x30 + 0x30
	Response	Byte	4 bytes
		Data1	Byte1: 0x30 Byte2: 0x30 Byte3: 0x30 - Power ON, Do not Send Product Info 0x31 - Power ON, Send Product Info byte4: Reserved
Decode Mirror Images	Query	Byte	1 byte
		Data1	0x4E
	Response	Byte	1 bytes
		Data1	0x30 - Decode Mirror Images Off 0x33 - Decode Mirror Images On
Beep	Query	Byte	1 byte
		Data1	0x4F
	Response	Byte	3 bytes
		Data1	Byte1: Bit 0: 0 - Decoding Beep Off 1 - Decoding Beep On Bit 1: 0 - Power On Beep Off 1 - Power On Beep On Byte2: 0x30 - Type 1 0x31 - Type 2 0x32 - Type 3 Byte3: 0x30 - Loud 0x31 - Medium 0x32 - Low
Message Pack	Query	Byte	3 bytes
		Data1	0x46 + 0x30 + 0x30
	Response	Byte	4 bytes
		Data1	Byte1: 0x30 Byte2: 0x30 Byte3: 0x30 Byte4: 0x30 - Disable Pack 0x31 - Normal Pack

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Exposure Imaging Mode	Query	Byte	4 bytes
		Data1	0x44+0x30+0x36+0x30
	Response	Byte	3 bytes
		Data1	Byte1: 0x30 Byte2: 0x36 Byte3: 0x30 - Normal Exposure Mode 0x31 - Reflections Eliminating Mode
Scan Scope	Query	Byte	4 bytes
		Data1	0x44+0x30+0x37+0x30
	Response	Byte	6 bytes
		Data1	Byte1: 0x30 Byte2: 0x37 Byte3: 0x30 - Region-wide decoding (Disable central region decoding) 0x31 - Enable the central region decoding Byte4 - Byte6: Central region of size (the value is the percentage of the width and height, range : 1 - 100)
Message Interception	Query	Byte	1 byte
		Data1	0x50
	Response	Byte	61 bytes
		Data1	Byte1 : 0x30 - Disable Interception 0x31 - Enable Interception + Message Interception configuration (3 * 20bytes Three groups of different types of barcodes, each 20bytes) Message Interception configuration: Symbols ID Number (1byte: 0 - 64) + The number of units intercepted (1byte: 0 – 5. The Symbol which ID Number is 32 – 63, Maximum intercept 3 barcode message sections;0 means the type of bar code without interception unit, Subsequent18bytes data is invalid; 1 means the barcode have a interception unit) + data interception unit parameters (The Symbol which ID Number is 32 – 63, Each interception unit parameter is 5 bytes, other Symbol Each interception unit parameter is 3 bytes) Data interception unit parameters: intercepting direction (1byte: 0 Ascending，1 Descending) + start unit (The Symbol which ID Number is 32 – 63 have2 bytes, Value=byte1 *100 + byte2, range:1 – 9999; other Symbols only 1 byte, range:1 – 127) + stop unit

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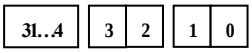
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			(The Symbol which ID Number is 32 – 63 have2 bytes, Value=byte1 *100 + byte2, range:1 – 9999;other Symbols only 1 byte, range:1 – 127)
USB HID-KBW Communication	Query	Byte	1 byte
		Data1	0x51
	Response	Byte	8 bytes
		Data1	Byte1: USB Country Keyboard Types (Range 0 – 28) Byte2: 0x30 No Beep, Unknown Character 0x31 Beep, Unknown Character Byte3: 0x30 No Emulate ALT + keypad 0x31 Emulate ALT + keypad Byte4: 0x30 No Function Key Mapping 0x31 Function Key Mapping Byte5: 0x30 No Delay 0x31 Short Delay(20ms) 0x32 Long Delay(40ms) Byte6: 0x30 Disable Caps Lock 0x31 Enable Caps Lock Byte7: 0x30 No Case Conversion 0x31 Convert All to Upper Case 0x32 Convert All to Lower Case Byte8: 0x30 Disable Emulate Numeric Keypad 0x31 Emulate Numeric Keypad
Light and aiming	Query	Byte	1
		Data1	0x35
	Response	Byte	4
		Data1	32 Bits 
			Bit 1-0: Aiming mode — 00: general aiming mode, the aiming lights when the scan trigger is pressed 01: LED Always On 10: LED Always Off 11: reserved
			Bit 3-2: Light mode — 00: general light mode, only light when read the CMOS data 01: LED Always On 10: LED Always Off 11: reserved
			Bit 31-4: — Reserved
Self-suffix and self-prefix	Query	Byte	1
		Data1	0x37
	Response	Byte	4 byte +prefix data length + suffix data length
		Data1	Prefix enable or disable(1byte:0x30 or 0x31，0x30: disable，0x311: enable)

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****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

			+prefix length（1byte）+prefix data +suffix enable or disable（1byte:0x30 or 0x31，0x30: disable，0x311: enable） +suffix length（1byte）+suffix data
Code ID	Query	Byte	3
		Data1	Byte1: 0x38 Byte2-3: Query barcode type serial number refer to the attach table-Type number of Code
	Response	Byte	4
		Data1	enable or disable（1byte:0x30 or 0x31，0x30: disable，0x311: enable） + barcode type number（2bytes）+ Code ID（1byte）
AIM	Query	Byte	1
		Data1	0x39
	Response	Byte	1
		Data1	0x30: Disable 0x31: One character mode（c） 0x32: Two character mode（cm） 0x33: Full mode（]cm）
suffix of terminal character	Query	Byte	1
		Data1	0x40
	Response	Byte	2byte ＋length of terminal character suffix
		Data1	Enable or disable（1byte:0x30 or 0x31，0x30: disable，0x311: enable） + length of terminal character suffix（1byte） + terminal character suffix
Maximum and Minimum length	Query	Byte	3
		Data1	Byte1: 0x41 Byte2-3: Query barcode type serial number refer to the attach table: Type number of Code
	Response	Byte	10
		Data1	Barcode type number（2bytes） + maximal barcode length （4bytes） + minimal barcode length（4bytes）
Prefix order	Query	Byte	1
		Data1	0x42
	Response	Byte	1
		Data1	0x30: Code ID +AIM +Self-prefix 0x31: Code ID+ Self-prefix +AIM 0x32: AIM + Code ID+ Self-prefix 0x33: AIM +Self-prefix+ Code ID 0x34: Self-prefix +Code ID+AIM 0x35: Self-prefix +AIM +Code ID

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****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Reading mode	Query	Byte	4
		Data1	0x44+0x30+0x30+0x 30
	Response	Byte	3
		Data1	0x30+0x30+0x30: Trigger 0x30+0x30+0x31: Auto Scan 0x30+0x30+0x32: Continue Scan
Sensibility	Query	Byte	4
		Data1	0x44+0x30+0x32+0x30
	Response	Byte	5
		Data1	0x30+0x32+0x31+ Sensibility value（2bytes）
Delay Time Of Each Reading	Query	Byte	4
		Data1	0x44+0x30+0x33+0x30
	Response	Byte	11
		Data1	0x30+0x33+0x30+ 0x30 +delay value（7bytes:0~3600000）
No Duplicate Reading	Query	Byte	4
		Data1	0x44+0x30+0x33+0x31
	Response	Byte	14
		Data1	0x30+0x33+0x31 +completely delay or no（1byte:0x30 or 0x31，0x30: disable，0x311: enable） + delay value（7bytes:0~3600000）
version	Query	Byte	1
		Data1	0x47
	Response	Byte	160
		Data1	Translate the hex number to visible characters, you will get the version information
ESN	Query	Byte	4
		Data1	0x48+0x30+0x32+0x30
	Response	Byte	4byte + length of ESN
		Data1	0x30+0x32+ length of ESN（2bytes）＋ESN
S/N	Query	Byte	4
		Data1	0x48+0x30+0x33+0x30
	Response	Byte	4byte + length of S/N
		Data1	0x30+0x33+ length of S/N（2bytes）＋S/N
Date	Query	Byte	4
		Data1	0x48+0x30+0x34+0x30
	Response	Byte	4byte + length of Date
		Data1	0x30+0x34+ length of Date（2bytes）＋Date
OCR*	Query	Byte	1

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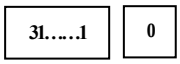
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

		Data1	0x49
	Response	Byte	4
		Data1	32 Bits  Bit0: 1: Enable SPEC_OCR_B 0: Disable PEC_OCR_B Bit31-1: Reserved

NOTE: If other Query command parameter is required, please contact us.

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Chapter 7 Programming Command List

NOTE: For the detailed description of all programming commands, please refer to the scan engine's user guide or integration guide. Before setting a parameter, you need to send the command nls0006010; to enable command programming.

Overall

Selection	Command	Function	Remark
Overall	0001000	Default all commands	For EM2039/EM3070/EM2096, another command is not allowed to be sent to the engine within 50ms after this command is sent.
	0001010	Disable all bar codes	
	0001020	Enable all bar codes	
	0001030	Disable all 1D bar codes	
	0001040	Enable all 1D bar codes	
	0001050	Disable all 2D bar codes	
	0001060	Enable all 2D bar codes	
	0001110*	Allow Read Batch Code	
	0001130	Allow set the product ESN	
	0001150	Save as User Default	
	0001160	Load User Default	
Double-1D*	0001070	Only read single 1D bar code	
	0001080	Read single and double 1D bar codes(the same type)	
	0001090	Only read double 1D bar codes (the same type)	
Send setting code information	0002000	Don't transmit	default
	0002010	Transmit	
Send system information	0003000	Send related information of system	
Enable/disable command programming	0006000	Disable	default
	0006010	Enable	
Display information when power on	0007000	Don't display	default
	0007010	Display	

Communication Selection

Selection	Command	Setting	Remark
Communication port selection	1100000	RS232	Default
	1100010	USB-DataPipe	
	1100020	HID-KBW	
	1100060	USB COM Port Emulation	
RS232 parameter	0100000	Baud Rate : 1200 bps	

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***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	0100010	Baud Rate : 2400 bps	
	0100020	Baud Rate : 4800 bps	
	0100030	Baud Rate : 9600 bps	Default
	0100040	Baud Rate : 14400 bps	
	0100050	Baud Rate : 19200 bps	
	0100060	Baud Rate : 38400 bps	
	0100070	Baud Rate : 57600 bps	
	0100080	Baud Rate : 115200 bps	
RS232	0101000	Verify code: no verify	Default
	0101010	Verify code: even verify	
	0101020	Verify code: odd verify	
	0102000	Stop code: one stop	Default
	0102010	Stop code: two stops	
	0103000	Data code: 5 digits	
	0103010	Data code: 6 digits	
	0103020	Data code: 7 digits	
	0103030	Data code: 8 digits	Default
HID-KBW	1103000*	Set keyboard for languages	See the **USB Country Keyboard Types** table in Chapter 8.
	1103001**	Set USB Country Keyboard to US	Default
	1103002**	Set USB Country Keyboard to Japan	
	1103003**	Set USB Country Keyboard to Denmark	
	1103004**	Set USB Country Keyboard to Finland	
	1103005**	Set USB Country Keyboard to France	
	1103006**	Set USB Country Keyboard to Turkey_F	
	1103007**	Set USB Country Keyboard to Italy	
	1103008**	Set USB Country Keyboard to Norway	
	1103222**	Set USB Country Keyboard to Spain	
	1103226**	Set USB Country Keyboard to Turkey_Q	
	1103227**	Set USB Country Keyboard to UK	
	1103209**	Set USB Country Keyboard to Austria, Germany	
	1103202**	Set USB Country Keyboard to Belgium	
	1103220**	Set USB Country Keyboard to Russia	
	1103223**	Set USB Country Keyboard to Sweden	
	1103218**	Set USB Country Keyboard to Portugal	
	1103160	Fast Mode Off	Default
	1103161	Fast Mode On	
	1103170	Set the USB poll rate to 1ms	
	1103171	Set the USB poll rate to 2ms	
	1103172	Set the USB poll rate to 3ms	
	1103173	Set the USB poll rate to 4ms	
	1103174	Set the USB poll rate to 5ms	
	1103175	Set the USB poll rate to 6ms	
	1103176	Set the USB poll rate to 7ms	
	1103177	Set the USB poll rate to 8ms	

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***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	1103178	Set the USB poll rate to 9ms	
	1103179	Set the USB poll rate to 10ms	
	1103010	Caps Lock off	Default
	1103020	Caps Lock on	
	1103030	Unknown Characters Beep off	Default
	1103031	Unknown Characters Beep on	
	1103040	No Case Conversion	Default
	1103041	Convert All to Upper Case	
	1103042	Convert All to Lower Case	
	1103050	Disable USB Keystroke Delay	Default
	1103051	USB Keystroke Delay for 20ms	
	1103052	USB Keystroke Delay for 40ms	
	1103060	Disable Keypad Emulation	Default
	1103061	Enable Keypad Emulation	
	1103110	Numeric Keypad off	Default
	1103120	Numeric Keypad on	
	1103130	Ctrl+ASCII Mode off	Default
	1103140	Ctrl+ASCII Mode on	

Hardware Setting

Selection	Command	Setting	Remark
Light	0200000	LED Flash When Scan	Default
	0200010	LED Always On	
	0200020	LED Always Off	
	0200030*	LED On When Scan	
Aiming	0201000	LED Flash When Scan	Default
	0201010	LED Always On	
	0201020	LED Always Off	
	0201030*	Sense mode	
Good Read Beep	0203000	Disable	
	0203010	Enable	Default
Decode Mirror Images	0202000	Decode Mirror Images Off	Default
	0202030	Decode Mirror Images On	

Prefix/Suffix

AIM ID set rules: AIM ID is not customizable. AIM Prefix Format: “]” + AIM prefix + “0”.For example, the AIM ID of Code 128 is ”]C0”.

Code ID set rules: The Code ID prefix MUST be one or two visible English letters. Set each character in sequence of hex values.

User prefix /Suffix set rules: Set each character in sequence of hex value.

NOTE: The maximum length for user prefix /suffix is 10 bytes.

Terminal set rules: Set each character in sequence of hex value.

NOTE: The maximum length for terminal is 2 bytes Code ID.

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

See example below.

nls0004130=0x70;(Modify code39Code ID to be “p”)

nls0004130=0x7064; (Modify code39Code ID to be “pd”)

nls0004130=”p”; (Modify code39Code ID to be “p”)

nls0004130=”pd”; (Modify code39Code ID to be “pd”)

Selection	Command	Setting	Example	Remark
All Prefix or Suffix Enable Selection	0311000	Disable All Prefix And Suffix		Default
	0311010	Enable All Prefix And Suffix		
Prefix sequence	0317000*	Code ID+AIM+ Self-Prefix		Default (EM3000)
	0317010	Code ID+ Self-Prefix +AIM		Default
	0317020*	AIM+Code ID+ Self-Prefix		
	0317030*	AIM+ Self-Prefix +Code ID		
	0317040	Self-Prefix +CodeID+AIM		Default (EM2039/ EM3070/ EM2096)
	0317050*	Self-Prefix +AIM+Code ID		
Self-Prefix selection	0305000	Disable Self-Prefix		Default
	0305010	Enable Self-Prefix		
	0300000	Set Message Of Self-Prefix	NLS0300000=”123456”; or NLS0300000=0x313233343536;	≤10 bytes
Self-Suffix selection	0306000	Disable Self-Suffix		Default
	0306010	Enable Self-Suffix		
	0301000	Set Message Of Self-Suffix		≤10 bytes
AIM	0308000	Don't Add AIM-Prefix To Decoding Result		Default
	0308010	Add 1 AIM-Prefix Character To Decoding Result		
	0308020	Add 2 AIM-Prefix Characters To Decoding Result		
	0308030	Add all AIM-Prefix Characters To Decoding Result		
CodeID	0307000	Disable Code ID		Default
	0307010	Enable Code ID		
	0307020	All Bar code use default Code ID		
1D Code ID	0004020	Code 128	NLS0004020=”Y”; or NLS0004020=0x59;	
	0004030	UCC/EAN-128		
	0004040	EAN-8		
	0004210**	AIM-128		
	0004050	EAN-13		
	0004240	ISBN		
	0004230	ISSN		
	0004060	UPC-E		
	0004070	UPC-A		
	0004080	Interleaved 2 of 5		
	0004100	ITF-6		
	0004090	ITF-14		

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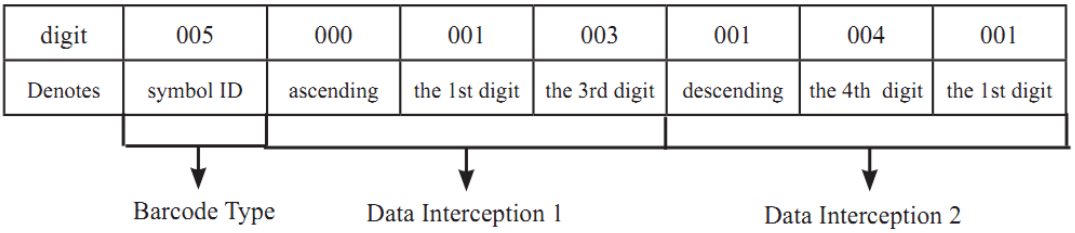
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	0004250	Industrial 25		
	0004260	Standard 25		
	0004110	Matrix 25		
	0004130	Code39		
	0004150	Coda bar		
	0004280	Code 11		
	0004300*	EAN•UCC Composite		
	0004310	GS1 Data bar		
	0004270	Plessey		
	0004290	MSI-Plessey		
	0004170	Code93		
2D Code ID	0005000	PDF417		
	0005010	QR Code		
	0005020*	Aztec		
	0005030	Data Matrix		
	0005040*	Maxi code		
	0005070***	Chinese Sensible Code		
Data Packed Selection	0314000	Set Data Unpacked		Default
	0314010	Set Data Packed		
Intercept message	0315000	Disable		Default
	0315010	Enable		
	0316000	Set Intercept message Mode		
Terminator Selection	0309000	Disable Terminator		Default
	0309010	Enable Terminator		
	0310000	Set Message Of Terminator	NLS0310000=0x0D0A;	

Message Interception *

Selection	Command	Setting	Example	Remark
Message Interception	0315000	Disable Interception		Default
	0315010	Enable Interception		
	0316000	Program Intercept Option		
	0316010	Erase Certain Barcode Interception Options	nls0316010=”05”;	
	0316020	Erase Latest Interception Options		
	0316030	Erase All Interception Options		

Programming 1D Intercept Option:



nls0316000=0x05000103010401; (Each unit of data in the figure indicated by two hex)

0x 05 (Symbols ID Number)

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

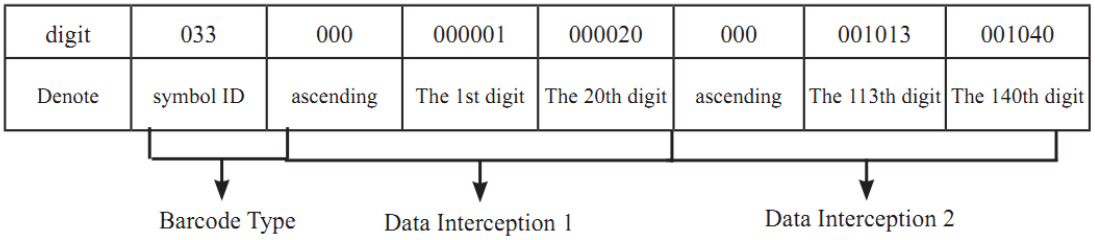
0x 00 Ascending 01 03 from 1st digit to 3rd Ascending

0x 01 Descending 04 01 from reciprocal 4th to reciprocal 1st

NOTE:

1. Maximum sections of bar code message interception are 5.
2. Maximum value is 127 for both start digital and end digital
3. Overlaps of barcode message sections are allowed and work independently.
4. Start unit and end unit determine its message section. In the above example, descending
5. “004” and “001” means the section of “last 4th”, “last 3rd”, “last 2nd”, and “last one” digits.
6. To intercept only one digit, program start unit and end unit to be the same value.

Programming 2D Intercept Option:



nls0316000=0x210000010014000A0D0A28; (Each unit of data in the figure indicated by two hex)

0x21(33) (Symbols ID Number)

0x00 Ascending 00 01 00 14 from 1st digit to 20th ascending

0x00 Ascending 0A 0D 0A 28 from 113th digit to 140th ascending

NOTE:

1. Maximum intercept 3 barcode message sections
2. Maximum value is 9999 for start digital and end digital
3. Overlaps of barcode message sections are allowed and work independently.
4. Start unit and end unit determine its message section. In the above example, ascending “000001” and “000020” means the first 20 digits.
5. To intercept only one digit, program start unit and end unit to be the same value.

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Decode Mode

Selection	Command	Setting	Example	Remark
Reading mode	0302000	Trigger		For the default setting, see the User Guide of the scan engine.
	0302010	Auto Scan		
	0302020	Continue Scan		
	0302030	Once continue auto scan		
	0302003	Batch scan		
Sensibility Selection	0312000	Low		
	0312010	Normal		
	0312020	High		
	0312030	Higher		
	0312040	Set value of sensitivity	NLS0312040=5;	Default 4, max 50
Delay Selection	0313000	Set Delay Of Reading	NLS0313000=3000;	Default value 3000ms
	0313010	Set No Duplicate Reading time	NLS0313010=1000;	Default value 1500ms
	0313020	incompletely delay		Default
	0313030	completely delay		
Vibration motor control	1216000	Turn off		Default
	1216010	Turn on		
	1216020	Set time of vibration		0~20000(ms)

List of Default Maximum and Minimum Length

The device accept the minimum and maximum length value is a string , valid input value of '0 ' to '9 ' , but the first string can not be '0 ' , if the first string is '0 ' , the device may be unknown behavior , user require special attention .

When received a set command, the equipment would process it and returned a byte of response data.

0x06 expressed successfully set; 0x15 expressed failure

Symbol	Min Message Length	Max Message Length
Code 128	1	48
Interleaved 2 of 5	6	80
Matrix 2 of 5	4	80
Code 39	1	48
Codabar	2	60
Code 93	1	48
Code 11	4	48
Industrial 25	6	48

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Standard 25	6	48
Plessey	4	48
MSI-Plessey	4	48
PDF417	1	2710
QR Code	1	7089
Aztec	1	3832
Data Matrix	1	3116
Maxi code	1	150
Chinese Sensible Code	1	7827

NOTE:

1. 1D bar code Message Length should not exceed 127 bytes. If Max Message Length is less than Min Message Length, it means the engine will only support barcodes of the two lengths. If Max Message Length is equal to Min Message Length, the engine will only support barcodes of the length.
2. 2D bar code Message Length should not exceed 65535 bytes. Max Message Length should not be less than Min Message Length. To read a fixed length PDF417, Please program Max & Min Message Length to the same value.1D bar code selection.

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

1D Bar Code Selection

Selection	Command	Setting	Example	Remark
CODE128	0400000	Set Code128 All Default		Default
	0400010	Disable		
	0400020	Enable		Default
	0400030	Set The Minimum Message Length Value Of Code128	NLS0400030=1;	Default value 1
	0400040	Set The Maximum Message Length Value Of Code128	NLS0400040=48;	Default value 48
	0400050	Don't Read UCC-EAN		Default
	0400060	Read UCC-EAN And FNC1 Is In The First Place After Start		
	0400070	Read UCC-EAN And FNC1 Is In The Second Place After Start		
	0400080	Don't Read Bar Code Which Has FNC2		Default
	0400090	Read Bar Code That FNC2 Is After The First Character Of Start		
	0400100	Read Bar Code That FNC2 Is After The Second Character Of Start		
	0400110	Read UCC-EAN And FNC3 Is In The First Place After Start		
	0400120	Read UCC-EAN And FNC3 Is In The First Place After Start		
	0400130	Read UCC-EAN And FNC4 Is In The First Place After Start		
	0400140	Read UCC-EAN And FNC4 Is In The First Place After Start		
GS1-128 (UCC/EAN-128)	0412000	Set AIM-128 All Default		
	0412010	Disable		
	0412020	Enable		Default
	0412030	Set the Minimum Length		Default value 1
	0412040	Set the Maximum Length		Default value 127
AIM-128 **	0423000	Set AIM-128 All Default		
	0423010	Disable		
	0423020	Enable		Default

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	0423030	Set the Minimum Length		Default value 1
	0423040	Set the Maximum Length		Default value 127
EAN-8	0401000	Set EAN-8 All Default		Default
	0401010	Disable		
	0401020	Enable		Default
	0401030	Don't Transmit Check Character		
	0401040	Transmit Check Character		Default
	0401050	Disable 2 bits expand Characters		Default
	0401060	Enable 2 bits expand Characters		
	0401070	Disable 5 bits expand Characters		Default
	0401080	Enable 5 bits expand Characters		
	0401090	Don't Expand To EAN-13		Default
	0401100	Expand To EAN-13		
EAN-13	0402000	Set EAN-13 All Default		Default
	0402010	Disable		
	0402020	Enable		Default
	0402030	Don't Transmit Check Character		
	0402040	Transmit Check Character		Default
	0402050	Disable 2 bits expand Characters		Default
	0402060	Enable 2 bits expand Characters		
	0402070	Disable 5 bits expand Characters		Default
	0402080	Enable 5 bits expand Characters		
ISBN	0416000	Set ISBN All Default		Default
	0416010	Disable		Default
	0416020	Enable		
	0416030	Transmit 13 digits		Default
	0416040	Transmit 10 digits		
ISSN	0421000	Set ISSN Factory Default		
	0421020	Enable ISSN		
	0421010	Disable ISSN		Default
UPC-E	0403000	Set UPC-E All Default		Default
	0403010	Disable		
	0403020	Enable		Default
	0403030	Don't Transmit Check Character		
	0403040	Transmit Check Character		Default
	0403050	Disable 2 bits expand Characters		Default
	0403060	Enable 2 bits expand Characters		
	0403070	Disable 5 bits expand Characters		Default
	0403080	Enable 5 bits expand Characters		
	0403090	Don't Transmit Precursor '0'		Default
	0403100	Transmit Precursor '0'		
	0403110	Don't Expand To UPC-A		Default
	0403120	Expand To UPC-A		
UPC-A	0404000	Set UPC-A All Default		Default
	0404010	Disable		

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	0404020	Enable		Default
	0404030	Don't Transmit Check Character		
	0404040	Transmit Check Character		Default
	0404050	Disable 2 bits expand Characters		Default
	0404060	Enable 2 bits expand Characters		
	0404070	Disable 5 bits expand Characters		Default
	0404080	Enable 5 bits expand Characters		
	0404090	Don't Transmit Precursor '0'		Default
	0404100	Transmit Precursor '0'		
Interleaved 2 of 5	0405000	Set Interleaved 2 Of 5 All Default		Default
	0405010	Disable		
	0405020	Enable		Default
	0405030	Set The Minimum Message Length Value Of Interleaved 2 Of 5	NLS0405030=4;	Default value 4
	0405040	Set The Maximum Message Length Value Of Interleaved 2 Of 5	NLS0405040=80;	Default value 80
	0405050	No Check Digit		Default
	0405060	Set Check Digit Validate, But Don't Transmit		
	0405070	Set Check Digit Validate And Transmit		
	0405080	Set ITF14 Disable		Default
	0405090	Set ITF14 Enable, But Don't Transmit Check Digit		
	0405100	Set ITF14 Enable And Transmit Check Digit		
	0405110	Set ITF6 Disable		Default
	0405120	Set ITF6 Enable, But Don't Transmit Check Digit		
	0405130	Set ITF6 Enable And Transmit Check Digit		
	0405140	Set Interleaved 2 Of 5 Fixed Message Length Disable		Default
	0405150	Set Interleaved 2 Of 5 Fixed Message Length Enable		
	0405160	Set Interleaved 2 Of 5 Fixed Message Length Value	NLS0405160=0x0c; NLS0405160=0x040e;	
	0405170	Disable Fixed Message Length Value (range)	NLS0405170=0x0c; NLS0405170=0x040e;	
Matrix 25	0406000	Set China Post 25 All Default		Default
	0406010	Disable		Default
	0406020	Enable		
	0406030	Set The Minimum Message Length Value Of China Post 25	NLS0406030=4;	Default value 4
	0406040	Set The Maximum Message Length Value Of China Post 25	NLS0406040=80;	Default value 80
	0406050	No Check Digit		Default
	0406060	Set Check Digit Validate, But Don't Transmit		
	0406070	Set Check Digit Validate And Transmit		

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Code 39	0408000	Set Code39 All Default		Default
	0408010	Disable		
	0408020	Enable		Default
	0408030	Set The Minimum Message Length Value Of Code39	NLS0408030=1;	Default value 1
	0408040	Set The Maximum Message Length Value Of Code39	NLS0408040=48;	Default value 48
	0408050	No Check Digit		Default
	0408060	Set Check Digit Validate, But Don't Transmit		
	0408070	Set Check Digit Validate And Transmit		
	0408080	Don't Transmit Start/Stop Characters		
	0408090	Transmit Start/Stop Characters		Default
	0408100	Set FULLASCII39 Disable		Default
	0408110	Set FULLASCII39 Enable		
	0408120	Disable Convert Code 39 to Code 32		Default
	0408130	Enable Convert Code 39 to Code 32		
	0408140	Disable Code 32 Prefix		Default
	0408150	Enable Code 32 Prefix		
Codabar	0409000	Set Codabar All Default		Default
	0409010	Disable		
	0409020	Enable		Default
	0409030	Set The Minimum Message Length Value Of Codabar	NLS0409030=2;	Default value 2
	0409040	Set The Maximum Message Length Value Of Codabar	NLS0409040=60;	Default value 60
	0409050	No Check Digit		Default
	0409060	Set Check Digit Validate, But Don't Transmit		
	0409070	Set Check Digit Validate And Transmit		
	0409080	Don't Transmit Start/Stop Characters		
	0409090	Transmit Start/Stop Characters		Default
Code93	0410000	Set Code93 All Default		Default
	0410010	Disable		Default
	0410020	Enable		
	0410030	Set The Minimum Message Length Value Of Code93	NLS0410030=1;	Default value 1
	0410040	Set The Maximum Message Length Value Of Code93	NLS0410040=48;	Default value 48
GS1 Databar (RSS)	0413000	Set GS1 Databar All Default		
	0413010	Disable		
	0413020	Enable		Default
	0413050	Do not Transmit AI(01) Character		
	0413060	Transmit AI(01) Character		Default

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

EAN·UCC Composite*	0414000	Set EAN·UCC Composite All Default		Default
	0414010	Disable EAN·UCC Composite		Default
	0414020	Enable EAN·UCC Composite		
	0414030	Disable UPC/EAN Composite		Default
	0414040	Enable UPC/EAN Composite		
Code 11	0415000	Set Code 11 All Default		Default
	0415010	Disable		Default
	0415020	Enable		
	0415030	Set The Minimum Message Length Value Of Code 11	NLS0415030=4;	Default value 4
	0415040	Set The Maximum Message Length Value Of Code 11	NLS0415040=48;	Default value 48
	0415050	NO Check		
	0415060	Single Check Digit，MOD11		Default
	0415070	Double Check Digits, MOD11/MOD11		
	0415080	Double Check Digits, MOD11/MOD9		
	0415090	Single Check Digit MOD11(Len <= 10) Double Check Digits MOD11/MOD11 (Len > 10)		
	0415100	Single Check Digit MOD11 (Len <= 10) Double Check Digits MOD11/MOD9 (Len > 10)		
	0415110	Do not transmit Check Digit		
	0415120	Transmit Check Digit		Default
Industrial 25	0417000	Set Industrial 25 All Default		Default
	0417010	Disable		Default
	0417020	Enable		
	0417030	Set The Minimum Message Length Value Of Industrial 25	NLS0417030=6;	Default value 6
	0417040	Set The Maximum Message Length Value Of Industrial 25	NLS0417040=48;	Default value 48
	0417050	NO Check		Default
	0417060	Check, Do Not Transmit Check Digit		
	0417070	Check, Transmit All		
Standard 25	0418000	Set Standard 25 All Default		Default
	0418010	Disable		Default
	0418020	Enable		
	0418030	Set The Minimum Message Length Value Of Standard 25	NLS0418030=6;	Default value 6
	0418040	Set The Maximum Message Length Value Of Standard 25	NLS0418040=48;	Default value 48
	0418050	NO Check		Default
	0418060	Check, Do Not Transmit Check		

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

		Digit		
	0418070	Check, Transmit All		
Plessey	0419000	Set Plessey All Default		Default
	0419010	Disable		Default
	0419020	Enable		
	0419030	Set The Minimum Message Length Value Of Plessey	NLS0419030=4;	Default value 4
	0419040	Set The Maximum Message Length Value Of Plessey	NLS0419040=48;	Default value 48
	0419050	NO Check		
	0419060	Check, Do Not Transmit Check Digit		
	0419070	Check, Transmit All		Default
MSI-Plessey	0420000	Set Standard 25 All Default		Default
	0420010	Disable		Default
	0420020	Enable		
	0420030	Set The Minimum Message Length Value Of MSI-Plessey	NLS0420030=4;	Default value 4
	0420040	Set The Maximum Message Length Value Of MSI-Plessey	NLS0420040=48;	Default value 48
	0420050	NO Check		
	0420060	Single Check Digit，MOD10		Default
	0420070	Double Check Digits，MOD10/MOD10		
	0420080	Double Check Digits，MOD10/MOD11		
	0420090	Check, Do Not Transmit Check Digit		
	0420100	Check, Transmit All		Default

2D Bar Code Selection

Selection	Command	Setting	Example	Remark
Macro	0500000	Delete the Data of Buffer		
	0500010	Mode 1:Transmit The Block's Data Directly After Reading		
	0500020	Mode 2 : Transmit The Data Base On Reading Order（The Saving Data Can't Be Larger Than 64k Byte），viz. When The Blocks Whose Connection Numbers Are Less Than The Current Block's, The Data Which Has Been Connected Will Be Transmitted (Including The Current Block)		
	0500030	Mode 3: Connect After Reading All Data Blocks, If The Data Is Larger than 64k Byte, The Data Would Be Transmitted By Mode 2		Default
PDF417	0501000	Set PDF417 All Default		Default
	0501010	Disable		

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	0501020	Enable		Default
	0501030	Set The Min. Message Length Value	NLS0501030=30;	1~2710(min<max)
	0501040	Set The Max. Message Length Value	NLS0501030=80;	1~2710(min<max)
	0501070	Read single PDF417 only		Default
	0501080	Read Double PDF417 only		
	0501090	Both Single & Twin		
	0501320	Decode Regular PDF417 Only		Default
	0501321	Decode Inverse PDF417 Only		
	0501322	Decode Both Regular and Inverse		
	0501340	Enable PDF417 ECI Output		Default
	0501341	Disable PDF417 ECI Output		
	0501350	Default Character Encoding		Default
	0501351	UTF-8 Character Encoding		
QR Code	0502000	Set QR All Default		Default
	0502010	Disable		
	0502020	Enable		Default
	0502030	Set The Min. Message Length Value	NLS0501030=1;	Default Value Is 1
	0502040	Set The Max. Message Length Value	NLS0501030=3500;	Default Value Is 3500
	0502070	Read single QR code only		Default
	0502080	Read Double QR codes only		
	0502090	Both Single & Twin		
	0502100	Enable Micro QR		Default
	0502110	Disable Micro QR		
	0502151	Disable QR ECI Output		Default
	0502150	Enable QR ECI Output		
	0502120	Decode Regular QR Only		Default
	0502121	Decode Inverse QR Only		
	0502122	Decode Both Regular and Inverse		
	0502160	Default Character Encoding		Default
	0502161	UTF-8 Character Encoding		
Aztec*	0503000	Set Aztec All Default		Default
	0503010	Disable		
	0503020	Enable		Default
	0503030	Set The Min. Message Length Value		Default Value Is 1
	0503040	Set The Max. Message Length Value		Default Value Is3832
	0503070	Mode 1（Read one barcode only）		Default
	0503080	Mode 2（Read fixed number of barcodes only）		
	0503090	Mode 3（Composite Reading. Read fixed number of barcodes first, if failed, read one barcode only.）		
	0503060	1	The Number of Multi-barcodes	Default
	0503061	2		

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

	0503062	3		
	0503063	4		
	0503064	5		
	0503065	6		
	0503066	7		
	0503067	8		
	0503101	Disable Aztec ECI Output		
	0503100	Enable Aztec ECI Output		Default
	0503110	Default Character Encoding		Default
	0503111	UTF-8 Character Encoding		
Data Matrix	0504000	Set Data Matrix All Default		Default
	0504010	Disable		
	0504020	Enable		Default
	0504030	Set The Min. Message Length Value	NLS0504030=1;	Default Value Is 1
	0504040	Set The Max. Message Length Value	NLS0504040=1500;	Default Value Is 1500
	0504070	Single Data Matrix Only		Default
	0504080	Twin Data Matrix Only		
	0504090	Both Single & Twin		
	0504110	Enable Rectangular Symbols		Default
	0504100	Disable Rectangular Symbols		
	0504341	Disable Data Matrix ECI Output		
	0504340	Enable Data Matrix ECI Output		Default
	0504320	Decode Regular Data Matrix Only		Default
	0504321	Decode Inverse Data Matrix Only		
	0504322	Decode Both Regular and Inverse		
	0504350	Default Character Encoding		Default
	0504351	UTF-8 Character Encoding		
Chinese Sensible Code***	0508000	Set Chinese Sensible Code All Default		
	0508010	Disable		Default
	0508020	Enable		
	0508030	Set The Min. Message Length Value		Default Value Is 1
	0508040	Set The Max. Message Length Value		Default Value Is 7827
	0508050	Single Chinese Sensible Code Only		Default
	0508060	Twin Chinese Sensible Code Only		
	0508070	Both Single & Twin		
	0508080	Decode Regular Chinese Sensible Code Only		
	0508081	Decode Inverse Chinese Sensible Code Only		
	0508082	Decode Both Regular and Inverse		
Maxicode*	0508000	Set Maxicode All Default		Default
	0508020	Disable		
	0508010	Enable		
	0508030	Set The Min. Message Length Value		Default Value Is 1
	0508040	Set The Max. Message Length Value		Default Value Is 7827

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

OCR Selection

Selection	Command	Setting	Example	Remark
SPEC_OCR_B*	0600000	Set SPEC_OCR_B All Default		Default
	0600010	Disable		Default
	0600020	Enable		

*** Commands not applicable to scan engines based on Newland chip (e.g. EM2096).**
****Commands not applicable to scan engines based on CPU decoder (e.g. EM2028).**
***** Commands not applicable to scan engines based on 0370 Newland chip (e.g. EM3070).**

Chapter 8 Appendix

Appendix 1: Code ID Table

Symbol	Code ID	Symbol	Code ID
Code 128	j	GS1 Databar(RSS)	R
GS1-128(UCC/EAN-128)	j	EAN•UCC Composite	y
AIM 128	f	ISBN	B
EAN-8	d	ISSN	n
EAN-13	d	Matrix 2 of 5(European Matrix 2)	v
UPC-E	c	Industrial 25	I ** D*
UPC-A	c	Standard 25	f ** s*
Interleaved 2 of 5	e	Plessey	n ** p *
ITF-6	e	MSI-Plessey	m
ITF-14	e	PDF417	r
Matrix 2 of 5	v	QR Code	s ** Q *
Code 39	b	Aztec	z
Codabar	a	Data Matrix	u
Code 93	i	Maxicode	x
Code 11	H	Chinese Sensible Code	h

*** For scan engines based on Newland chip (e.g. EM2096)**
**** For scan engines based on CPU decoder (e.g. EM2028)**

Appendix 2: AIM ID Table

Symbology	AIM ID	Remark
EAN-13	]E0	Standard EAN-13
	]E3	EAN-13 + 2/5-Digit Add-On Code
EAN-8	]E4	Standard EAN-8
	]E4…]E1…	EAN-8 + 2-Digit Add-On Code
	]E4…]E2…	EAN-8 + 5-Digit Add-On Code
UPC-E	]E0	Standard UPC-E
	]E3	UPC-E + 2/5-Digit Add-On Code
UPC-A	]E0	Standard UPC-A
	]E3	UPC-A + 2/5-Digit Add-On Code
Code 128	]C0	Standard Code 128
GS1-128 (UCC/EAN-128)	]C1	FNC1 is the character right after the start character
AIM-128	]C2	FNC1 is the 2nd character after the start character
ISBT-128	]C4	
Interleaved 2 of 5	]I0	No check digit verification
	]I1	Transmit check digit after verification
	]I3	Do not transmit check digit after verification
ITF-6	]I1	Transmit check digit
	]I3	Do not transmit check digit
ITF-14	]I1	Transmit check digit
	]I3	Do not transmit check digit
Industrial 2 of 5	]S0	Not specified
Standard 2 of 5	]R0	No check digit verification
	]R8	MOD10; do not transmit check digit
	]R9	MOD10; transmit check digit
Code 39	]A0	Transmit barcodes as is; Full ASCII disabled; no check digit verification
	]A1	MOD43; transmit check digit
	]A3	MOD43; do not transmit check digit
	]A4	Full ASCII enabled; no check digit verification
	]A5	Full ASCII enabled; transmit check digit
	]A7	Full ASCII enabled; do not transmit check digit
Codabar	]F0	Standard Codabar
	]F2	Transmit check digit after verification
	]F4	Do not transmit check digit after verification

Symbology	AIM ID	Remark
Code 93	]G0	Standard Code 93
Code 11	]H0	MOD11; transmit check digit
	]H1	MOD11/MOD11; transmit check digit
	]H3	Do not transmit check digit after verification
	]H9	No check digit verification
GS1-DataBar (RSS)	]e0	Standard GS1-DataBar
Plessey	]P0	Standard Plessey
MSI-Plessey	]M0	MOD10; transmit check digit
	]M1	MOD10; do not transmit check digit
	]M7	MOD10/ MOD11; do not transmit check digit
	]M8	MOD10/ MOD11; transmit check digit
	]M9	No check digit verification
Matrix 2 of 5	]X0	Specified by the manufacturer
	]X1	No check digit verification
	]X2	MOD10; transmit check digit
	]X3	MOD11; do not transmit check digit
ISBN	]X4	Standard ISBN
ISSN	]X5	Standard ISSN
PDF417	]L0	Comply with 1994 PDF417 specifications
Data Matrix	]d0	ECC000 - ECC140
	]d1	ECC200
	]d2	ECC200, FNC1 is the 1st or 5th character after the start character
	]d3	ECC200, FNC1 is the 2nd or 6th character after the start character
	]d4	ECC200, ECI included
	]d5	ECC200, FNC1 is the 1st or 5th character after the start character,ECI included
	]d6	ECC200, FNC1 is the 2nd or 6th character after the start character,ECI included
QR Code	]Q0	QR1
	]Q1	2005 version, ECI excluded
	]Q2	2005 version, ECI included
	]Q3	QR Code 2005, ECI excluded, FNC1 is the 1st character after the start character
	]Q4	QR Code 2005, ECI included, FNC1 is the 1st character after the start character
	]Q5	QR Code 2005,ECI excluded,FNC1 is the 2nd character after the start character
	]Q6	QR Code 2005, ECI included, FNC1 is the 2nd character after the start character
Chinese Sensible Code	]X0	

Reference: ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers).

Appendix 3: USB Country Keyboard Types *

Country/Language	Number	Country/Language	Number
U.S.(default)	0	Norway	15
Belgium	1	Poland	16
Brazil	2	Portugal	17
Canada(French)	3	Romania	18
Czechoslovakia	4	Russia	19
Denmark	5	SCS	20
Finland(Sweden)	6	Slovakia	21
France	7	Spain	22
Germany/Austria	8	Sweden	23
Greece	9	Switzerland(German)	24
Hungary	10	Turkey F	25
Israel(Hebrew)	11	Turkey Q	26
Italy	12	UK	27
Latin America	13	Japan	28
Netherlands(Dutch)	14		

*** For EM2028/EM2037.**

Appendix 4: Symbol ID Number

Symbol	ID Number
Code 128	“02”
UCC/EAN128	“03”
EAN-8	“04”
EAN-13	“05”
UPC-E	“06”
UPC-A	“07”
Interleaved 2 OF 5	“08”
ITF-14	“09”
ITF-6	“10”
Matrix 2 of 5	“11”
Code 39	“13”
Codabar	“15”
Code 93	“17”
ISBN	“24”
Industrial 25	“25”
Standard 25	“26”
Plessey	“27”
Code 11	“28”
MSI-Plessey	“29”
EAN•UCC Composite	“30”
GS1 Databar	“31”
PDF417	“32”
QR Code	“33”
Aztec	“34”
Data Matrix	“35”
Maxicode	“36”
Chinese Sensible Code	“39”
SPEC_OCR_B	“64”

Appendix 5: ASCII Function Key Mapping Table

ASCII Function	ASCII Value(HEX)	Ctrl + ASCII Mode Off	Full ASCII "CTRL"+
NUL	00	Null	2
SOH	01	Keypad Enter	A
STX	02	Caps lock	B
ETX	03	Null	C
EOT	04	Null	D
ENQ	05	Null	E
ACK	06	Null	F
BEL	07	Enter	G
BS	08	Left Arrow	H
HT	09	Tab	I
LF	0A	Down Arrow	J
VT	0B	Tab	K
FF	0C	Delete	L
CR	0D	Enter	M
SO	0E	Insert	N
SI	0F	Escape	O
DLE	10	F11	P
DC1	11	Home	Q
DC2	12	Print Screen	R
DC3	13	Backsapce	S
DC4	14	tab+shift	T
NAK	15	F12	U
SYN	16	F1	V
ETB	17	F2	W
CAN	18	F3	X
EM	19	F4	Y
SUB	1A	F5	Z
ESC	1B	F6	[
FS	1C	F7	\
GS	1D	F8	]
RS	1E	F9	6
US	1F	F10	.

Appendix 6: ASCII Table

Hex	Dec	Char
00	0	NUL (Null char.)
01	1	SOH (Start of Header)
02	2	STX (Start of Text)
03	3	ETX (End of Text)
04	4	EOT (End of Transmission)
05	5	ENQ (Enquiry)
06	6	ACK (Acknowledgment)
07	7	BEL (Bell)
08	8	BS (Backspace)
09	9	HT (Horizontal Tab)
0a	10	LF (Line Feed)
0b	11	VT (Vertical Tab)
0c	12	FF (Form Feed)
0d	13	CR (Carriage Return)
0e	14	SO (Shift Out)
0f	15	SI (Shift In)
10	16	DLE (Data Link Escape)
11	17	DC1 (XON) (Device Control 1)
12	18	DC2 (Device Control 2)
13	19	DC3 (XOFF) (Device Control 3)
14	20	DC4 (Device Control 4)
15	21	NAK (Negative Acknowledgment)
16	22	SYN (Synchronous Idle)
17	23	ETB (End of Trans. Block)
18	24	CAN (Cancel)
19	25	EM (End of Medium)
1a	26	SUB (Substitute)
1b	27	ESC (Escape)
1c	28	FS (File Separator)
1d	29	GS (Group Separator)
1e	30	RS (Request to Send)
1f	31	US (Unit Separator)

Hex	Dec	Char
20	32	SP (Space)
21	33	! (Exclamation Mark)
22	34	" (Double Quote)
23	35	# (Number Sign)
24	36	$ (Dollar Sign)
25	37	% (Percent)
26	38	& (Ampersand)
27	39	` (Single Quote)
28	40	((Right / Closing Parenthesis)
29	41	) (Right / Closing Parenthesis)
2a	42	* (Asterisk)
2b	43	+ (Plus)
2c	44	, (Comma)
2d	45	- (Minus / Dash)
2e	46	. (Dot)
2f	47	/ (Forward Slash)
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	: (Colon)
3b	59	; (Semi-colon)
3c	60	< (Less Than)
3d	61	= (Equal Sign)
3e	62	> (Greater Than)
3f	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B

Hex	Dec	Char
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[(Left / Opening Bracket)
5c	92	\ (Back Slash)
5d	93	] (Right / Closing Bracket)
5e	94	^ (Caret / Circumflex)
5f	95	_ (Underscore)
60	96	' (Grave Accent)
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e

Hex	Dec	Char
66	102	f
67	103	g
68	104	h
69	105	i
6a	106	j
6b	107	k
6c	108	l
6d	109	m
6e	110	n
6f	111	o
70	112	p
71	113	q
72	114	r
73	115	s
74	116	t
75	117	u
76	118	v
77	119	w
78	120	x
79	121	y
7a	122	z
7b	123	{ (Left/ Opening Brace)
7c	124	| (Vertical Bar)
7d	125	} (Right/Closing Brace)
7e	126	~ (Tilde)
7f	127	DEL (Delete)

Appendix 7: Code Pages List

Numeric Barcode Needed	Code Page
0	Windows 1252 (Latin I)
1	Windows 1251 (Cyrillic)

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