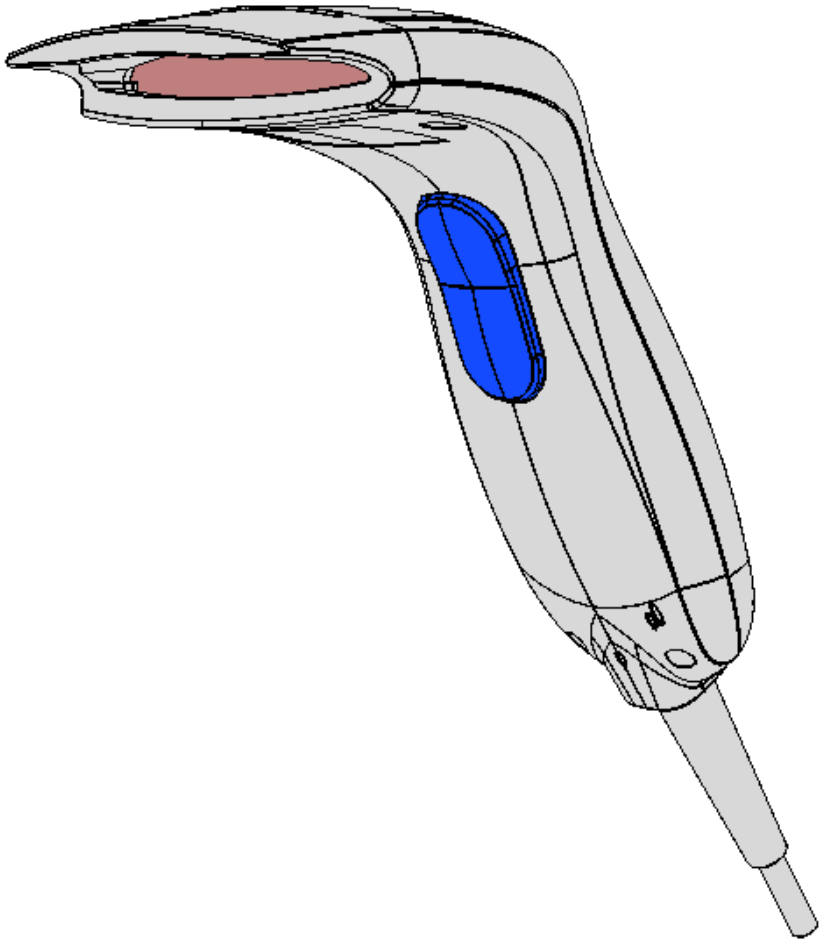
unitech
because we care

CCD Barcode Scanner

- MS250 -



User's Manual

Version 2.1

Disclaimer

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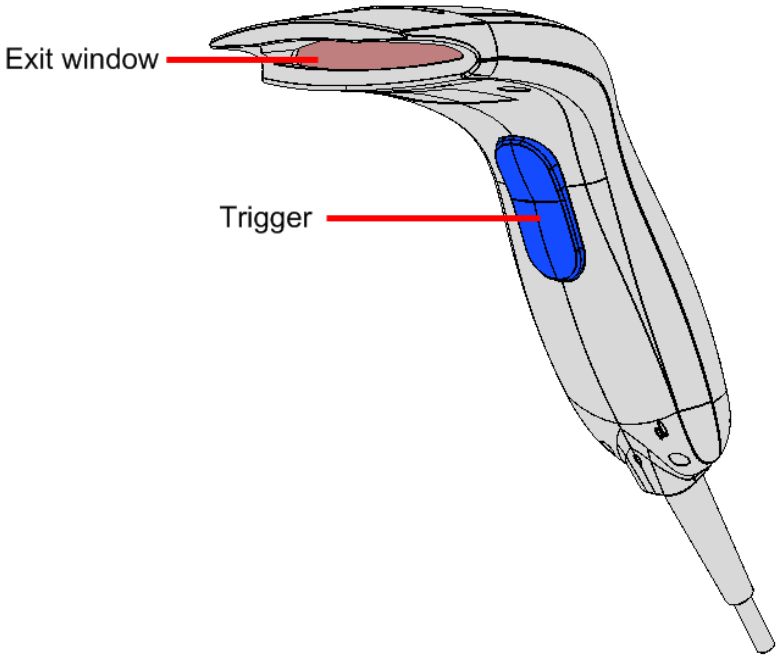
Regulatory Compliance Statements

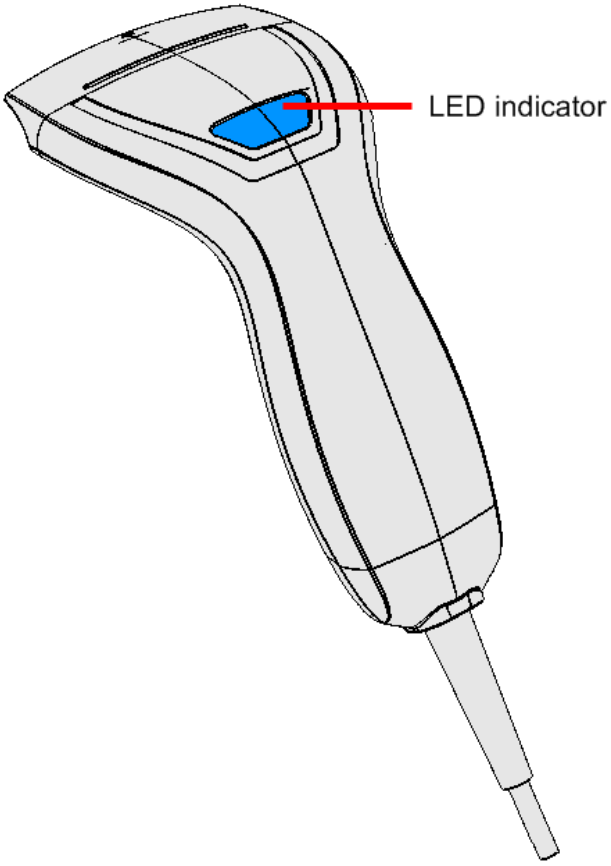
RoHS Statement

This device conforms to RoHS (Reduction Of Hazardous Substances) European Union regulations that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.

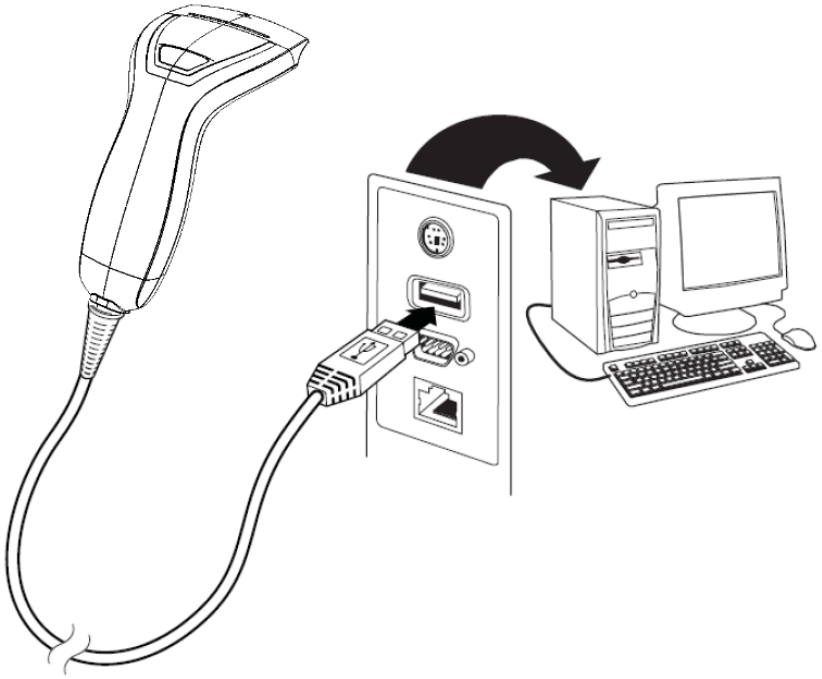
Table of Contents

Chapter 1. Quick Tour

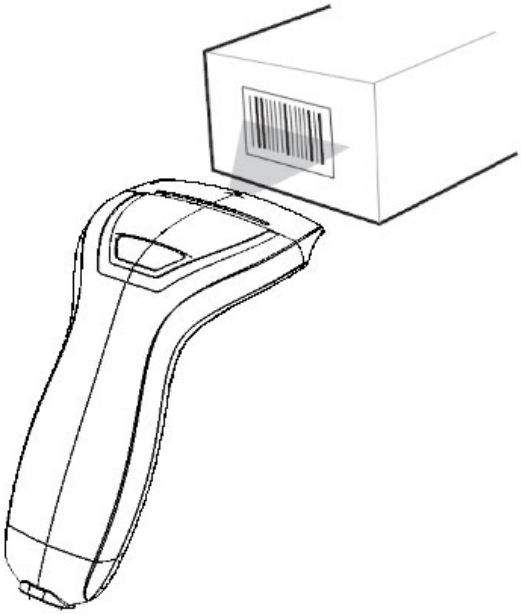




Chapter 2. Installation and Operation



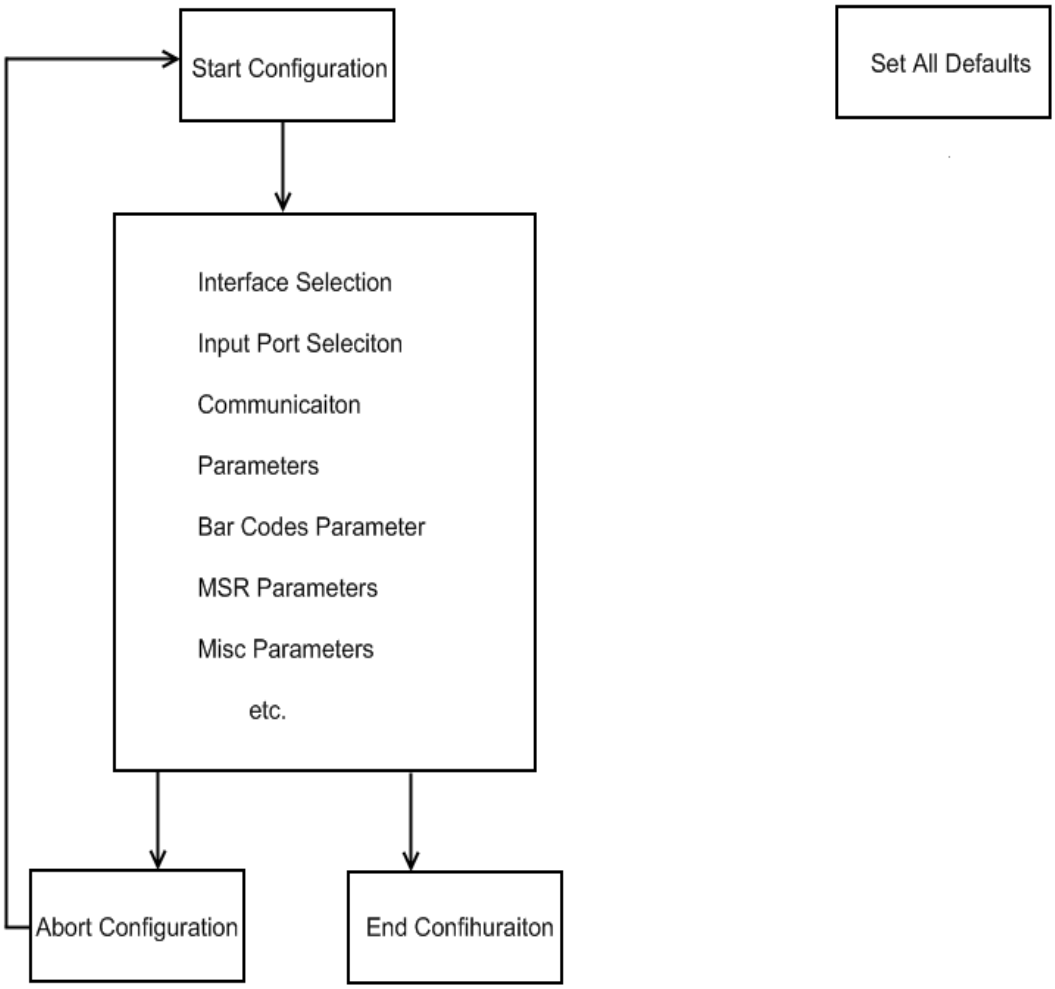
1. Connect the USB connector of MS 250 to the USB port of a host PC.



2. Aim at the barcode and pull the trigger to scan the barcode.

Chapter 3. CONFIGURATION

3.1 Flow Chart



3.2 Loop of Programming

The philosophy of programming parameters has been shown on the flow chart of 3.1. Basically user should

1. Scan Start of Configuration.
2. Scan all necessary labels for parameters that meet applications.
3. Scan End of Configuration to end the programming.
4. To permanently save the settings you programmed, just scan label for Save Parameters.

To go back to the Default Settings, just scan label for Set All Defaults.

3.3 Factory Default Settings

The factory default settings are shown with <> and bold in the following sections. You can make your own settings by following the procedures in this manual. If you want to save the settings permanently, you should scan the label of “Save Parameters“ in chapter 3.4,otherwise the settings will not be saved after the decoder power is off, and all settings will go back to previous settings.

By scanning “Set All Default“ label, the settings will go back to the factory default settings.

3.4 Main Page of Configuration

Set All Defaults	%$+/2
Start Configuration	%$+/3
End Configuration	%$+/4
Abort Configuration	%$+/6
Version Information	%$+/5

Save Parameters

Recall Stored Parameters

Save Parameters -
The parameter settings will be saved permanently.

Recall Stored Parameters -
Replace the current parameters by the parameters you saved last time.

Set All Defaults -
Set all the parameters to the factory default settings.

Abort Configuration -
Terminate current programming status.

Version Information -
Display the decoder version information and date code.

Chapter 4 Interface and Reading Mode Selection

4.1 Interface Selection

<USB Mode>	%0XO8
Keyboard Mode	%00U0
RS232 Mode	%00U8
WAND Emulation	%00M2
Virtual Com Port Mode	%0088

4.2 Reading Mode Selection

<Trigger ON/OFF>	%0270
Good Read OFF	%0271
Continuous/Trigger OFF	%0272
Testing	%0275

Continuous/Auto Power On	 %0273

Flash	 %0274
Flash/Auto Power On	 %0276
Reserved1	 %0277
Auto Sense (Option)	 %09F8
Reserved3	 %09F9
Reserved4	 %09FA
Reserved5	 %09FB

Chapter.5 Communication Parameters

5.1 RS232 Communication Parameters

A. Set Up BAUD Rate

1200	%0Y71
2400	%0Y72
4800	%0Y73
<9600>	%0Y77
19200	%0Y74
38400	%0Y75

B. Set Up Data Bits

7 Data Bits	%0Y80
<8 Data Bits>	%0Y88

C. Set Up Stop Bits

<1 Bit>	%0YO8
2 Bits	%0YO0

D. Set Up Parity

<None>	%0YN7
Even	%0YN2
Odd	%0YN3
Mark	%0YN1
Space	%0YN0

E. Handshaking

RTS/CTS Enable	%0188
<RTS/CTS Disable>	%0180

ACK/NAK Enable	%0144
<ACK/NAK Disable>	%0140
XON/XOFF Enable	%03K4
<XON/XOFF Disable>	%03K0

5.2 Keyboard Wedge Mode Parameters

A. Terminal Type

<IBM PC/AT, PS/2>	%0ZF0
IBM PC/XT	%0ZF1
IBM PS/2 25, 30	%0ZF2
NEC 9800	%0ZF3
Apple Desktop Bus(ADB)	%0ZF4

IBM 5550	%0ZF5
IBM 122 Key (1)	%0ZF6
IBM 102 Key	%0ZF7
IBM 122 Key (2)	%0ZF8
Reserved 1	%0ZF9
Reserved 2	%0ZFA
Reserved 3	%0ZFB
Reserved 4	%0ZFC
Reserved 5	%0ZFD

B. Upper/Lower Case

<No Change>	%0330
Upper Case	%0331
Lower Case	%0332

C. Caps Lock Detection

Enable	%0X88
<Disable>	%0X80

D. Send Character by ALT Method

Enable	%03O8
<Disable>	%03O0

E. Select Numerical Pad

ON	%01K4
<OFF>	%01K0

5.3 Output Characters Parameters

A. Select Terminator

<CR+LF>	%7S2+
None	%7S7+
CR	%7S0+
LF	%7S1+
Space	%7S4+
HT(TAB)	%7S3+
STX-ETX	%7S5+

B. Time-out Between Characters

<0 ms>	 %0070
5 ms	 %0071
10 ms	 %0072
25 ms	 %0073
50 ms	 %0074
100 ms	 %0075
200 ms	 %0076
300 ms	 %0077

5.4 Wand Emulation Mode Parameters

A. TTL Level Representation

<Bar Equals High>	%02K4
Bar Equals Low	%02K0

B. Scan Speed Selection

<Fast>	%0288
Slow	%0280

C. Output Format Selection

<Output as Code 39>	%02O8
Output as Code 39 Full ASCII	%02O0
Output as Original Code Format	%0XK4

Chapter. 6 Bar Codes & Others

6.1 Symbologies Selection

UPC-A <ON>	%0A44
OFF	%0A40
UPC-E <ON>	%0BO8
OFF	%0BO0
EAN-13/JAN-13/ISBN-13<ON>	%0A22
OFF	%0A20
EAN-8/JAN-8 <ON>	%0A11
OFF	%0A10
CODE 39 <ON>	%0EO8
OFF	%0EO0

CODE 128 <ON>	%0FO8
OFF	%0FO0
CODABAR/NW7 <ON>	%0JO8
OFF	%0JO0
Interleave 25 <ON>	%0GO8
OFF	%0GO0
Industrial 25 ON	%0HO8
<OFF>	%0HO0
Matrix 25 ON	%0IO8
<OFF>	%0IO0

CODE 93 ON	 %0KO8
<OFF>	 %0KO0
CODE 11 ON	 %0LO8
<OFF>	 %0LO0
China Postage ON	 %0MO8
<OFF>	 %0MO0
MSI/PLESSEY ON	 %0NO8
<OFF>	 %0NO0
Code 2 of 6 ON	 %0PO8
<OFF>	 %0PO0

LCD25 ON	%0QO8
<OFF>	%0QO0
Reserved5 ON	%0RO8
<OFF>	%0RO0
Reserved6 ON	%0SO8
<OFF>	%0SO0
GS1 DataBar Omnidirectional ON	%0UO8
<OFF>	%0UO0
GS1 DataBar Limited ON	%0VO8
<OFF>	%0VO0
GS1 DataBar Expanded ON	%0WO8

<OFF>	%0WO0
Select All Bar Codes	%1A/+

6.2 UPC/EANI/JAN Parameters

A Reading Type

UPCA=EAN13 ON	%0AK4
UPCA=EAN13<OFF>	%0AK0
ISBN-1C Enable	%0B88
ISBN-13 <Enable>	%0B80
ISSN Enable	%0B44
ISSN <Disable>	%0B40
Decode with Supplement	%01O0

<Auto discriminate Supplement>	%01O8
Expand UPC-E Enable	%0BH1
Expand UPC-E <Disable>	%0BH0
EAN8=EAN13 Enable	%0AO8
EAN8=EAN13 <Disable>	%0AO0
GTIN Format Enable	%0X44
GTIN Format <Disable>	%0X40

B Supplemental Set Up

<Not Transmit>	%0B33
Transmit 2 Code	%0B31
Transmit 5 Code	%0B32

Transmit 2&5 Code	%0B30

C Check Digit Transmission

UPC-A Check Digit Transmission <ON>	%0AI2
OFF	%0AI0
UPC-E Check Digit Transmission <ON>	%0BI2
OFF	%0BI0
EAN-8 Check Digit Transmission <ON>	%0A88
OFF	%0A80
EAN-13 Check Digit Transmission <ON>	%0AH1
OFF	%0AH0

ISSN Check Digit Transmission <ON>	%0BK4
OFF	%0BK0

6.3 Code 39 Parameters

A Type of Code

<Standard>	%0EH1
Full ASCII	%0EH0
Italian Pharmacy/Code 32 <OFF>	%0E80
Italian Pharmacy/ Code 32 ON	%0E88

B Check Digit Transmission

<Do Not Calculate Check Digit>	%0EM2
Calculate Check Digit & Transmit	%0EM6
Calculate Check Digit & Not Transmit	%0EM4

C Output Start/Stop Character

Enable


%0E44

<Disable>


%0E40

D Decode Asterisk

Enable


%0E22

<Disable>


%0E20

E Set Up Code Length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set. Repeat the steps 1 - 3 to set additional lengths.

<Variable>


%4E1+

Fix Length (2 Sets Available)

1. 1st Set Begin


%4E00

2. Decimal Value (See Appendix A)

3. 1st Set Complete	%4E01
1. 2nd Set Begin	%4E00
2. Decimal Value (See Appendix A)	
3. 2nd Set Complete	%4E02

Minimum Length

1. Begin	%2+-/
2. Decimal Value (See Appendix A)	
3. Complete	%2C0+

6.4 Code 128 Parameters

A Reading Type

UCC/EA1-128 Enable	%0F44
<UCC/EA1-128 Disable>	%0F40
<Enable’]C1’Code Format>	%0F22
Disable‘]C1‘Code Format	%0F20

<Enable Code128 Group Separators(GS)>	%0F11
Disable Code128 Group Separators(GS)	%0F10

B Check Digit Transmission

Do Not Calculate Check Digit	%0FN1
Calculate Check Digit & Transmit	%0FN7
<Calculate Check Digit& Not Transmit>	%0FN5

C Append FNC2

ON	%0F88
<OFF>	%0F80

D Set Up Code Length

To set the fixed length
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set.
4. Repeat the steps 1 - 3 to set additional lengths.

<Variable>	%4E1+

Fix Length (2 Sets Available)

1. 1st Set Begin


%4F00

2. Decimal Value (See Appendix A)

3. 1st Set Complete


%4F01

1. 2nd Set Begin


%4F00

2. Decimal Value (See Appendix A)

3. 2nd Set Complete


%4F02

Minimum Length

1. Begin


%2+-/

2. Decimal Value (See Appendix A)

3. Complete


%2C1+

6.5 Interleave 25 Parameters

A Check Digit Transmission

<Do Not Calculate Check Digit>


%0GN3

Calculate Check Digit & Transmit


%0GN7

Calculate Check Digit & Not Transmit

B Set Up Number of Character

<Even>

Odd

C Brazilian Banking Code

<Disable>

Enable

D Set 8p Code Length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set. Repeat the steps 1 - 3 to set additional lengths.

<Variable>

Fix Length (2 Sets Available)

1.1st Set Beg

2. Decimal Value (See Appendix A)

3. 1st Set Complete

1.2nd Set Begin

2. Decimal Value (See Appendix A)

3. 2nd Set Complete

Minimum Length

1. Begin

2. Decimal Value (See Appendix A)

3. Compete

6.6 Industrial 25 Parameters

A Reading type

IATA25 Enable

<Disable>

B Check Digit Transmission

<Do Not Calculate Check Digit>

Calculate Check Digit & Transmit	%0HN7
Calculate Check Digit & Not Transmit	%0HN5

C Set Up Code Length

To set the fixed length
1. Scan the “Begin“ label of the desired set.
2. Go the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set.
4. Repeat the steps 1 - 3 to set additional lengths.

<Variable>	%4H1+

Fix Length (2 Sets Available)

1. 1st Set Begin	%4H00
2. Decimal Value (See Appendix A)	
3. 1st Set Complete	%4H01
1. 2nd Set Begin	%4H00
2. Decimal Value (See Appendix A)	
3. 2nd Set Complete	%4H02

Minimum Length

1. Begin	 %2+-/
2. Decimal Value (See Appendix A)	
3. Complete	 %2C3+

6.7 Matrix 25 Parameters

A Check Digit Transmission

<Do Not Calculate Check Digit>	 %0IN3
Calculate Check Digit & Transmit	 %0IN7
Calculate Check Digit & Not Transmit	 %0IN5

B Set Up Code Length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set.
4. Repeat the steps 1 - 3 to set additional lengths.

<Variable>	 %4I1+

Fix Length (2 Sets Available)

1. 1st Set Begin

2. Decimal Value (Appendix A)

3. 1st Set Complete

1. 2nd Set Begin

2. Decimal Value (Appendix A)

3. 2nd Set Complete

Minimum Length

1. Begin

2. Decimal Value (Appendix A)

3. Complete

6.8 CODABAR/NW7 Parameters

A Set Up Start/Stop Characters Upon Transmission

ON

<OFF>	%0JH0

B Transmission Type of Start/Stop

<A/B/C/D> <Start>	%04VF
<A/B/C/D> <Stop>	%04FF
A Start	%04V1
A Stop	%04F1
B Start	%04V2
B Stop	%04F2
C Start	%04V4
C Stop	%04F4
D Start	%04V8

D Stop

C Set Up Code Length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set. Repeat the steps 1 - 3 to set additional lengths.

<Variable>

Fix Length (2 Sets Available)

1st Set Begin

Decimal Value (Appendix A)

1st Set Complete

2nd Set Begin

Decimal Value (Appendix A)

2nd Set Complete

Minimum Length

Begin

Decimal Value (Appendix A)

Complete

6.9 Code 93 Parameters

A Check Digit Transmission

<Calculate Check 2 Digits & Not Transmit>

Do Not Calculate Check Digit

B Set Up Code Length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set.
4. Repeat the steps 1 - 3 to set additional lengths.

<Variable>

Fix Length (2 Sets Available)

1st Set Begin

Decimal Value (Appendix A)

1st Set Complete	%4K01
2nd Set Begin	%4K00
Decimal Value (Appendix A)	
2nd Set Complete	%4K02

Minimum Length

Begin	%2+-/
Decimal Value (Appendix A)	
Complete	%2C6+

6.10 Code 11 Parameters

A Check Digit Transmission

<Do Not Calculate Check Digit>	%0LN3
Calculate Check 1 Digit & Transmit	%0LN7
Calculate Check 2 Digits & Not Transmit	%0LN5

Calculate Check 2 Digits & Transmit	%0LN6
Calculate Check 2 Digits & Not Transmit	%0LN4

B Set Up Code Length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set.
4. Repeat the steps 1 - 3 to set additional lengths.

<Variable>	%4I1+

Fix Length (2 Sets Available)

1st Set Begin	%4L00
Decimal Value (Appendix A)	
1st Set Complete	%4L01
2nd Set Begin	%4L00
Decimal Value (Appendix A)	
2nd Set Complete	%4L02

Minimum Length

Begin	%2+-/
Decimal Value (Appendix A)	
Complete	%2C7+

6.11 MSI/PLESSEY Code Parameters

A Check Digit Transmission

Do Not Calculate Check Digit	%0NN3
Calculate Check Digit & Transmit	%0NN7
<Calculate Check Digit & Not Transmit>	%0NN5

B Set Up Code Length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set.
4. Repeat the steps 1 - 3 to set additional lengths.

<Variable>	%4N1+

Fix Length (2 Sets Available)

1st Set Begin	%4N00
Decimal Value (Appendix A)	
1st Set Complete	%4N01
2nd Set Begin	%4N00
Decimal Value (Appendix A)	
2nd Set Complete	%4N02

Minimum Length

Begin	%2+-/
Decimal Value (Appendix A)	
Complete	%2C9+

6.12 LCD25 Parameters

A Check Digit Transmission

<Do Not Calculate Check Digit>	%0QN3
Calculate Check Digit & Transmit	%0QN7

Calculate Check Digit & Not Transmit

%0QN5

B Setup Code length

To set the fixed length:
1. Scan the “Begin“ label of the desired set.
2. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the length to be read.
3. Scan the “Complete“ label of the desired set.
4. Repeat the steps 1 - 3 to set additional lengths.

<Variable>

%4Q1+

Fix Length (2 Sets Available)

1st Set Begin

%4Q00

Decimal Value (Appendix A)

1st Set Complete

%4Q01

2st Set Begin

%4Q00

Decimal Value (Appendix A)

2nt Set Complete

%4Q02

Minimum Length

Begin

%2+-/

Decimal Value (Appendix A)

Complete

%2CC+

Fix Length (2 Sets Available)

1st Set Begin

%4T00

Decimal Value (Appendix A)

1st Set Complete

%4T01

2nd Set Begin

%4T00

Decimal Value (Appendix A)

2nd Set Complete

%4T02

Minimum Length

Begin

%2%+-/

Decimal Value (Appendix A)

Complete

%2CF+

6.15 GS1 Databar

A GS1 DataBar Omnidirectionl

<Transmit Check Digit>	%0UN7
Don’t Transmit Check Digit	%0UN5
<Transmit Application ID>	%0U88
Don’t Transmit Application ID	%0U80
Transmit Symbology ID	%0U44
<Don’t Transmit Symbology ID>	%0U40

B GS1 DataBar Limited Parameters

<Transmit Check Digit>	%0VN7
Don’t Transmit Check Digit	%0VN5

<Transmit Application ID>	%0V88
Don‘t Transmit Application ID	%0V80
Transmit Symbology ID	%0V44
<Don‘t Transmit Symbology ID>	%0V40

C GS1 DataBar Expanded Parameters

Transmit Symbology ID	%0W44
<Don‘t Transmit Symbology ID>	%0W40

Chapter 7 Miscellaneous Parameters

7.1 Language Selection

<US English>	%0ZV0
UK English	%0ZV1
Italian	%0ZV2
Spanish	%0ZV3
French	%0ZV4
German	%0ZV5
Swedish	%0ZV6
Switzerland	%0ZV7
Hungarian	%0ZV8
Japanese	%0ZV9

Belgium	%0ZVA
Portuguese	%0ZVB
Denmark	%0ZVC
Netherlands	%0ZVD
Turkey	%0ZVE
Reserved2	%0ZVF

7.2 Bar Code ID

ON	%00H1
<OFF>	%00H0
Default	%913+

With this function ON, a leading character will be added to the output string while

scanning code, user may refer to the following table to know what kind of bar code is being scanned.

Please refer to the table below for matching code
ID of codes read in.

Code Type	ID	Code Type	ID
UPC-A	**A**	UPC-E	**E**
EAN-8	**FF**	EAN-13	**F**
CODE 39	**M**	CODE 128	**K**
Interleave 25	**I**	Industrial 25	**H**
Matrix 25	**I**	Codabar/NW7	**N**
CODE 93	**L**	CODE 11	**L**
China Postage	**C**	MSI	**O**
LCD25	**Q**	PLESSEY	**P**
GS1 DataBar Omnidirectional	**U**	GS1 DataBar Expanded	**W**
GS1 DataBar Limited	**V**		

User Define Code ID

To set the code ID:

1. Scan the symbologies label.
2. Go to the ASCII Tables in Appendix B, scan label that represents the desired code ID.

Note:

User define code ID will override default value. Program will not check the conflict. It is possible to have more than two symbologies which have same code ID.

UPC-A	%91A+
UPC-E	%91B+
EAN-13/JAN-13	%91Y+

EAN-8/JAN-8	 %91Z+
CODE 39	 %91E+
CODE 128	 %91F+
CODABAR/NW7	 %91J+
Interleave 25	 %91G+
Industrial 25	 %91H+
Matrix 25	 %91I+
CODE 93	 %91K+
CODE 11	 %91L+
China Postage	 %91M+
MSI/PLESSEY	 %91N+

LCD25	%91Q+
GS1 DataBar Omnidirectional ON	%91U+
GS1 DataBar Limited ON	%91V+
GS1 DataBar Expanded ON	%91W+
Reserved5	%91R+
Reserved6	%91S+

7.3 Reading Level

Bar Equals High	%03I2
<Bar Equals Low>	%03I0

7.4 Accuracy

1 Time	%0130
2 Times	%0131

3 Times	%0132
4 Times	%0133

7.5 Buzzer Beep Tone

<High>	%01J3
Medium	%01J2
Low	%01J1
Off	%01J0

7.6 Sensitivity of Continuous Reading Mode

A Quick Setting:

<Fast>	%0388
Slow	

B Same Code Delay Reading Interval

Following code sequences represent the length of time before a barcode can be rescanned at continuous and flash reading mode. The value can be defined from 1-50 and they represent 100ms to 5 seconds in 100ms interval. Default value is 3 (0.3 seconds).

To setup same code delay reading interval:

1.Scan the "Begin" label
2.Go the Decimal Value Tables in Appendix A, Scan label(s),that represents the same code delay reading interval. They are ranged form 1-50.One step is represented 0.1second.So the interval is from 0.1 to 5 seconds.
3.Scan the "Complete" label
4. Repeat the steps 1-3 to set time out of same symbol

Begin	 %3000
Decimal Value (1-50) (Appendix A)	
Complete	 %3001

7.7 Reverse Output Characters

<Disable>	 %03H0
Enable	 %03H1

7.8 Setup Deletion

To setup the deletion of output characters:
1. Scan the label of the desired set below.
2. Scan the label of the desired symbology.
3. Go to the Decimal Value Tables listed in Appendix A, scan labels that represents the desired position to be deleted.
4. Scan "Complete" label of "Character Position to be Deleted".
5. Go to the Decimal Value Tables in appendix A,scan labels that represents the desired position to be deleted.
6. Scan the "Complete" label of "Number Position to be Deleted".
7. Repeat the steps 1 – 6 to set additional deletion.

A. Select Deletion Set Number

1st Set	%800+
2nd Set	%801+
3rd Set	%802+
4th Set	%803+
5th Set	%804+
6th Set	%805+

B Symbology Selection

UPC-A	%81A+
UPC-E	%81B+
EAN-13/JAN-13/ISBN-13	%81Y+

EAN-8/JAN-8	%81Z+
CODE 39	%81E+
CODE 128	%81F+
CODABAR/N97	%81J+
Interleave 25	%81G+
Industrial 25	%81H+
Matrix 25	%81I+
CODE 93	%81K+
CODE 11	%81L+
China Postage	%81M+
MSI/PLESSEY	%81N+

LCD25	%81Q+
GS1 DataBar Omnidirectional	%81U+
GS1 DataBar Limited	%81V+
GS1 DataBar Expanded	%81W+
All Codes	%81S+
None	%814+

C Character Position to be Deleted

1. Decimal Value (Appendix A)

2. Complete	%820+

D Number of Characters to be Deleted

1. Decimal Value (Appendix A)

2. Complete	%830+

7.9 Setup Insertion

To setup the insertion of output characters

1. Scan the label of the desired set.
2. Scan the label of the desired symbology.
3. Go to the Decimal Value Tables in Appendix A, scan label(s) that represents the desired position to be inserted.
4. Scan the “Complete“ label of “Character Position to be Inserted“.
5. Go to the ASCII Tables in Appendix B or Function Key Tables in Appendix C, scan label(s) that represents the desired characters to be inserted.
6. Scan the “Complete“ label of “Characters to be Inserted“.
7. Repeat the steps 1 - 6 to set additional insertion.

A Select Insertion Set Number

1st Set	%500+
2nd Set	%501+
3rd Set	%502+
4th Set	%503+
5th Set	%504+
6th Set	%505+

B Symbologies Selection

UPC-A	%51A+
UPC-E	%51B+
EAN-13/JAN-13/ISBN-13	%51Y+
EAN-8/JAN-8	%51Z+
CODE 39	%51E+
CODE 128	%51F+
CODABAR/NW7	%51J+
Interleave 25	%51G+
Industrial 25	%51H+
Matrix 25	%51I+
CODE 93	%51K+

CODE 11	%51L+
China Postage	%51M+
MSI/PLESSEY	%51N+
LCD255	%51Q+
GS1 DataBar Omnidirectional	%51U+
GS1 DataBar Limited	%51V+
GS1 DataBar Expanded	%51W+
All Codes	%51S+
None	%514+

C Character Position to be Inserted

Decimal Value (Appendix A)	
Complete	%520+

D Characters to be Inserted

ASCII Table (Appendix B)

Complete

Appendix A Decimal Value Table

0		5	
1		6	
2		7	
3		8	
4		9	

Appendix B ASCII Table

NULL		STX		SOH	
ETX		ENQ		EOT	
ACK		BS		BEL	
HT		VT		LF	
FF		SO		CR	
SI		DC1		DLE	

DC2		DC4		DC3	
NAK		ETB		SYN	
CAN		SUB		EM	
ESC		GS		FS	
RS				US	
SPACE		“		!	
#		%		$	
&		(		‘	
)		+		*	
,		.		-	
/		1		0	
2		4		3	
5		7		6	
8		:		9	
;		=		<	
>				?	

@		B		A	
C		E		D	
F		H		G	
I		K		J	
L		N		M	
O		Q		P	
R		T		S	
U		W		V	
X		Z		Y	
[		]		\	
^				_	
`		b		a	
c		e		d	
f		h		g	
i		k		j	

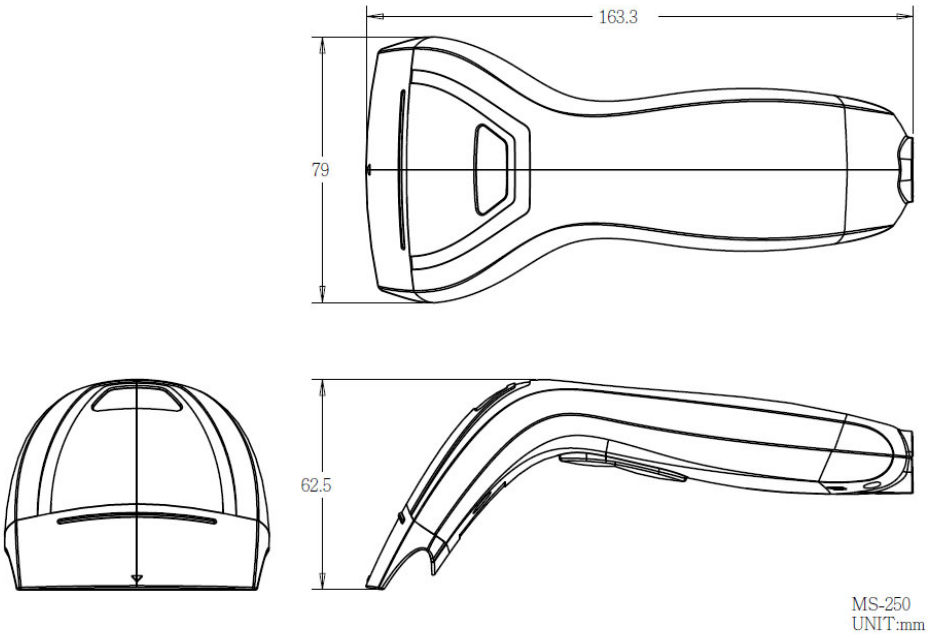
l	 6C	n	 6E	M	 6D
o	 6F	q	 71	p	 70
r	 72	t	 74	s	 73
u	 75	w	 77	v	 76
x	 78	z	 7A	y	 79
{	 7B	}	 7D	|	 7C
~	 7E			DEL	 7F

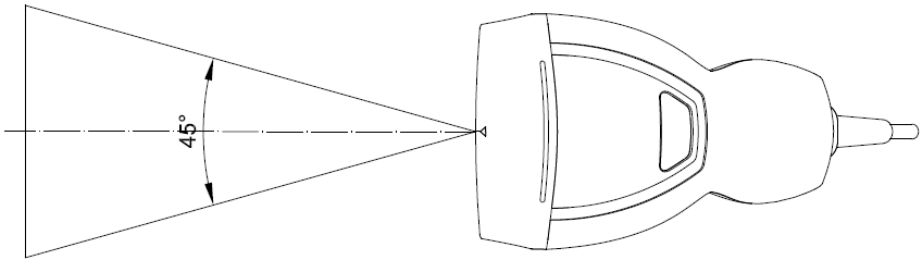
Appendix C Function Key Table

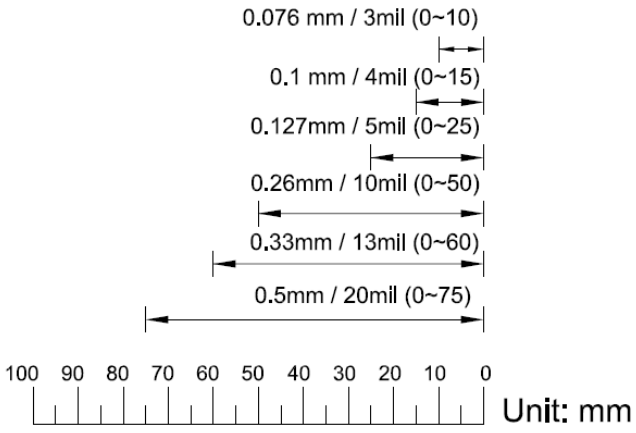
F1	 C0	**F3**	 C2	**F2**	 C1
F4	 C3	**F6**	 C5	**F5**	 C4
F7	 C6	**F9**	 C8	**F8**	 C7
F10	 C9	**F12**	 CB	**F11**	 CA
Insert	 CC	**Home**	 CE	**Delete**	 CD
Page Up	 CF	**End**	 D1	**Page Down**	 D0
Left	 D2	**Up**	 D4	**Right**	 D3
Down	 D5				

8 SPECIFICATION

8.1 Dimensions







8.2 Technical Data

Interface	USB
Supply Voltage	DC +5V ± 10%
Output Voltage (Typ.)	+5V
Output low Voltage (Max.)	0.4V
Current Draw (Typ.)	± 5%
Power On (Typ.)	120mA
Stand by (Typ.)	20mA
Operation (Typ.)	120mA
Light Source	Visible Red light 635nm LED
Sensor	Linear CCD Sensor
Processor Type	ARM Cortex™-M3, 32-bit
Operating Freq.	8 MHz (Internal)
Scan Speed	200 scans/ second ±10%
Depth of Field	Up to 75mm @ 20mil, PCS90%, Code39
Width of Field (Window)	80 mm
Print Contrast Ratio	45%
Resolution	3mil (0.076mm) @ PCS90%
Ambient Light	20,000 Lux Max
Reading Angle	*Test Conditions : Code 39, 10mil/0.25mm, PCS 90%*
Forward & Backward	±10°~30° (±5°)
Left & Right	± 60° (±5°)
Firmware	Available for updated
Driver	Support USB emulation COM port
ESD	8kv contact, 12kv on air
Bit error rate	50/100,000
Operating Temperature	0 ^{o}C to 50 ^{o}C (32 ^{o}F to 122 ^{o}F)
Storage Temperature	-20 ^{o}C to 70 ^{o}C (-4 ^{o}F to 158 ^{o}F)
Relative Humidity	20% to 95% (Non-condensing)

8.3. Readable Symbology

	Readable	Default Enable
All UPC/EAN/JAN	V	V
EAN128 Code	V	V
Code 39	V	V
Code 39 Full ASCII	V	
Code32 / Italian Pharmacy	V	
Code 128	V	V
CODABAR/NW7	V	V
Interleave 25	V	V
Industrial 25	V	
Matrix 25	V	
MSI/PLESSEY	V	
Code 93	V	
Code 11	V	
China Postage	V	
LCD25	V	
GS1 DataBar Omnidirectional	V	
GS1 DataBar Turncated	V	
GS1 DataBar Stacked	V	
GS1 DataBar Omnidirectional Stacked	V	
GS1 DataBar Limited	V	
GS1 DataBar Expanded	V	
GS1 DataBar Expanded Stacked	V	

8.4. Reliability

Life Time	
Trigger Switch	1,000,000 times
MTBF(Calculated)	50,000 hours
Thermal Shock	
High Temp.	60 °C (140 °F)
Low Temp.	-20 °C (-4 °F)
Cycle time	20 minutes for high temp. , 20 minutes for low temp.
Cycles	5 cycles
Cable Bending Test	25,000 times/ minimum (30 times/ min @ 500g/ 90 °)
Drop	59.06 inches (150cm) drop on Concrete Surface
Beeper	90 db/ minimum