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禁止複製

Chapter 1 About NT-90

NT-90 is a high-performance fixed industrial barcode scanner designed for industrial automation line applications · with IP65 industrial protection and 1280 x 800 megapixel C-MOS sensor. NT-90 has excellent scan performance. In the case of wet or dusty working environment, it can also be kept in good working condition for a long time.

Main features of the device

- With high resolution and high anti-noise 1280 x 800 megapixel C-MOS sensor
- Excellent barcode analytic ability
- Design of compact and high strength ABS Shell
- IP65 industrial protection
- Optically coupled external trigger input

Specification

Scan Performance		
Optical system	1280 X 800 megapixel C-MOS sensor	
Field of view	54° (Horizontal) , 33° (Vertical)	
Illumination	625 ± 5nm (8xLED)	
Aiming	617nm, red line	
Scan mode	Trigger mode; Sensor mode; Continuous mode ; Pulse mode; External trigger mode	
Symbologies	1D	UPC A , UPC E , EAN 8 , EAN 13 , Code 128 , Code 39 , Code 93 , Code 32 , Code11 , Codabar ,Plessey , MSI, Interleaved 2 of 5 , IATA 2 of 5 , Matrix 2 of 5 , Straight 2 of 5 , Pharmacode , RSS-14 , RSS-14 Expanded , RSS-14 Limited Composite Code-A , Composite Code-B , Composite Code-C
	2D	PDF 417 , Micro PDF 417 , Data Matrix , QR , Micro QR , Aztec , MaxiCode
Reading accuracy	1D : ≥4 mil 2D : ≥7 mil	
Depth of field	EAN (13 mil ,100 %)	35 mm - 300 mm

	Code 39 (5 mi)	65 mm - 130 mm
Print contrast	≥30% @ UPC/EAN 100%	
Physical Parameters		
Dimension	40 (W) × 50.3 (D) × 23.1 (H)	
Weight	About 85g (without cable)	
Indicator	Buzzer; LED	
Operating Voltage	5 VDC +/-10%	
Operating Current @5V DC	300 mA +/-5% (typical) 450 mA +/-5% (Max.)	
Standby Current	100 mA +/-5%	
Power consumption	1500 mW +/-5% (typical)	
System interface	USB HID Keyboard / USB Virtual COM Port RS-232 (9.6~115.2Kbps)	
Optically coupled	Max. 15 mA (Input Power : 5V~24V ; Low level trigger) ; 1 line	
Environment Parameters		
IP Protection	IP65	
Drop durability	1.5 meter to Concrete floor	
Storage temp.	-40°C~+70°C	
Operating temp.	-20°C~60°C	

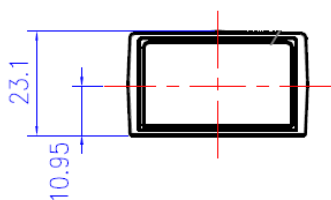
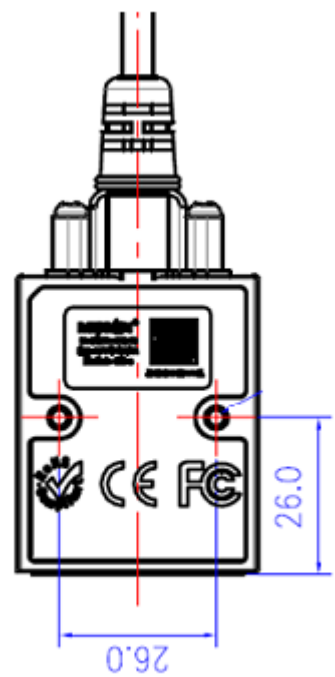
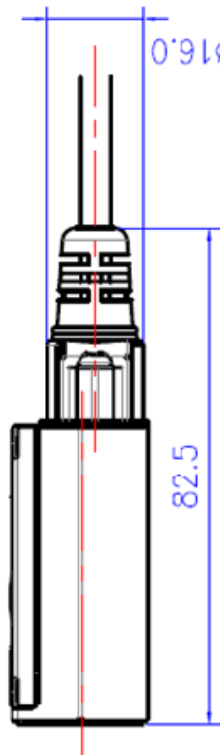
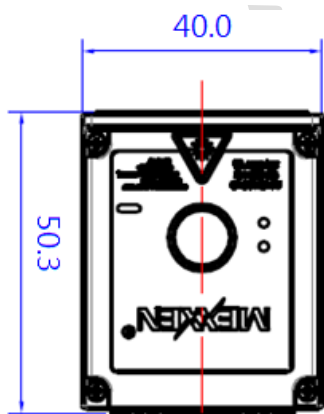
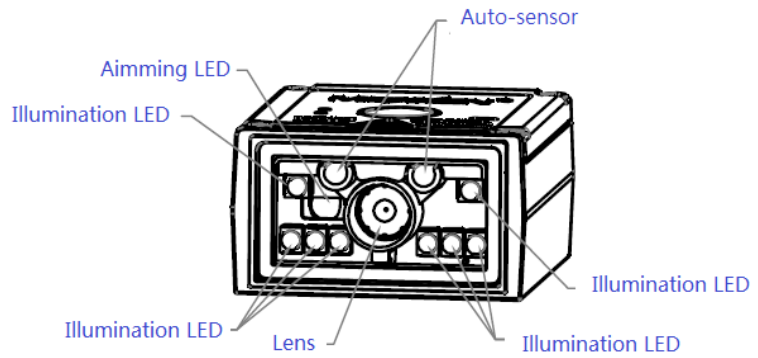
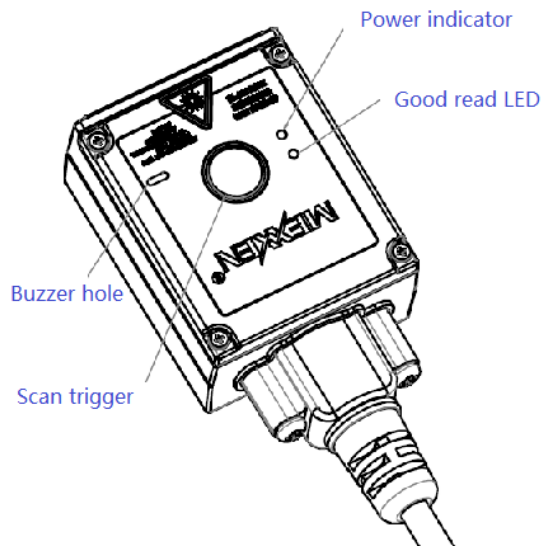
Relative humidity	5%~95% (No condensing)
Electrostatic protec.	±12 kV (Air Discharge) · ±8 kV (Direct discharge)

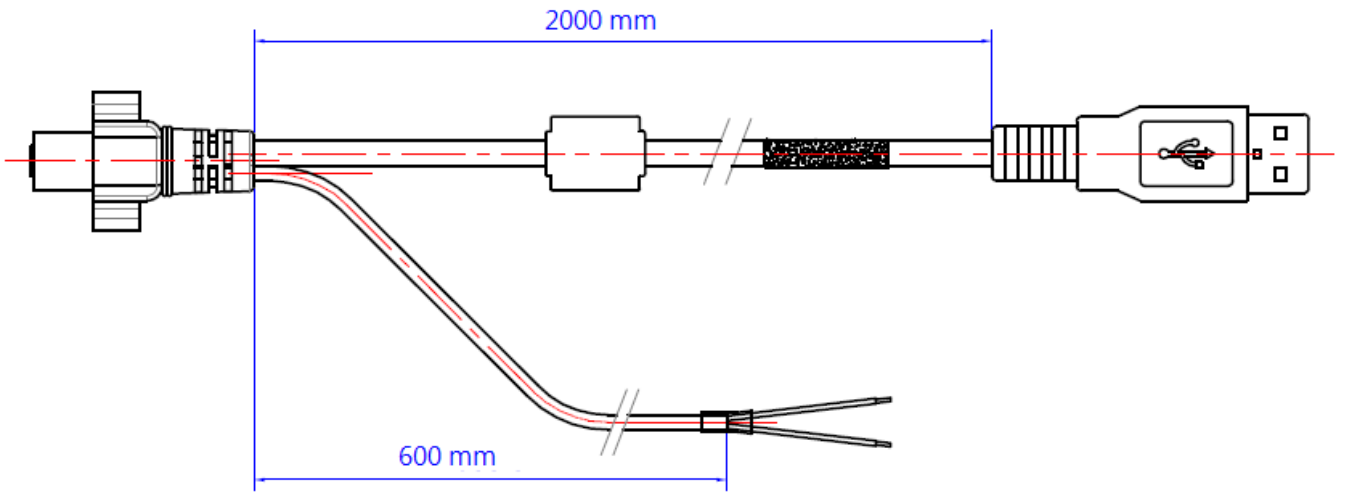
* Test Conditions: Ambient Temperature 23 °C; Ambient Illumination 300 Lux incandescent lamp.

* Depth of field data may change due to process and application. Subject to change without prior notice.

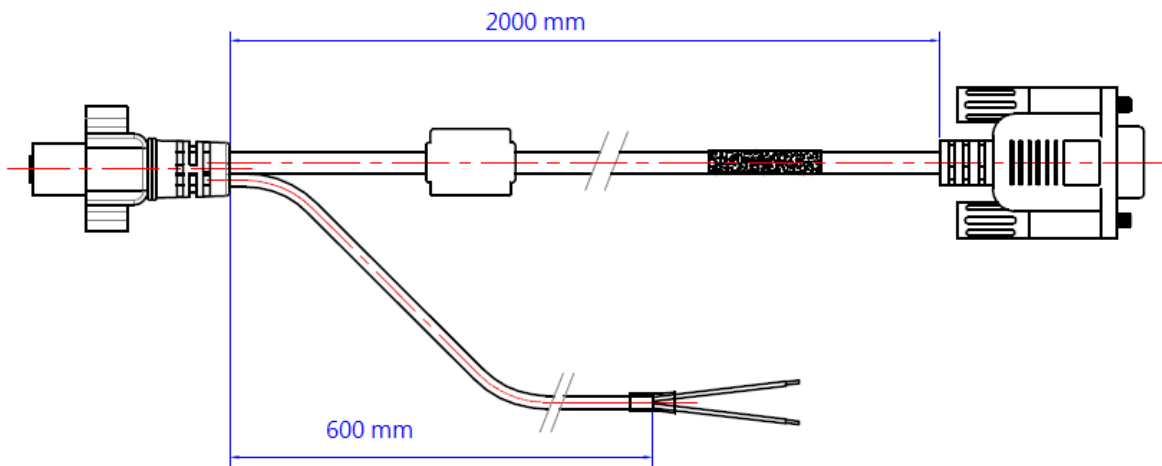


Outline description





USB Cable



RS-232 Cable

I/O Interface description

I/O pin definition

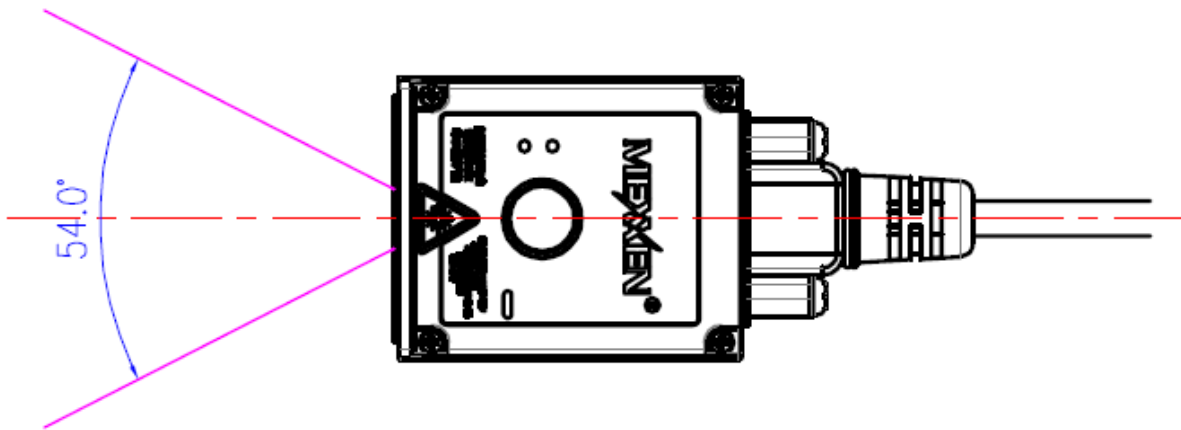
USB port	
I/O line color	Description
red / blue	+5V
green	D+
white	D-
Black / grey	GND

RS-232 port	
I/O line color	Description
white	TX
green	RX
blue	RTS
grey	CTS
red	+5V
Black	GND

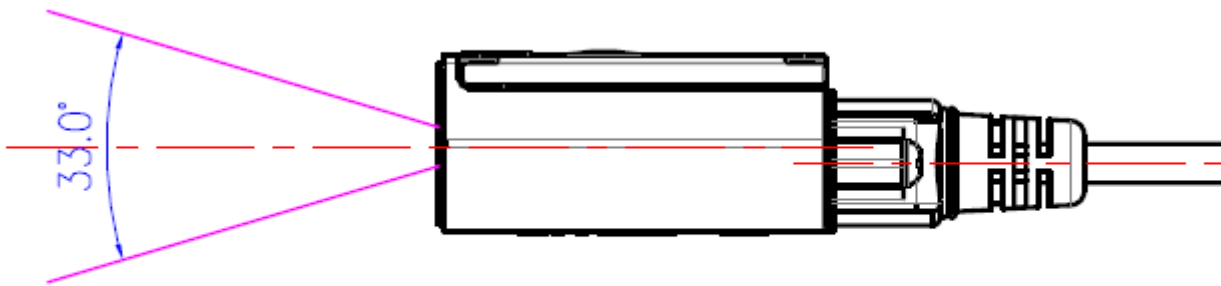
External trigger	
I/O line color	Description
brown	nTRIG_IN (Low level trigger)
Black	GND

Note: Optically coupled external trigger need max. 15 mA (Input Power : 5V~24V ; Low level trigger) ;

Angel of view



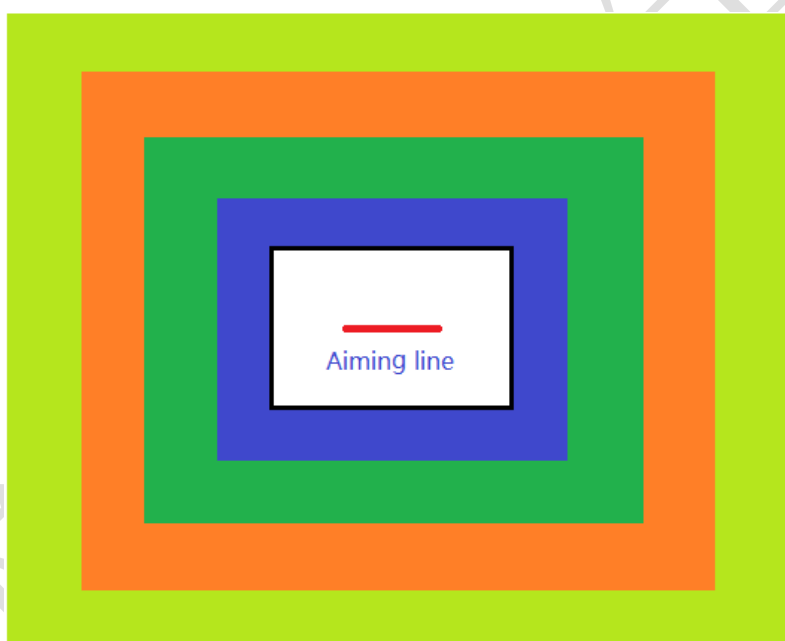
Horizontal Reading Angle



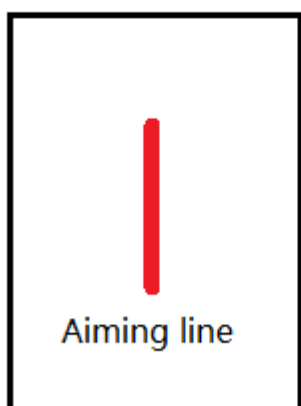
Vertical Reading Angle

Scan zone

Distance from Window		Scan zone
	10 cm	10 cm (W) X 6.5 cm (H)
	15 cm	15 cm (W) X 10 cm (H)
	20 cm	20 cm (W) X 13 cm (H)
	25 cm	25 cm (W) X 16 cm (H)
	30 cm	30 cm (W) X 19 cm (H)



Scan Zone



The recommended location of the external trigger to the scan zone is 3cm-10cm. The faster a barcode object moves, the further it is located.



Chapter 2 System Settings

Factory Defaults



Enter Setup



Restore All Factory Defaults



Exit Setup

Custom Defaults



Enter Setup



Save as Custom Defaults



Restore All Custom Defaults



Exit Setup

Long press button

Press button 15 seconds, there are three options.

1. Close function, the device will do nothing.
2. Return to factory defaults
3. Re-power, the device will be re-powered automatically.



Enter Setup



1. Close function (default)



2. Restore to Factory Defaults



3. Re-power



Exit Setup

Scan Mode

Trigger mode:

A trigger pull activates a decode session. The decode session continues until a barcode is decoded or you release the trigger or the decode session timeout expires. (The decode session timeout time is 3 sec. default.)

Sensor mode:

The engine activates a decode session every time it detects a barcode presented to it. The decode session continues until a barcode is decoded or the decode session timeout expires. (The decode session timeout is 3 sec. default.)

Continuous mode:

The engine automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger.

Pulse mode (External trigger mode):

Start scanning when high level becomes low level. The decode session continues until the decode session timeout expires.

Trigger mode



Enter Setup



Trigger mode (default)



Exit Setup

Sensor mode



Enter Setup



Sensor mode



Exit Setup

Continuous mode



Enter Setup



Continuous mode



Exit Setup

Pulse mode (External trigger mode)



Enter Setup



Pulse mode (External trigger mode)



Exit Setup

Read Same Barcode

This setting can avoid undesired rereading of same barcode in a given period of time. This feature is only applicable to the Sense and Continuous and Pulse (External trigger) modes. It is programmable in 1ms increments from 0ms to 5,000ms. The default is 500ms.

● Do Not Reread

Do not allow to reread same barcode when reading same barcode in a given period of time.

Do not transmit the same barcode in 100ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Restricted read** barcode.
3. Scan the **Set Time** barcode.
4. Scan the numeric barcodes "1", "0" and "0" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

● Interval read

Transmit the same barcode after the setting time .

Read the same code one second after the interval

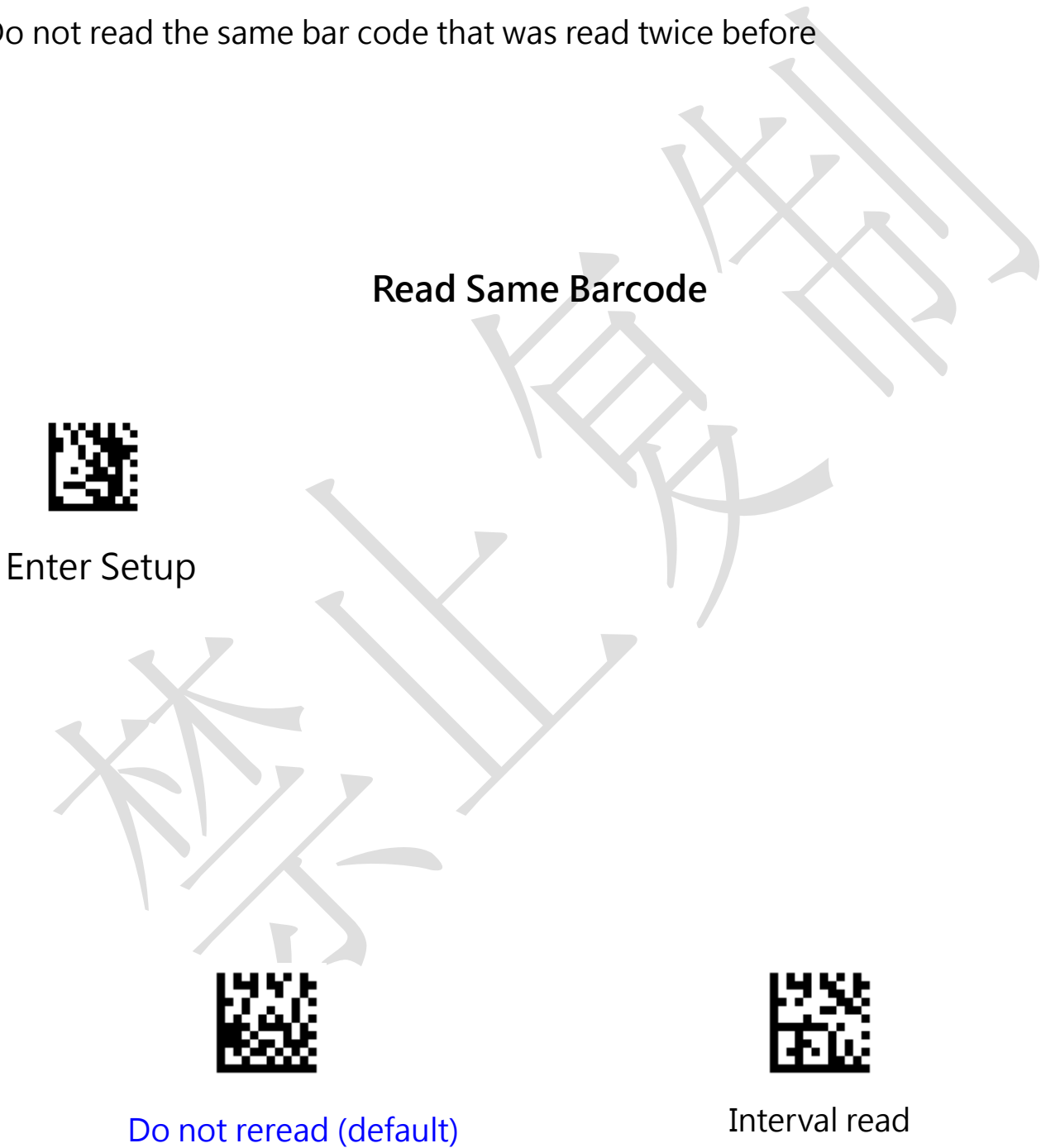
1. Scan the **Enter Setup** barcode.
2. Scan the **Interval read** barcode.
3. Scan the **Set Time** barcode.
4. Scan the numeric barcodes "1", "0" , "0"and "0" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

- **Do Not Reread once**

Do not read the same bar code that was read the previous time

- **Do Not Reread twice**

Do not read the same bar code that was read twice before





Do Not Reread once



Do Not Reread twice



Set Time (ms)



Exit Setup

Decoding Timeout

Decoding Timeout specifies the maximum time the engine will spend decoding an image. This feature is only applicable to the Level and Sense modes and Pulse (External trigger) modes.

It is programmable in 1ms increments from 0ms to 3,600,000ms. When it is set to a value greater than 3,600,000, the timeout for rereading same programming barcode is limited to 3,600,000ms. The default timeout is 3,000ms.

Set Decoding Timeout to 5,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Decoding Timeout** barcode.
3. Scan the numeric barcodes "5", "0", "0" and "0" from the "**Digit Barcodes**" section in Appendix.
4. Scan the **Exit Setup** barcode.



Enter Setup



Decoding Timeout (ms)



Exit Setup

Decode zone

All-area decoding: All-area of the picture will be decoded.

Central Area Decoding: Just the central area of the picture will be decoded.



Enter Setup



All-area decoding (default)

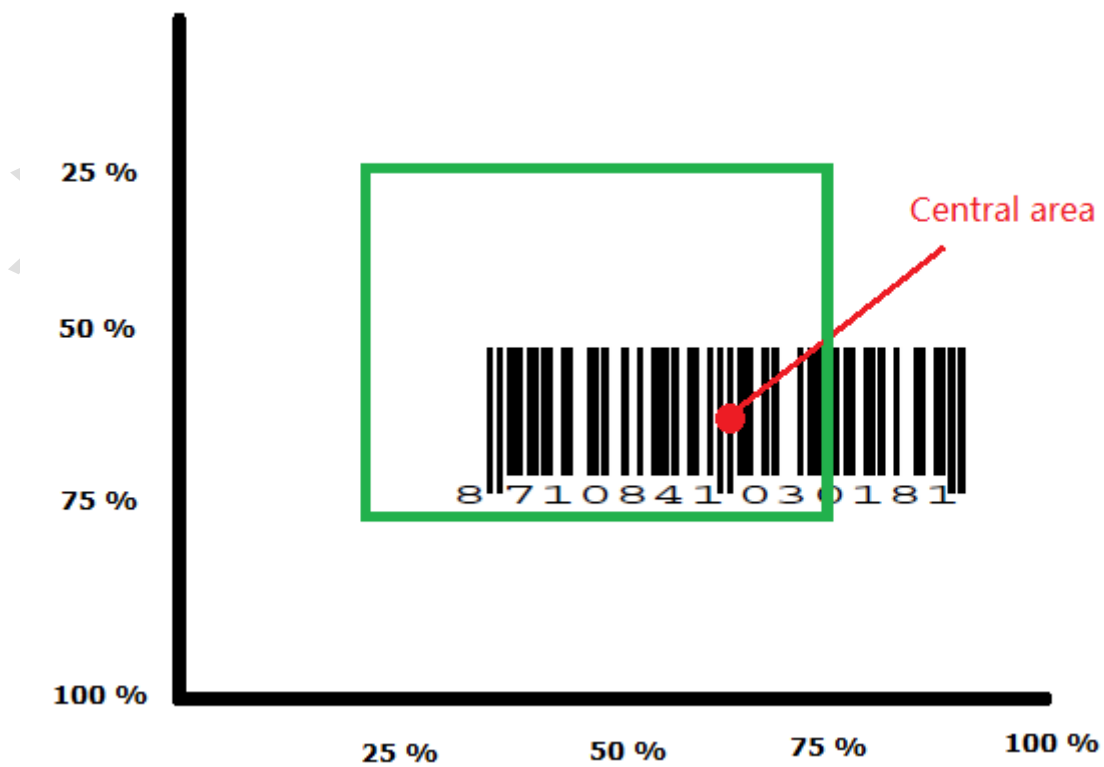
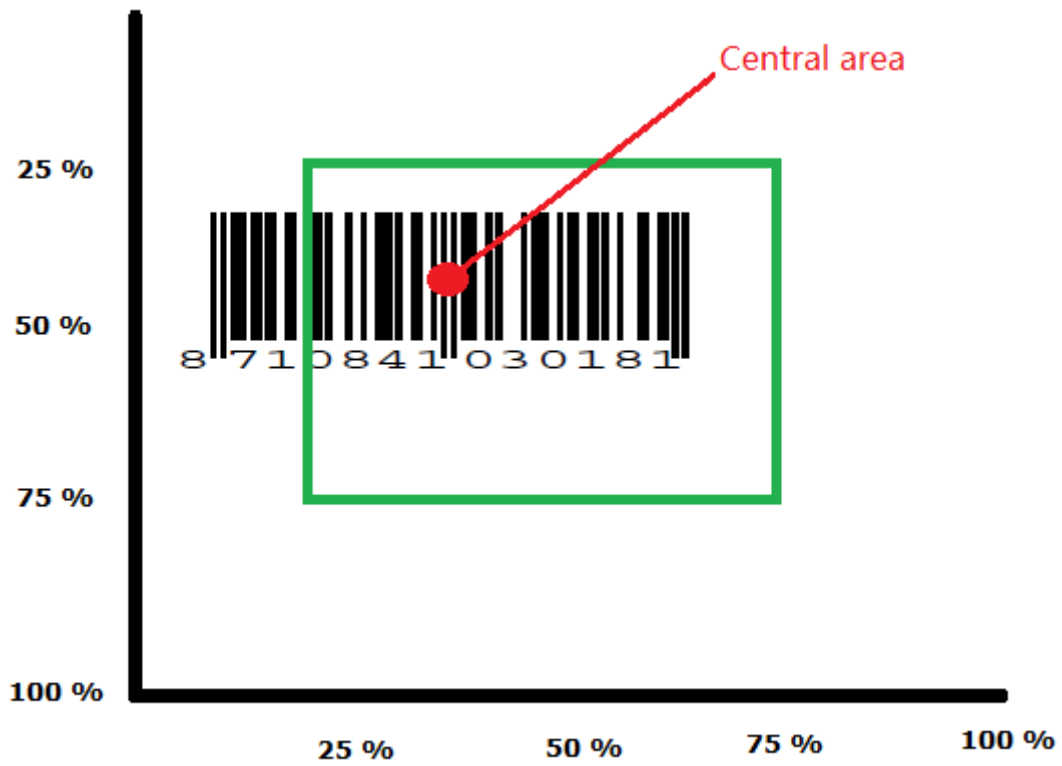


Central Area Decoding

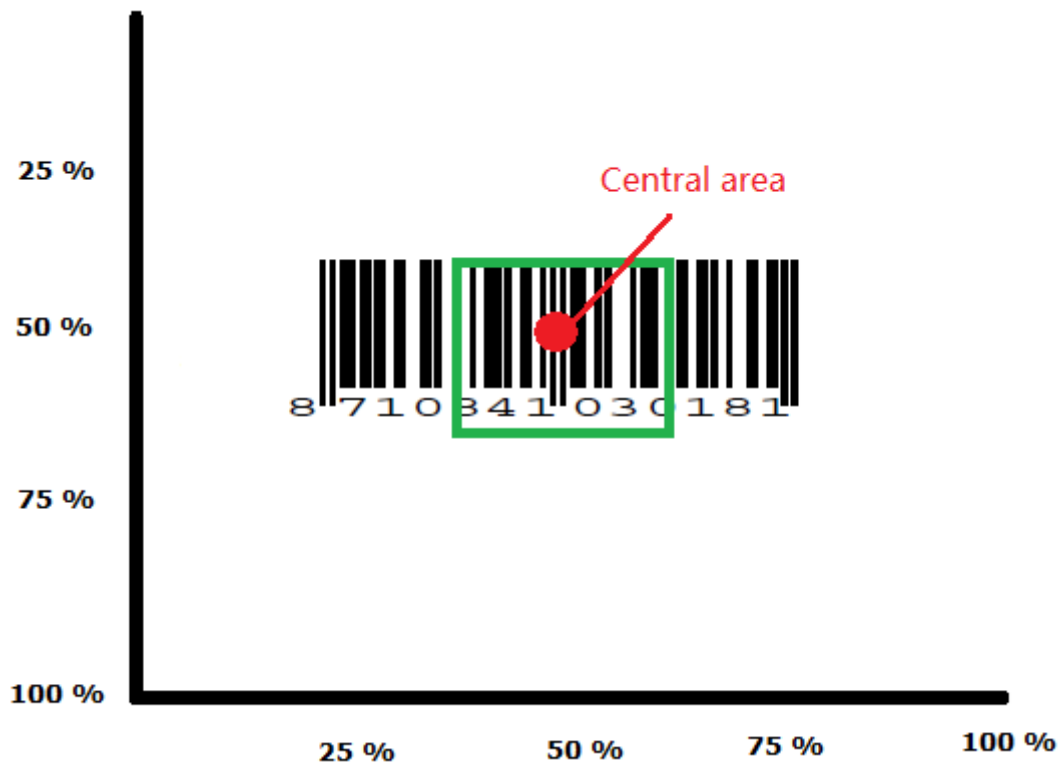


Exit Setup

75 % Central area



25 % Central area



The range of central area



Enter Setup



75 % central area (default)



50 % central area



25 % central area



Exit Setup

Sensor Mode



Enter Setup



Image and infrared trigger
(default)



Infrared trigger



Image trigger



Exit Setup

Sensor sensitivity



Enter Setup



Low sensitivity



Medium sensitivity (default)



High sensitivity



Exit Setup

Decode Redundancy



Enter Setup



Disable (default)



2 Times



3 Times



Exit Setup

Read NG data



Enter Setup

- In serial mode, if the Barcode is not read at the end of the scan, a NG message will be output



Disable(default)



Enable

- The default read failure message is "NG", up to 8 ASCII characters can be set

Set the failure message "Bad"

1. Scan the **Enter Setup** barcode.
2. Scan the **Set failure message** barcode.
3. Scan the ASCII Code "B", "a" and "d" from the "**ASCII Code Table**" section in Appendix.
4. Scan the **Exit Setup** barcode.



Set failure message



Exit Setup

Aiming LED



Enter Setup



Always On (default)



Scan On



Disable



Exit Setup

Illumination Mode



Enter Setup



Scan on (default)



Always On



Fade Up



Disable



Exit Setup

Illumination Level



Enter Setup



Low



Medium



High (default)



Exit Setup

Power beeper



Enter Setup



Enable (default)



Disable



Exit Setup

Decode beeper



Enter Setup



Enable (default)



Disable



Exit Setup

Decode beeper Frequency



Enter Setup



Lower- 800 Hz



Low - 1600 Hz



Medium - 2730 Hz (default)



High - 4200 Hz



Exit Setup

Chapter 3 Interface

USB HID Keyboard



Enter Setup



USB HID Keyboard (default)



Exit Setup

USB Virtual COM Port



Enter Setup



USB Virtual COM Port



Exit Setup

RS232 COM Port



Enter Setup



RS232 COM Port



Exit Setup

Baud Rate



Enter Setup



9600 (default)



19200



38400



57600



115200



230400



Exit Setup

RS232 transmit bits



Enter Setup



7 bits



**8 bits



Exit Setup

Serial parity character



Enter Setup



**None



Odd Check



Even Check



Exit Setup

Serial Stop Bit



Enter Setup



**one stop bit



Two stop bits



Exit Setup

USB Country Keyboard



Enter Setup



USA (default)



Belgium



Britain



Denmark

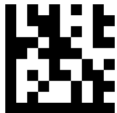


Exit Setup

USB Country Keyboard



Enter Setup



France



Germany



Italy



Norway



Exit Setup

USB Country Keyboard



Enter Setup



Portugal



Spain



Sweden



Switzerland



Exit Setup

USB Country Keyboard



Enter Setup



Japan



Hungary



Czech Republic



Slovakia



Exit Setup

USB Country Keyboard



Enter Setup



Romania



Croatia



Poland



Turkish Q



Exit Setup

USB Country Keyboard



Enter Setup



Brazil



Russian



Bulgaria



Exit Setup

Code Page character coding



Enter Setup



Simple Chinese (GB2312) – Unicode / Excel ; Notepad



Simple Chinese (GB2312) – Code Page / Word



Exit Setup

Code Page character coding



Enter Setup



Korean – Unicode / Excel ; Notepad



Korean– Code Page / Word



Exit Setup

Code Page character coding



Enter Setup



Thailand



Cyrillic



Turkish



Greek



Exit Setup

Code Page character coding



Enter Setup



West European Latin



Central and East European Latin



Hebrew



Exit Setup

Chapter 3 Symbologies

Symbologies	
UPC A	Enable
UPC E	Enable
EAN 8	Enable
EAN 13	Enable
Code 128 / GS1-128	Enable
Code 39	Enable
Code 93	Enable
Code 32	Close
Code 11	Close
Codabar	Enable
Plessey	Close
MSI Plessey	Enable
Interleaved 2 of 5	Enable
IATA 2 of 5	Close
Matrix 2 of 5	Close

Symbologies	
Straight 2 of 5	Close
Pharmacode	Close
GS1 DataBar 14	Enable
GS1 DataBar 14 Stacked	Close
GS1 DataBar Expanded	Enable
GS1 DataBar Expanded Stacked	Close
GS1 DataBar Limited	Enable
Composite Code-A	Close
Composite Code-B	Close
Composite Code-C	Close
PDF417	Enable
Micro PDF417	Enable
Data Matrix	Enable
QR	Enable
Micro QR	Enable
Aztec	Close
MaxiCode	Close

Enable All Symbologies



Enter Setup



Enable All Symbologies



Exit Setup

Only Enable 1D Symbologies



Enter Setup



Only Enable 1D Symbologies



Exit Setup

Only Enable 2D Symbologies



Enter Setup



Only Enable 2D Symbologies



Exit Setup

Disable all Symbologies



Enter Setup



Disable all Symbologies



Exit Setup

Disable 1D Symbologies



Enter Setup



Disable 1D Symbologies



Exit Setup

Disable 2D Symbologies



Enter Setup



Disable 2D Symbologies



Exit Setup

UPC A



Enter Setup



Enable UPC A (default)



Disable UPC A

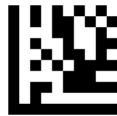


Exit Setup

Transmit first character



Enter Setup



Transmit first character (default)



Do Not Transmit first character



Exit Setup

Transmit Check Character



Enter Setup



Transmit EAN-13 Check Character (default)



Do Not Transmit EAN-13 Check Character



Exit Setup

Convert EAN-13 to ISBN



Enter Setup



Convert EAN-13 to ISBN



****Do Not Convert EAN-13 to ISBN**

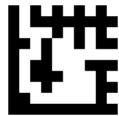


Exit Setup

Convert EAN-13 to ISSN



Enter Setup



Convert EAN-13 to ISSN



****Do Not Convert EAN-13 to ISSN**



Exit Setup

Enable/Disable Add-On Codes



Enter Setup



Enable EAN-13 2/5 Add-On Codes



**Disable EAN-132/5 Add-On Codes



Exit Setup

Add-On Code Required

When **EAN-13 Add-On Code Required** is selected, the engine will only read EAN-13 barcodes that contain add-on codes.



Enter Setup



EAN-13 Add-On Code Required



**** EAN-13 Add-On Code Not Required**



Exit Setup

EAN-8



Enter Setup



**Enable EAN-8



Disable EAN-8

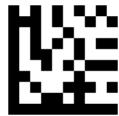


Exit Setup

Transmit Check Character



Enter Setup



** Transmit EAN-8 Check Character



Do Not Transmit EAN-8 Check Character



Exit Setup

Convert EAN-8 to EAN-13



Enter Setup



Convert EAN-8 to EAN-13



****Do Not Convert EAN-8 to EAN-13**



Exit Setup

Enable/Disable Add-On Codes



Enter Setup



Enable EAN-8 2/5 Add-On Codes



**Disable EAN-8 2/5 Add-On Codes



Exit Setup

Add-On Code Required

When **EAN-8 Add-On Code Required** is selected, the engine will only read EAN-8 barcodes that contain add-on codes.



Enter Setup



EAN-8 Add-On Code Required



** EAN-8 Add-On Code Not Required



Exit Setup

UPC-A



Enter Setup



**Enable UPC-A



Disable UPC-A



Exit Setup

Transmit Preamble Character



Enter Setup



** Transmit UPC-A Preamble Character



Do Not Transmit UPC-A Preamble Character



Exit Setup

Transmit Check Character



Enter Setup



** Transmit UPC-A Check Character



Do Not Transmit UPC-A Check Character

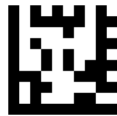


Exit Setup

Convert UPC-A to EAN-13



Enter Setup



Convert UPC-A to EAN-13



****Do Not Convert UPC-A to EAN-13**



Exit Setup

Enable/Disable Add-On Codes



Enter Setup



Enable UPC-A 2/5 Add-On Codes



**Disable UPC-A 2/5 Add-On Codes



Exit Setup

Add-On Code Required

When **UPC-A Add-On Code Required** is selected, the engine will only read **UPC-A** barcodes that contain add-on codes.



Enter Setup



UPC-A Add-On Code Required



** UPC-A Add-On Code Not Required

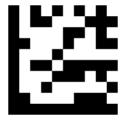


Exit Setup

UPC-E



Enter Setup



**Enable UPC-E



Disable UPC-E

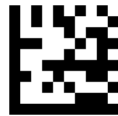


Exit Setup

Transmit Preamble Character



Enter Setup



** Transmit UPC-E Preamble Character



Do Not Transmit UPC-E Preamble Character



Exit Setup

Transmit Check Character



Enter Setup



** Transmit UPC-E Check Character



Do Not Transmit UPC-E Check Character



Exit Setup

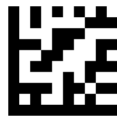
Convert UPC-E to UPC-A



Enter Setup



Convert UPC-E to UPC-A



****Do Not Convert UPC-E to UPC-A**



Exit Setup

Enable/Disable Add-On Codes



Enter Setup



Enable UPC-E 2/5 Add-On Codes



**Disable UPC-E 2/5 Add-On Codes



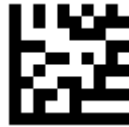
Exit Setup

Add-On Code Required

When **UPC-E Add-On Code Required** is selected, the engine will only read **UPC-E** barcodes that contain add-on codes.



Enter Setup



UPC-E Add-On Code Required



** UPC-E Add-On Code Not Required



Exit Setup

Code 128 / GS1 -128



Enter Setup



**Enable Code 128 / GS1-128



Disable Code 128 / GS1-128



Exit Setup

Set Lengths for Code 128

- **One Discrete Length**

Select this option to decode only Code 128 symbols containing a selected length.

- **Two Discrete Lengths**

Select this option to decode only Code 128 symbols containing either of two selected lengths.

- **Length Within Range**

Select this option to decode a Code 128 symbol with a specific length range.

- **Any Length**

Select this option to decode Code 128 symbols containing any number of characters within the decoder capability.

To decode only Code 128 symbols with 9 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **One Discrete Length** barcode.
3. Scan the numeric barcodes "9" from the "**Digit Barcodes**" section in Appendix.
4. Scan the **Exit Setup** barcode.

Set Lengths for Code 128



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

Code 39



Enter Setup



**Enable Code 39



Disable Code 39



Exit Setup

Full ASCII



Enter Setup



Enable Code 39 Full ASCII



**Disable Code 39 Full ASCII



Exit Setup

Transmit Start/Stop Character



Enter Setup



Transmit Start/Stop Character



****Do Not Transmit Start/Stop Character**



Exit Setup

Check Character Verification



Enter Setup



Transmit Check Character After Verification



Do Not Transmit Check Character After Verification



**Disable



Exit Setup

Set Lengths for Code 39

● **One Discrete Length**

Select this option to decode only Code 39 symbols containing a selected length.

● **Two Discrete Lengths**

Select this option to decode only Code 39 symbols containing either of two selected lengths.

● **Length Within Range**

Select this option to decode a Code 39 symbol with a specific length range.

● **Any Length**

Select this option to decode Code 39 symbols containing any number of characters within the decoder capability.

To decode only those Code 39 symbols containing either 2 or 14 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **Two Discrete Lengths** barcode.
3. Scan the numeric barcodes "0","2" from the "**Digit Barcodes**" section in Appendix.
4. Scan the numeric barcodes "1","4" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

Set Lengths for Code 39



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

Code 32



Enter Setup



Enable Code 32



**Disable Code 32



Exit Setup

Code 93



Enter Setup



Enable Code 93



**Disable Code 93



Exit Setup

Set Lengths for Code 93

● **One Discrete Length**

Select this option to decode only Code 93 symbols containing a selected length.

● **Two Discrete Lengths**

Select this option to decode only Code 93 symbols containing either of two selected lengths.

● **Length Within Range**

Select this option to decode a Code 93 symbol with a specific length range.

● **Any Length**

Select this option to decode Code 93 symbols containing any number of characters within the decoder capability.

To decode Code 93 symbols containing between 4 and 12 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **Length Within Range** barcode.
3. Scan the numeric barcodes "0","4" from the "**Digit Barcodes**" section in Appendix.
4. Scan the numeric barcodes "1","2" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

Set Lengths for Code 93



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

Code 11



Enter Setup



Enable Code 11



**Disable Code 11

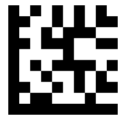


Exit Setup

Transmit Check Character



Enter Setup



** Transmit Code 11 Check Character



Do Not Transmit Code 11 Check Character



Exit Setup

Set Lengths for Code 11

● **One Discrete Length**

Select this option to decode only Code 11 symbols containing a selected length.

● **Two Discrete Lengths**

Select this option to decode only Code 11 symbols containing either of two selected lengths.

● **Length Within Range**

Select this option to decode a Code 11 symbol with a specific length range.

● **Any Length**

Select this option to decode Code 11 symbols containing any number of characters within the decoder capability.

To decode only Code 11 symbols with 9 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **One Discrete Length** barcode.
3. Scan the numeric barcodes "9" from the "**Digit Barcodes**" section in Appendix.
4. Scan the **Exit Setup** barcode.

Set Lengths for Code 128



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

Codabar



Enter Setup



**Enable Codabar



Disable Codabar



Exit Setup

Check Character Verification



Enter Setup



Transmit Check Character After Verification



Do Not Transmit Check Character After Verification



**Disable



Exit Setup

Transmit Start/Stop Character



Enter Setup



Transmit Start/Stop Character



****Do Not Transmit Start/Stop Character**



Exit Setup

Set Lengths for Codabar

- **One Discrete Length**

Select this option to decode only Codabar symbols containing a selected length.

- **Two Discrete Lengths**

Select this option to decode only Codabar symbols containing either of two selected lengths.

- **Length Within Range**

Select this option to decode a Codabar symbol with a specific length range.

- **Any Length**

Select this option to decode Codabar symbols containing any number of characters within the decoder capability.

To decode Codabar symbols containing between 4 and 12 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **Length Within Range** barcode.
3. Scan the numeric barcodes "0","4" from the "**Digit Barcodes**" section in Appendix.
4. Scan the numeric barcodes "1","2" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

Set Lengths for Codabar



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

Plessey



Enter Setup



Enable Plessey



**Disable Plessey



Exit Setup

Set Lengths for Plessey

● **One Discrete Length**

Select this option to decode only Plessey symbols containing a selected length.

● **Two Discrete Lengths**

Select this option to decode only Plessey symbols containing either of two selected lengths.

● **Length Within Range**

Select this option to decode a Plessey symbol with a specific length range.

● **Any Length**

Select this option to decode Plessey symbols containing any number of characters within the decoder capability.

To decode Plessey symbols containing between 2 and 13 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **Length Within Range** barcode.
3. Scan the numeric barcodes "0","2" from the "**Digit Barcodes**" section in Appendix.
4. Scan the numeric barcodes "1","3" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

Set Lengths for Codabar



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

MSI Plessey



Enter Setup



**Enable MSI Plessey



Disable MSI Plessey



Exit Setup

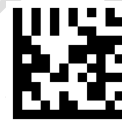
Check Character Verification



Enter Setup



Disable



**One Check Character, MOD10



Two Check Characters, Mod 10/10



Two Check Characters, Mod 11/10

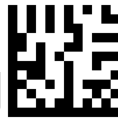


Exit Setup

Transmit Check Character



Enter Setup



** Transmit MSI Plessey Check Character



Do Not Transmit MSI Plessey Check Character



Exit Setup

Set Lengths for MSI Plessey

- **One Discrete Length**

Select this option to decode only MSI Plessey symbols containing a selected length.

- **Two Discrete Lengths**

Select this option to decode only MSI Plessey symbols containing either of two selected lengths.

- **Length Within Range**

Select this option to decode a MSI Plessey symbol with a specific length range.

- **Any Length**

Select this option to decode MSI Plessey symbols containing any number of characters within the decoder capability.

To decode MSI Plessey symbols containing between 3 and 12 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **Length Within Range** barcode.
3. Scan the numeric barcodes "0","3" from the "**Digit Barcodes**" section in Appendix.
4. Scan the numeric barcodes "1","2" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

Set Lengths for MSI Plessey



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

Interleaved 2 of 5



Enter Setup



**Enable Interleaved 2 of 5



Disable Interleaved 2 of 5



Exit Setup

Check Character Verification



Enter Setup



Transmit Check Character After Verification



Do Not Transmit Check Character After Verification



**Disable



Exit Setup

Set Lengths for Interleaved 2 of 5

● **One Discrete Length**

Select this option to decode only Interleaved 2 of 5 symbols containing a selected length.

● **Two Discrete Lengths**

Select this option to decode only Interleaved 2 of 5 symbols containing either of two selected lengths.

● **Length Within Range**

Select this option to decode a Interleaved 2 of 5 symbol with a specific length range.

● **Any Length**

Select this option to decode Interleaved 2 of 5 symbols containing any number of characters within the decoder capability.

To decode only Interleaved 2 of 5 symbols with 8 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **One Discrete Length** barcode.
3. Scan the numeric barcodes "8" from the "**Digit Barcodes**" section in Appendix.
4. Scan the **Exit Setup** barcode.

Set Lengths for Interleaved 2 of 5



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

Matrix 2 of 5



Enter Setup



Enable Matrix 2 of 5



**Disable Matrix 2 of 5



Exit Setup

Set Lengths for Matrix 2 of 5

- **One Discrete Length**

Select this option to decode only Matrix 2 of 5 symbols containing a selected length.

- **Two Discrete Lengths**

Select this option to decode only Matrix 2 of 5 symbols containing either of two selected lengths.

- **Length Within Range**

Select this option to decode a Matrix 2 of 5 symbol with a specific length range.

- **Any Length**

Select this option to decode Matrix 2 of 5 symbols containing any number of characters within the decoder capability.

To decode only Matrix 2 of 5 symbols with 8 characters.

1. Scan the **Enter Setup** barcode.
2. Scan the **One Discrete Length** barcode.
3. Scan the numeric barcodes "8" from the "**Digit Barcodes**" section in Appendix.
4. Scan the **Exit Setup** barcode.

Set Lengths for Interleaved 2 of 5



Enter Setup



One Discrete Length



Two Discrete Lengths



Length Within Range



** Any Length



Exit Setup

IATA 2 of 5



Enter Setup



Enable IATA 2 of 5



**Disable IATA 2 of 5



Exit Setup

Straight 2 of 5



Enter Setup



Enable Straight 2 of 5



**Disable Straight 2 of 5



Exit Setup

Pharmacode



Enter Setup



Enable Pharmacode



**Disable Pharmacode



Exit Setup

GS1 DataBar 14



Enter Setup



**Enable GS1 DataBar 14



Disable GS1 DataBar 14



Exit Setup

GS1 DataBar 14 Stacked



Enter Setup



Enable GS1 DataBar 14 Stacked



**Disable GS1 DataBar 14 Stacked



Exit Setup

Transmit Application Identifier "01"



Enter Setup



** Transmit Application Identifier "01"



Do Not Transmit Application Identifier "01"



Exit Setup

GS1 DataBar Expanded



Enter Setup



**Enable GS1 DataBar Expanded



Disable GS1 DataBar Expanded



Exit Setup

GS1 DataBar Expanded Stacked



Enter Setup



Enable GS1 DataBar Expanded Stacked



**Disable GS1 DataBar Expanded Stacked



Exit Setup

Transmit Application Identifier "01"



Enter Setup



** Transmit Application Identifier "01"



Do Not Transmit Application Identifier "01"



Exit Setup

GS1 DataBar Limited



Enter Setup



**Enable GS1 DataBar Limited



Disable GS1 DataBar Limited



Exit Setup

Transmit Application Identifier "01"



Enter Setup



** Transmit Application Identifier "01"



Do Not Transmit Application Identifier "01"



Exit Setup

Composite Code-A



Enter Setup



Enable Composite Code-A



**Disable Composite Code-A



Exit Setup

Composite Code-B



Enter Setup



Enable Composite Code-B



**Disable Composite Code-B



Exit Setup

Composite Code-C



Enter Setup



Enable Composite Code-C



**Disable Composite Code-C



Exit Setup

PDF417



Enter Setup



**Enable PDF417



Disable PDF417



Exit Setup

Micro PDF417



Enter Setup



**Enable Micro PDF417



Disable Micro PDF417



Exit Setup

Data Matrix



Enter Setup



**Enable Data Matrix



Disable Data Matrix



Exit Setup

Rectangular Data Matrix



Enter Setup



**Enable Rectangular Data Matrix



Disable Rectangular Data Matrix



Exit Setup

QR



Enter Setup



**Enable QR



Disable QR



Exit Setup

UTF8/Code Page QR Keyboard Output



Enter Setup



** GB2312 – Unicode / Excel ; Notepad



GB2312 – Code Page / Word



Exit Setup

UTF8/Code Page QR Keyboard Output



Enter Setup



Thailand



Russia



Turkey



Brazil



Exit Setup

UTF8/Code Page QR Keyboard Output



Enter Setup



Germany



Italy



Spain



Portugal



Exit Setup

Micro QR



Enter Setup



**Enable Micro QR



Disable Micro QR



Exit Setup

Aztec



Enter Setup



Enable Aztec



**Disable Aztec



Exit Setup

MaxiCode



Enter Setup



Enable MaxiCode



**Disable MaxiCode



Exit Setup

Chapter 5 String Options

This chapter describes the alterations which can be made to the format of transmitted data string.

Options available are:

- Case Conversion
- Transmission of Decode Information
- Transmission of AIM ID
- Transmission of Prefix / Suffix
- Transmission of Terminated Character (postamble)
- Function Key Mapping
- GS Code Conversion

The string format transmitted as following figure:

Barcode Contents (4 bytes)	Prefix (8 bytes)	AIM identify ID	Barcode Data	Suffix (8 bytes)	Terminated Character (1 byte)
-------------------------------	---------------------	-----------------------	--------------	---------------------	----------------------------------

Decode Information

Decode information specifies the identify code and length of decoded barcode. This feature is only applicable to RS232 interface.

The barcode information transmitted as following figure:

Star Code 0x03 (1 byte)	Identify Code (1 byte)	Code Length (2 bytes) 0x0001 ~0xFFFF
-------------------------	------------------------	---

Value of Identify Code :

ID	2D Symbologies	ID	1D Symbologies	ID	1D Symbologies
0x41	PDF417	0x61	UPC A	0x71	Pharmacode
0x42	Micro PDF417	0x62	UPC E	0x72	GS1 DataBar 14
0x43	Data Matrix	0x63	EAN 8	0x73	GS1 DataBar Expanded
0x44	QR	0x64	EAN 13	0x74	GS1 DataBar Limited
0x45	Micro QR	0x65	Code 128	0x75	Composite Code-A
0x46	Aztec	0x66	Code 39	0x76	Composite Code-B
0x47	MaxiCode	0x67	Code 93	0x77	Composite Code-C
		0x68	Code 32		
		0x69	Code 11		
		0x6A	Codabar		
		0x6B	Plessey		
		0x6C	MSI Plessey		
		0x6D	Interleaved 2 of 5		
		0x6E	IATA 2 of 5		
		0x6F	Matrix 2 of 5		
		0x70	Straight 2 of 5		

Decode Information



Enter Setup



Enable



Disable (default)



Exit Setup

AIM ID



Enter Setup



Enable AIM ID



Disable AIM ID (default)



Exit Setup

Symbology Identify Code		
Symbology	Mexxen	AIM
UPC-A	A	E
UPC-E	E	E
EAN-8	FF	E
EAN-13	F	E
Code 128	K	C
Code 39	M	A
Code 93	L	G
Code 32	M	A
Code 11	O	H
Codabar	N	F
Plessey	P	P
MSI / Plessey	a	M
Interleaved 2 of 5	I	I
IATA 2 of 5	Z	R
Matrix 2 of 5	G	X
Straight 2 of 5	S	S
Pharmacode	H	X
GS1 DataBar 14	RS	e
GS1 DataBar Expanded	RX	e
GS1 DataBar Limited	RL	e
Composite CC-A	m	e
Composite CC-B	n	e
Composite CC-C	i	e
PDF417	r	L
Micro PDF417	s	L
Data Matrix	t	d
QR	u	Q
Micro QR	j	Q
Aztec	e	Z
MaxiCode	v	U

Prefix

Maximum 8 characters can include in front of data string.

Set ASCII code "a" for all Symbologies

1. Scan the **Enter Setup** barcode.
2. Scan the **Set All Symbologies** barcode.
3. Scan the "a" barcode from the **ASCII Code Table** in Appendix C.
4. Scan the **Exit Setup** barcode.

Disable Prefix for all Symbologies

1. Scan the **Enter Setup** barcode.
2. Scan the **Disable All Symbologies** barcode.
3. Scan the **Exit Setup** barcode.

Set "E","1" for EAN 13

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Symbology** barcode.
3. Scan the **EAN 13** barcode in Appendix - B.
4. Scan the "E" barcode from the **ASCII Code Table** in Appendix C.
5. Scan the "1" barcode from the **ASCII Code Table** in Appendix C.
6. Scan the **Exit Setup** barcode.

Disable Prefix for EAN 13

1. Scan the **Enter Setup** barcode.
2. Scan the **Disable Symbology** barcode.
3. Scan the **EAN 13** barcode from the **Symbologies Table** in Appendix - B.
4. Scan the **Exit Setup** barcode.



Enter Setup



**Disable All Symbologies



Set All Symbologies



Set Symbology



Disable Symbology



Exit Setup

Suffix

Maximum 8 characters can include in end of data string.

Set ASCII code "a" for all Symbologies

1. Scan the **Enter Setup** barcode.
2. Scan the **Set All Symbologies** barcode.
3. Scan the "a" barcode from the **ASCII Code Table** in Appendix C.
4. Scan the **Exit Setup** barcode.

Disable Prefix for all Symbologies

1. Scan the **Enter Setup** barcode.
2. Scan the **Disable All Symbologies** barcode.
3. Scan the **Exit Setup** barcode.

Set "S","2" for EAN-8

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Symbology** barcode.
3. Scan the **EAN 8** barcode in Appendix - B.
4. Scan the "S" barcode from the **ASCII Code Table** in Appendix C.
5. Scan the "2" barcode from the **ASCII Code Table** in Appendix C.
6. Scan the **Exit Setup** barcode.

Disable Prefix for EAN 8

1. Scan the **Enter Setup** barcode.
2. Scan the **Disable Symbology** barcode.
3. Scan the **EAN 8** barcode from the **Symbologies Table** in Appendix - B.
4. Scan the **Exit Setup** barcode.



Enter Setup



**Disable All Symbologies



Set All Symbologies



Set Symbology



Disable Symbology



Remove the Forepart of characters

Maximum 20 characters can be removed

Remove 3 characters from the forepart of the string

Set for All Symbologies:

1. Scan "Enter Setup"
2. Scan "Remove for all Symbologies"
3. Scan the numeric barcodes "3" from the "Digit Barcodes" section in Appendix-A.
4. Scan "Exit Setup"

Cancel the remove for all characters:

1. Scan "Enter Setup"
2. Scan "Remove for all Symbologies"
3. Scan the numeric barcodes "0" from the "Digit Barcodes" section in Appendix-A.
4. Scan "Exit Setup"

Set just for QR Code:

1. Scan "Enter Setup"
2. Scan "Remove characters"
3. Scan "QR Code" from the "Symbologies Table" section in Appendix.
4. Scan "the numeric barcodes "3" from the "Digit Barcodes" section in Appendix-A.
5. Scan "Exit Setup"

Cancel the remove for QR Code:

1. Scan "Enter Setup"
2. Scan "Remove characters"
3. Scan "QR Code" from the "Symbologies Table" section in Appendix.
4. Scan the numeric barcodes "0" from the "Digit Barcodes" section in Appendix-A.
5. Scan "Exit Setup"



Remove the Forepart of characters



Enter Setup



Remove for all Symbologies (fore)



Remove characters (fore)



Exit Setup

Remove the Tail-end characters

Maximum 20 characters can be removed

Remove 5 characters from tail-end of the string

Set for All Symbologies:

1. Scan "Enter Setup"
2. Scan "Remove for all Symbologies"
3. Scan the numeric barcodes "5" from the "Digit Barcodes" section in Appendix.
4. Scan "Exit Setup"

Cancel the remove for all characters:

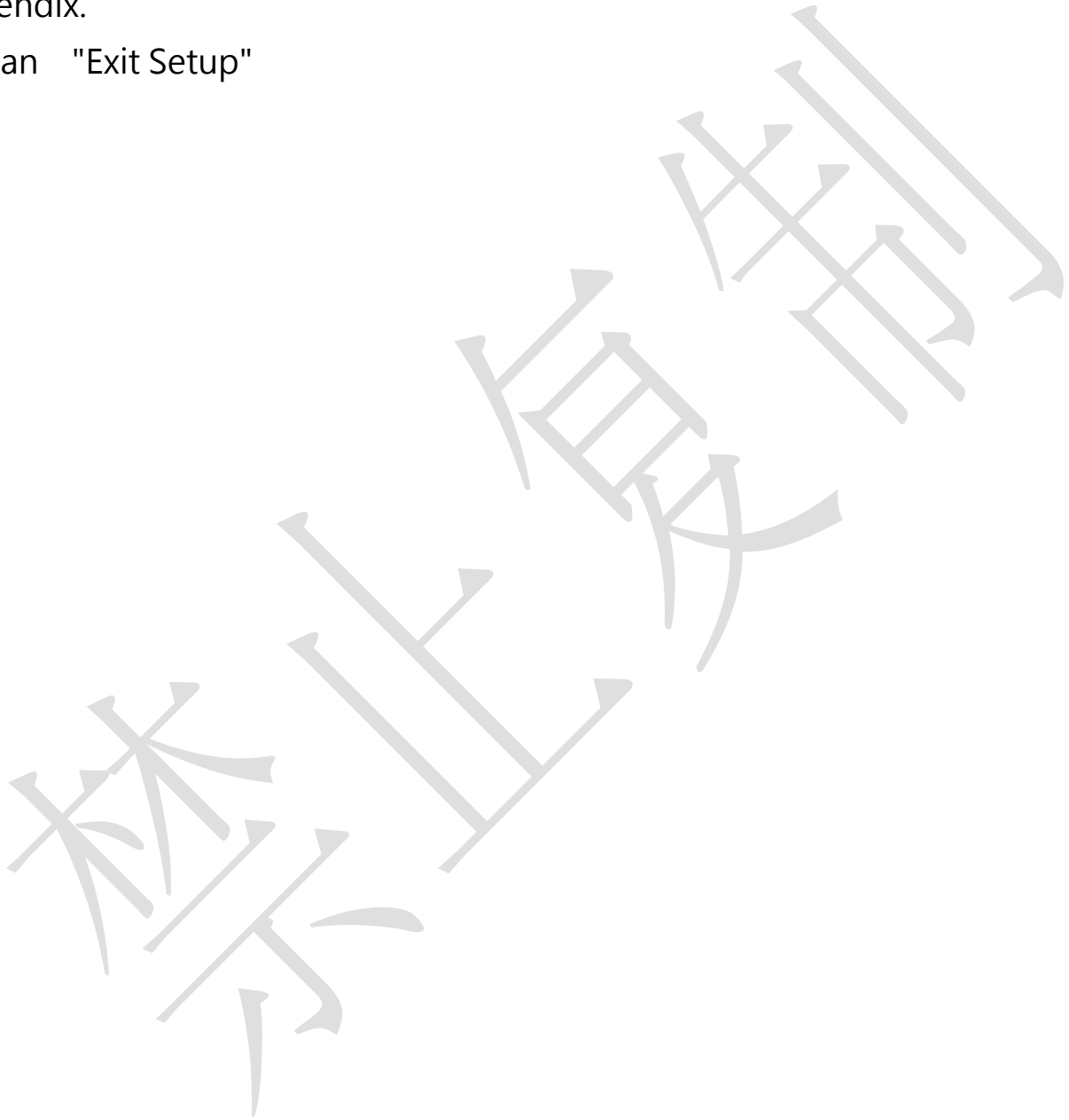
1. Scan "Enter Setup"
2. Scan "Remove for all Symbologies"
3. Scan the numeric barcodes "0" from the "Digit Barcodes" section in Appendix.
4. Scan "Exit Setup"

Set just for QR Code:

1. Scan "Enter Setup"
2. Scan "Remove characters"
3. Scan "QR Code" from the "Symbologies Table" section in Appendix.
4. Scan "the numeric barcodes "5" from the "Digit Barcodes" section in Appendix.
5. Scan "Exit Setup"

Cancel the remove for QR Code:

1. Scan "Enter Setup"
2. Scan "Remove characters"
3. Scan "QR Code" from the "Symbologies Table" section in Appendix.
4. Scan the numeric barcodes "0" from the "Digit Barcodes" section in Appendix.
5. Scan "Exit Setup"



Remove the Posterior characters



Enter Setup



Remove for all Symbolologies (tail)



Remove characters (tail)



Exit Setup

Terminated Character



Enter Setup



Disable



Enter/CR(default)



Exit Setup

Terminated Character



Enter Setup



CR / LF



TAB



Exit Setup

Case Conversion



Enter Setup



Convert All to Upper Case



Convert All to Lower Case



**Disable



Exit Setup

Caps Lock



Enter Setup



**Disable Caps Lock



Enable Caps Lock



Exit Setup

GS Code Conversion



Enter Setup



**Disable GS Conversion



Enable GSConversion



Exit Setup

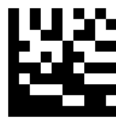
Function Key Mapping



Enter Setup



Disable



****Enable**



Exit Setup

Function Key Output Mode



Enter Setup



**Ctrl Char Mode



Alt + Unicode Mode



Exit Setup

Chapter 6 Serial Communication Protocol

Send and receive format, feedback message

Command Format: The following is instruction transmission and data receiving format

Length (1 Byte)	Source (1 Byte)	ExID (1 Byte)	ExCMD (1 Byte)	Data (MAX 32 Bytes)	High Byte of Checksum (1 Byte)	Low Byte of Checksum (1 Byte)
--------------------	--------------------	------------------	-------------------	------------------------	--------------------------------------	-------------------------------------

Length : Checksum data is not include (Min. 5 Byte ; Max. 36 Byte)

Source : 0x57 Represents the terminal sent to the decoder OR 0x52 Represents the decoder sent to the terminal

ExID : Command ID

ExCMD : Command

Data (MAX 32 Bytes) : Command Data, Max. 32 Bytes a transmission

High Byte of Checksum: Checksum High Byte

Low Byte of Checksum: Checksum Low Byte

Method of checksum calculation

Checksum =

$0x10000 - [\text{Length}] - [\text{Source}] - [\text{ExID}] - [\text{ExCMD}] - [\text{D1} + \text{D2} + \text{D3} + \dots]$

Feedback message:

When a terminal transmits an instruction to a device, the device sends back the following message so that the terminal can determine whether the instruction has succeeded or failed

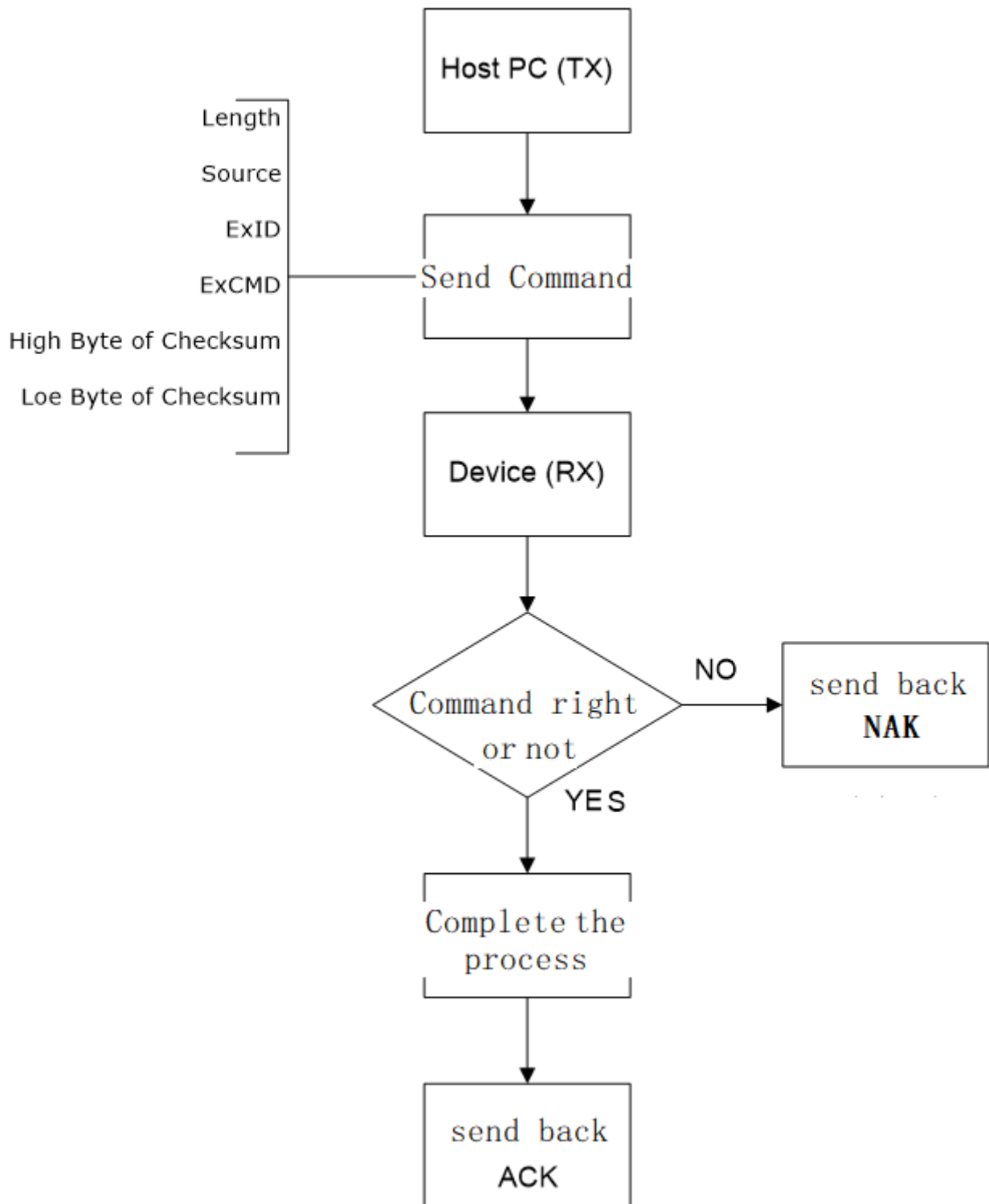
If the setup is successful, send the following 5bytes Hex data (ACK) to the terminal in turn

52	A0	EC	FE	74
----	----	----	----	----

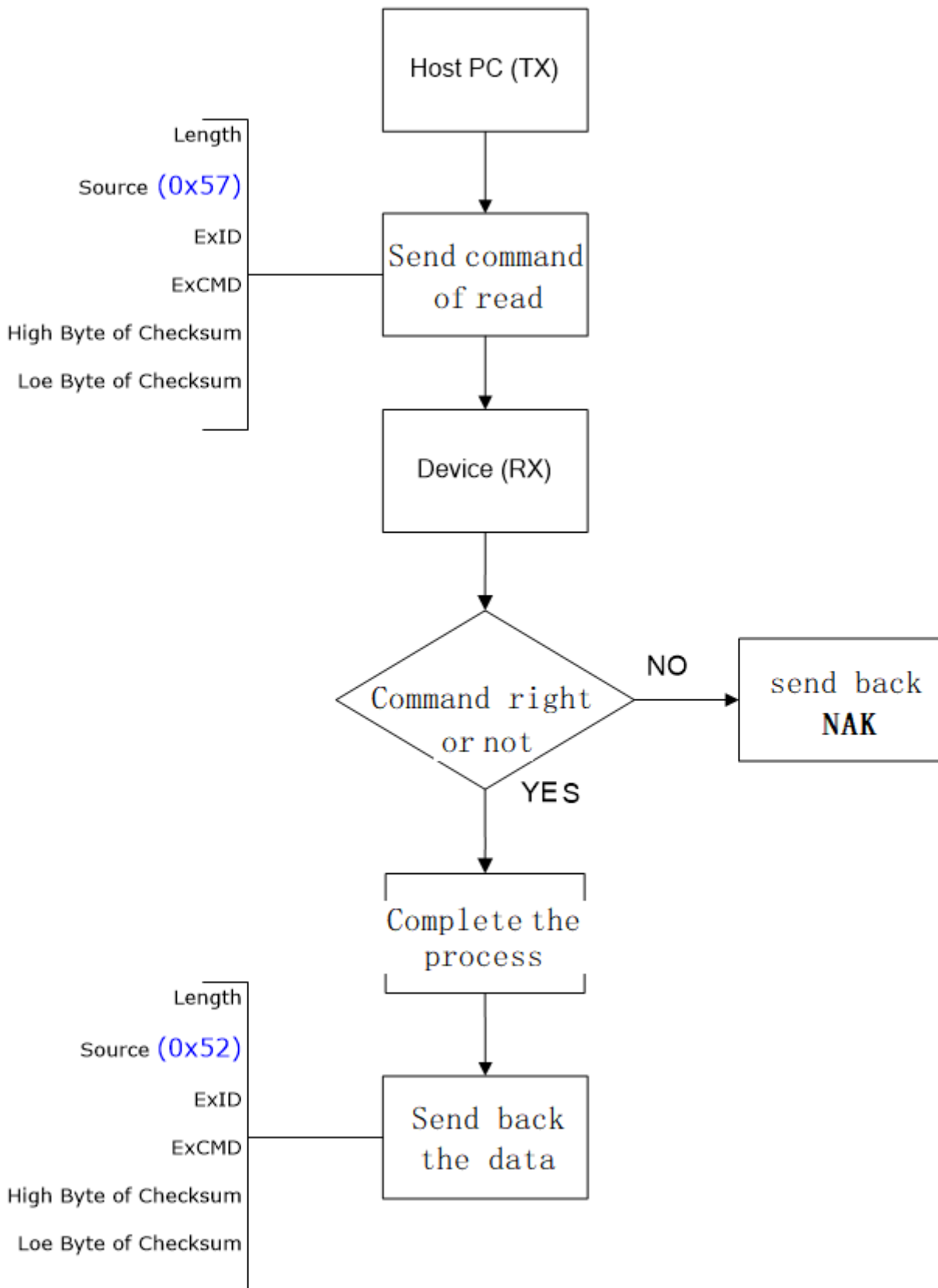
If the setup fails, send the following 5bytes Hex Data (NAK) to the terminal in turn

52	A0	E0	FE	80
----	----	----	----	----

The process of setup



The process of read



Command Protocol

Function		ID	CMD	Data
Confirm Communication status		0E	0D	01
Read the firmware		0E	0D	02
Read the Scan Mode		0E	0D	03
Read the Scan status		0E	0D	04
Read the decode results		0E	0D	05
ACK Feedback	Open	A0	00	01
	Disable	A0	00	00
Scan Control	Start Scan	A0	01	01
	Stop Scan	A0	01	00
Save the setup		A0	08	01
Return to Factory Defaults		A1	01	0F
Save as Custom Defaults		A1	01	08
Return to Custom Defaults		A1	01	CF
Scan Mode	Trigger mode	A1	02	01
	Sensor mode	A1	02	02
	Continuous mode	A1	02	03
	Pulse mode (External trigger mode)	A1	02	04
Sensor Mode	Infrared trigger	A1	02	11
	Image trigger	A1	02	12
	Image and Infrared trigger	A1	02	13

Function		ID	CMD	Data
Aiming LED	Disable	A1	03	00
	Scan On	A1	03	01
	Always On	A1	03	02
Illumination Light	Disable	A1	04	00
	Scan On	A1	04	01
	Always On	A1	04	02
Illumination Level	Low	A1	04	11
	Medium	A1	04	12
	High	A1	04	13
Decode Beeper	Enable	A1	05	0E
	Disable	A1	05	0D
Same code delay	Do Not Reread	A1	08	01
	Interval read	A1	08	02
	Do Not Reread once	A1	08	03
	Do Not Reread twice	A1	08	04

Function		ID	CMD	Data
Sensor sensitivity	Low	A1	0A	01
	Medium	A1	0A	02
	High	A1	0A	03
Decode Redundancy	Disable	A1	0B	01
	2 times	A1	0B	02
	3 times	A1	0B	03
Decode Information	Enable	A2	01	0E
	Disable	A2	01	0D
Barcode ID	Disable	A2	02	00
	AIM ID	A2	02	01
	MEXXEN ID	A2	02	02
Terminated Character	None	A2	03	01
	CR/LF	A2	03	02
	CR	A2	03	03
	TAB	A2	03	04

Function		ID	CMD	Data	
Enable All Symbologies		B0	01	0E	
Disable All Symbologies		B0	01	0D	
Only Enable 1D Symbologies		B0	01	01	
Only Enable 2D Symbologies		B0	01	02	
Disable 1D Symbologies		B0	01	03	
Disable 2D Symbologies		B0	01	04	
UPC / EAN Add-On Codes	Enable	B0	02	0E	
	Disable	B0	02	0D	
UPC A	Enable	B1	01	0E	
	Disable	B1	01	0D	
	Transmit first character		B1	02	0E
	No Transmit first character		B1	02	0D
	Enable Check		B1	03	0E
	Disable Check		B1	03	0D
	EnableEAN-13 Convert		B1	04	0E
	DisableEAN-13 Convert		B1	04	0D

Function		ID	CMD	Data	
UPC E	Enable	B2	01	0E	
	Disable	B2	01	0D	
	Transmit first character		B2	02	0E
	No Transmit first character		B2	02	0D
	Enable check	B2	03	0E	
	Disable check	B2	03	0D	
	EnableUPC A Convert		B2	04	0E
	DisableUPC A Convert		B2	04	0D
EAN 8	Enable	B3	01	0E	
	Disable	B3	01	0D	
	Transmit the check data		B3	02	0E
	No Transmit the check data		B3	02	0D
	EnableEAN-13 Convert		B3	03	0E
	DisableEAN-13 Convert		B3	03	0D

Function		ID	CMD	Data	
EAN 13	Enable	B4	01	0E	
	Disable	B4	01	0D	
	Transmit the check data		B4	02	0E
	No Transmit the check data		B4	02	0D
	EnableISBN Convert	B4	03	0E	
	DisableISBN Convert	B4	03	0D	
	EnableISSN Convert	B4	04	0E	
	DisableISSN Convert	B4	04	0D	
Code 128	Enable	B5	01	0E	
	Disable	B5	01	0D	
Code 39	Enable	B6	01	0E	
	Disable	B6	01	0D	
	EnableASCII	B6	02	0E	
	DisableASCII	B6	02	0D	
	Transmit start / end character		B6	03	0E
	No Transmit start / end character		B6	03	0D

Function		ID	CMD	Data	
Code 39	No Check	B6	04	01	
	Check and Transmit	B6	04	02	
	Check but No Transmit	B6	04	03	
Code 93	Enable	B7	01	0E	
	Disable	B7	01	0D	
Code 32	Enable	B8	01	0E	
	Disable	B8	01	0D	
Code 11	Enable	B9	01	0E	
	Disable	B9	01	0D	
Codabar	Enable	BA	01	0E	
	Disable	BA	01	0D	
	No Check	BA	02	01	
	Check and Transmit	BA	02	02	
	Check but No Transmit	BA	02	03	
	Transmit start / end character		BA	03	0E
	No Transmit start / end character		BA	03	0D

Function		ID	CMD	Data
Plessey	Enable	BB	01	0E
	Disable	BB	01	0D
MSI Plessey	Enable	BC	01	0E
	Disable	BC	01	0D
	No Check	BC	02	01
	Mod 10 Check	BC	02	02
	Mod 10/10Check	BC	02	03
	Mod 11/10Check	BC	02	04
	Transmit the Check data	BC	03	0E
	NO Transmit the Check data	BC	03	0D
Interleaved 2 of 5	Enable	BD	01	0E
	Disable	BD	01	0D
	No Check	BD	02	01
	Check and Transmit	BD	02	02
	Check but No Transmit	BD	02	03

Function		ID	CMD	Data
IATA 2 of 5	Enable	BE	01	0E
	Disable	BE	01	0D
Matrix 2 of 5	Enable	BF	01	0E
	Disable	BF	01	0D
Straight 2 of 5	Enable	D0	01	0E
	Disable	D0	01	0D
Pharmacode	Enable	D1	01	0E
	Disable	D1	01	0D
GS1 DataBar 14	Enable	D2	01	0E
	Disable	D2	01	0D
GS1 DataBar 14 Stacked	Enable	D2	02	0E
	Disable	D2	02	0D
GS1 DataBar Expanded	Enable	D3	01	0E
	Disable	D3	01	0D
GS1 DataBar Expanded Stacked	Enable	D3	02	0E
	Disable	D3	02	0D

Function		ID	CMD	Data
GS1 DataBar Limited	Enable	D4	01	0E
	Disable	D4	01	0D
CC-A	Enable	D5	01	0E
	Disable	D5	01	0D
CC-B	Enable	D6	01	0E
	Disable	D6	01	0D
CC-C	Enable	D7	01	0E
	Disable	D7	01	0D
PDF 417	Enable	D8	01	0E
	Disable	D8	01	0D
Micro PDF 417	Enable	D9	01	0E
	Disable	D9	01	0D
Data Matrix	Enable	DA	01	0E
	Disable	DA	01	0D
Rectangular Data Matrix	Enable	DA	03	0E
	Disable	DA	03	0D

Function		ID	CMD	Data
QR Code	Enable	DB	01	0E
	Disable	DB	01	0D
Micro QR	Enable	DC	01	0E
	Disable	DC	01	0D
Aztec	Enable	DD	01	0E
	Disable	DD	01	0D
MaxiCode	Enable	DE	01	0E
	Disable	DE	01	0D

Appendix A - Digit Barcodes



0



1



2



3



4



5

Appendix A - Digit Barcodes



6



7



8



9



Appendix B – Symbologies Table



UPC A



UPC E



EAN 8



EAN 13



Code 128



Code 39



Code 93



Code 32

Appendix B – Symbologies Table



Code 11



Codabar



Plessey



MSI Plessey



Interleaved 2 of 5



IATA 2 of 5



Matrix 2 of 5



Straight 2 of 5

Appendix B – Symbologies Table



Pharmacode



GS1 DataBar 14



GS1 DataBar Expanded



GS1 DataBar Limited



GS1 DataBar 14 Stacked



GS1 DataBar Expanded Stacked



Composite Code-A



Composite Code-B

Appendix B – Symbologies Table



Composite Code-C



PDF417



Micro PDF417



Data Matrix



QR



Micro QR



Aztec











MaxiCode


Appendix C - ASCII Code Table





Hexadecimal	Decimal	ASCII	Function Key Mapping	
			Ctrl Char 模式	Alt+Unicode 模式
00	0	Null	Ctrl+@	Alt + 000
01	1	Home	Ctrl+A	Alt + 001
02	2	End	Ctrl+B	Alt + 002
03	3	Up Arrow	Ctrl+C	Alt + 003
04	4	Down Arrow	Ctrl+D	Alt + 004
05	5	Left Arrow	Ctrl+E	Alt + 005
06	6	Right Arrow	Ctrl+F	Alt + 006
07	7	Null	Ctrl+G	Alt + 007
08	8	 Backspace	Backspace	Alt + 008
09	9	 TAB	TAB	Alt + 009
0A	10	Null	Ctrl+J	Alt + 010
0B	11	Null	Ctrl+K	Alt + 011
0C	12	Null	Ctrl+L	Alt + 012
0D	13	 Enter	Enter	Enter
0E	14	Page Up	Ctrl+N	Alt + 014
0F	15	Page Down	Ctrl+O	Alt + 015





Hexadecimal	Decimal	ASCII	Function Key Mapping	
			Ctrl Char 模式	Alt+Unicode 模式
10	16	F11	Ctrl+P	Alt + 016
11	17	figu Null	Ctrl+Q	Alt + 017
12	18	Null	Ctrl+R	Alt + 018
13	19	Null	Ctrl+S	Alt + 019
14	20	Null	Ctrl+T	Alt + 020
15	21	F12	Ctrl+U	Alt + 021
16	22	F1	Ctrl+V	Alt + 022
17	23	F2	Ctrl+W	Alt + 023
18	24	F3	Ctrl+X	Alt + 024
19	25	F4	Ctrl+Y	Alt + 025
1A	26	F5	Ctrl+Z	Alt + 026
1B	27	F6	Ctrl+[Alt + 027
1C	28	F7	Ctrl+\	Alt + 028
1D	29	F8	Ctrl+]	Alt + 029
1E	30	F9	Ctrl+^	Alt + 030
1F	31	F10	Ctrl+_	Alt + 031





Hexadecimal	Decimal	ASCII	
20	32	SPACE	
21	33	!	
22	34	"	
23	35	#	





Hexadecimal	Decimal	ASCII	
24	36	\$	
25	37	%	
26	38	&	
27	39	'	





Hexadecimal	Decimal	ASCII	
28	40	(
29	41)	
2A	42	*	
2B	43	+	





Hexadecimal	Decimal	ASCII	
2C	44	,	
2D	45	-	
2E	46	.	
2F	47	/	





Hexadecimal	Decimal	ASCII	
30	48	0	
31	49	1	
32	50	2	
33	51	3	





Hexadecimal	Decimal	ASCII	
34	52	4	
35	53	5	
36	54	6	
37	55	7	





Hexadecimal	Decimal	ASCII	
38	56	8	
39	57	9	
3A	58	:	
3B	59	;	





Hexadecimal	Decimal	ASCII	
3C	60	<	
3D	61	=	
3E	62	>	
3F	63	?	





Hexadecimal	Decimal	ASCII	
40	64	@	
41	65	A	
42	66	B	
43	67	C	





Hexadecimal	Decimal	ASCII	
44	68	D	
45	69	E	
46	70	F	
47	71	G	





Hexadecimal	Decimal	ASCII	
48	72	H	
49	73	I	
4A	74	J	
4B	75	K	





Hexadecimal	Decimal	ASCII	
4C	76	L	
4D	77	M	
4E	78	N	
4F	79	O	





Hexadecimal	Decimal	ASCII	
50	80	P	
51	81	Q	
52	82	R	
53	83	S	





Hexadecimal	Decimal	ASCII	
54	84	T	
55	85	U	
56	86	V	
57	87	W	





Hexadecimal	Decimal	ASCII	
58	88	X	
59	89	Y	
5A	90	Z	
5B	91	[

Hexadecimal	Decimal	ASCII	
5C	92	\	
5D	93]	
5E	94	^	
5F	95	-	

Hexadecimal	Decimal	ASCII	
60	96	,	
62	97	a	
62	98	b	
63	99	c	





Hexadecimal	Decimal	ASCII	
64	100	d	
65	101	e	
66	102	f	
67	103	g	





Hexadecimal	Decimal	ASCII	
68	104	h	
69	105	i	
6A	106	j	
6B	107	k	

Hexadecimal	Decimal	ASCII	
6C	108	l	
6D	109	m	
6E	110	n	
6F	111	o	

Hexadecimal	Decimal	ASCII	
70	112	p	
71	113	q	
72	114	r	
73	115	s	

Hexadecimal	Decimal	ASCII	
74	116	t	
75	117	u	
76	118	v	
77	119	w	

Hexadecimal	Decimal	ASCII	
78	120	x	
79	121	y	
7A	122	z	
7B	123	{	

Hexadecimal	Decimal	ASCII	
7C	124		
7D	125	}	
7E	126	~	
7F	127	Delete	

Appendix D – Function Key Table



Insert



Delete



Home



End



Up Arrow



Down Arrow



Left Arrow



Right Arrow

Appendix D – Function Key Table



Shift



ESC



Page Up



Page Down



F1



F2



F3



F4

Appendix D – Function Key Table



F5



F6



F7



F8



F9



F10



F11



F12