

Wireless(BT) Pocket Laser Scanner

- MS916 -



User's Manual

Version 1.0

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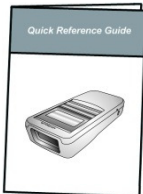
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Overview

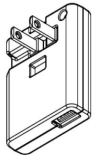
Package Contents

Please make sure the following contents are in the MS916 gift box. If something is missing or damaged, please contact your Unitech representative.

The standard package contents

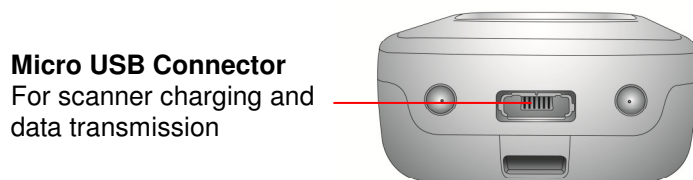
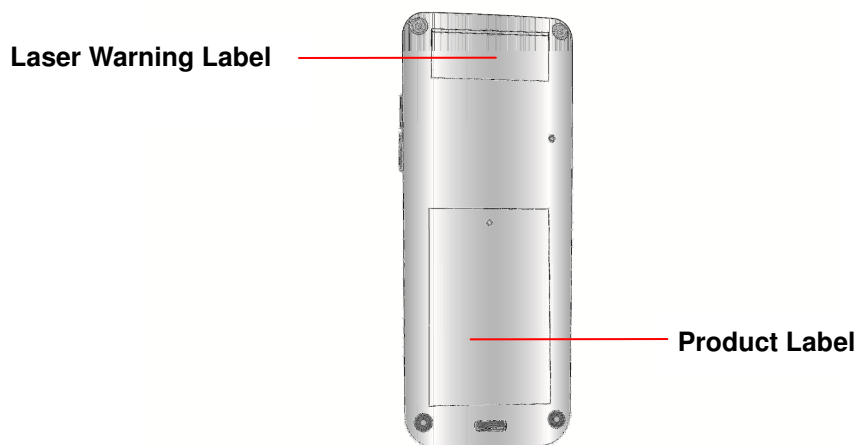
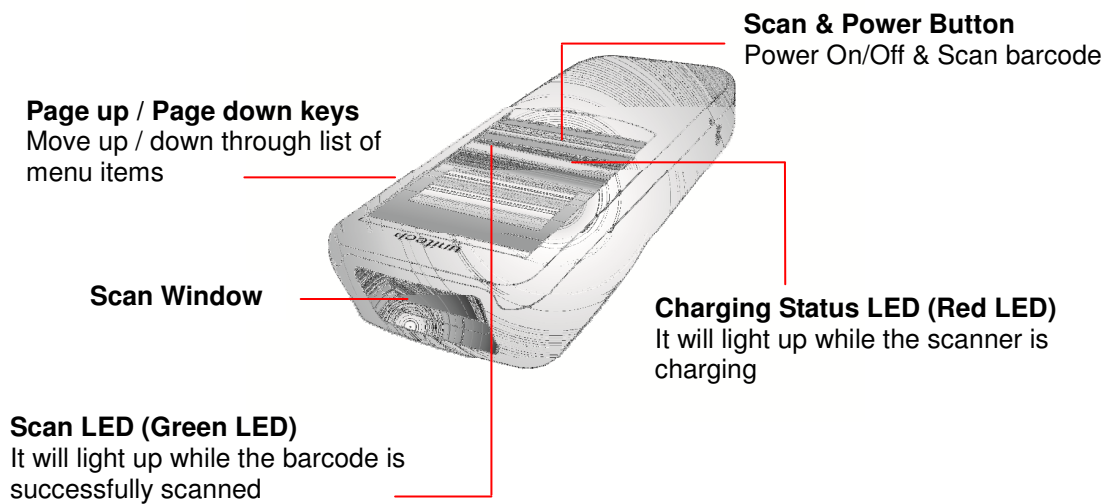
		
MS916 Scanner	Resource CD	Quick Reference Guide
		
Micro USB to USB Cable	Whist Strap	

Optional accessories

		
1-Slot Charging cradle	5-Slot Charging cradle	USB Adapter

NOTE: 1. The scanner's default power off time is 5 minutes.
2. Please charge scanner for at least 2 hours prior to initial use.

Scanner Detail

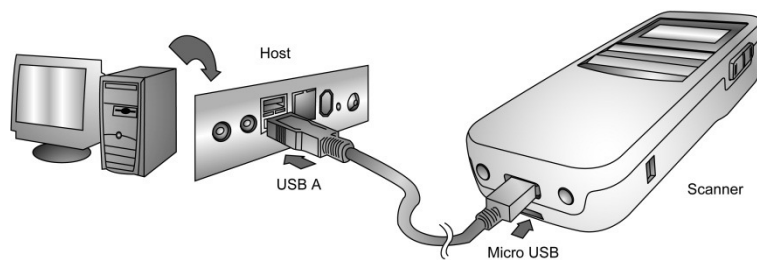


Getting Started



To scan a barcode, make sure the aiming beam crosses every bar and space of the barcode.

BATTERY CHARGING



Insert the mini USB connector into the port on the scanner and the standard mini USB connector of the USB cable into a USB port on the host PC.

Pairing With PC/Notebook For The First Time

PC (HID mode)

Following steps are based on Microsoft Windows 7.

1. Turn on MS916 and then press the Page Down button to enter BT Pairing mode.
2. Open **Devices and Printers** by clicking the **Start** button , and then, on the **Start** menu, clicking **Devices and Printers**.
3. Click **Add a device**, and then follow the instructions.
4. Click the Bluetooth enabled device (**MS916-[XXXXXX]**) you want to add to your computer, and then click **Next**. If you don't see the device you want to add, make sure the device is turned on and discoverable. If you just turned on the device, it may take Windows several seconds to detect it.

Specifications

System

Display	1" OLED, 128 x 64
OS	Proprietary, Connect to host with Windows, Android and iOS
Memory	64 Kbytes SRAM / 16MB Flash ROM
Key	3 Keys: Page up, Page down, Scan with power on/off feature

Optical & Performance

Receiving Device	Laser Engine
Light Source	650 nm visible laser diode
Max. Resolution	4mil
Scan Rate	104 scans/second
Skew Angle	47±3 degrees
Pitch Angle	35±3 degrees
Printing Contrast Scale	minimum 25%
Depth of Field (DOF PCS=80%)	Symbology Density Near Far Code 39, 4 mils 2.5 cm 13.97 cm Code 39, 5 mils 3.18 cm 20.32 cm Code 39, 7.5 mils 3.81 cm 33.02 cm Code 39, 10 mils 3.81 cm 45.72 cm Code 39, 15 mils 3.81 cm 71.72 cm Code 39, 20 mils 4.45 cm 83.82 cm Code 39, 40 mils x 91.44 cm Code 39, 55 mils x 114.3 cm UPC, 13 mils 3.81 cm 60.96 cm

Functionality

Symbologies

1D	Code 39, Full ASCII Code 39, Interleave 2 of 5, UPC A/E/E1, MSI, Codabar, Code 11, EAN8/13, Code 93, Code 128, EAN 128, Code32, GS1 databar Code, Bookland EAN, Discreate 2 of 5, Chinese 2 of 5, ISBT 128, UCC Coupon Extended Code, Bookland 128
Postal	Australian Post, BPO, Canada Post, Dutch Post, Japan Post, PostNet, Sweden Post
Operation Mode	Trigger mode, Pulse mode, Flash mode, Continuous Mode, Buffer mode
Data Formatting	Prefix, Suffix, Code ID, Reformatting Date

Environmental

ESD Protection	Functional after 8K Contact and 12K Air
Mechanical Shock	1.5m onto concrete (scanner only)
IP Rate	IP42
Operating Temperature	0 °C to 50 °C
Storage Temperature	-30 °C to 70 °C
Relative Humidity	95% non-condensing

Electrical

Operation Voltage	DC 3V to 5V
Current Consumption	Operation mode: TBD, Standby mode: TBD
Battery Type	Rechargeable Li-ion battery battery
Battery Capacity	770 mAh
Battery Charging time	Fully charged in about 3 hours
Operating Time	10 hours at condition of 1 scan/5 sec

Communication

Radio Frequency	Bluetooth V2.1+EDR. Class 2
Protocol	Wireless SPP & HID profiles
Range	Up to 30 Feet (Open space)
Host Interface supported	USB

Mechanical

Scanner Dimension	H21.1*W36.9*L95.9mm
Scanner Weight	63g
Switch life	10 million times

Regulation Approvals

CE, FCC, BSMI, VCCI

Chapter 2

MS916 Setting Code

***for FW v0.35 or later**

<i>Scanner Type</i>		
BT HID *  //0	BT SPP  //3	
USB SPP  //H	BT SPP (Slave)  //1	
<i>Operation Mode</i>		
Wedge  //2	Batch  //3	Auto *  //4
<i>Bluetooth Config</i>		
BT Pairing  //N	Paired Device  //D	Remove Pair  //U
<i>System Restore & Info</i>		
Factory Default  //3	Send Info  //L	

Data & Memory

Send Batch



//5

Erase Last Memory Entry



//6

Free Memory Space



//3

Erase Memory



//9

Beeper & Vibrator Control

High Volume



//x4

Medium Volume *



//x3

Low Volume



//x2

Mute & Vibrate



//x1

Mute



//x0

Beep / Vibrate

Enabled for Good Read *



//A

Disabled for Good Read



//E

Enabled for Connection *



//B

Disabled for Connection



//F

Power Saving

5 Seconds



//x1

10 Seconds



//xm

15 Seconds



//xn

20 Seconds



//xo

30 Seconds



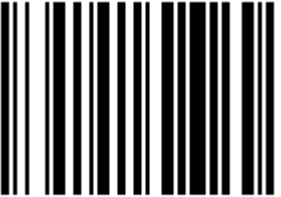
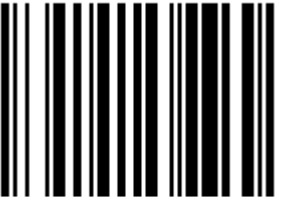
//xp

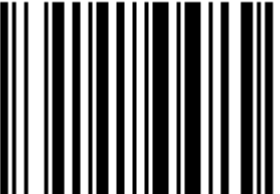
Disable



//xk

<i>Auto Power Off</i>		
1 Minute  //xa	3 Minutes  //xb	5 Minutes *  //xc
10 Minutes  //xd	15 Minutes  //xe	20 Minutes  //xf
30 Minutes  //xg		Disable  //xh

<i>HID Keyboard Character Delay</i>		
1 ms *	5 ms	10 ms
 //b	 //c	 //d
20 ms	50 ms	100 ms
 //e	 //f	 //g
<i>HID Keyboard Block Delay</i>		
10 ms *	50 ms	100 ms
 //Q	 //P	 //Q
500 ms	1 Sec.	3 Sec.
 //R	 //S	 //T
<i>HID Keyboard Case</i>		
Auto Trace *	To Lower	To Upper
 //j	 //k	 //l

<i>HID Keyboard Language</i>		
US English *	UK English	Swiss
 // o	 // p	 // q
Swedish	Norwegian	Italian
 // r	 // t	 // u
German	French	Danish
 // v	 // w	 // y
Partial ALT	Japanese (OADG109)	Spanish
 // z	 // �	 // s
ALT Mode		
 // x		

Chapter 3

Setting Up MS916

MS916 Menu Tree

Top Menu	Sub Menu Level 1	Sub Menu Level 2	Options/Result	Default Setting
General Setting	1. Scanner Type		BT HID/USB SPP/ BT SPP (Master)/BT SPP (Slave)	BT HID
	2. Operation Mode		Auto Mode/Wedge Mode/Batch Mode	Auto Mode
	3. Date/Time	3.1 View Date/Time	Show date and time	N/A
		3.2 Set Date/Time	SET DATE/SET TIME	2015-01-01 08:00:00
		3.3 Time Display	Auto/Always	Auto
		3.4 Exit	Return to the previous menu	N/A
	4. Power Manager	4.1 Power Saving	Disable/30/20/15/10/5 Sec.	15 Sec.
		4.2 Auto Power Off	Disable/30/20/15/10/5/3/1 Min.	5 Min.
		4.3 Exit	Return to the previous menu	N/A
	5. FAC Default	6.1 Restore to FAC Default?	Yes/No	No
	6. FW Version		Show Firmware Version	V0.32
	7. Exit		Return to the previous menu	N/A
Data & Memory	1. Buffer Data	1.1. Erase Previous Buffer Entry?	Yes/No	No
	2. Batch Data	2.1. Erase Previous Batch Entry?	Yes/No	No
	3. Free Mem Space		Show Free Buffer and Batch Memory Space	N/A
	4. Erase Memory	4.1. Erase Buffer	Yes/No	No
		4.2. Erase Batch	Yes/No	No
	5. Exit		Return to the previous menu	N/A

BT Configuring	1. BT Pairing		Enter BT pairing	N/A
	2. BT MAC Addr		Show BT MAC Address	N/A
	3. BT Paired Dev		Show BT paired Name and MAC Address	N/A
	4. Remove Pairing		Yes/No (If a BT device has been paired with MS916)	No
	5. BT FW Version		Show BT Firmware Version	N/A
	6. Exit		Return to the previous menu	N/A
Beep & Vibrate			High Volume/Medium Volume/ Low Volume/Mute&Vibrate/Mute	Medium Volume
Barcode setting	1. Disable All Code		ON/OFF	OFF
	2. UPC-A		Enable/Disable	Enable
	3. UPC-E		Enable/Disable	Enable
	4. EAN-8		Enable/Disable	Enable
	5. EAN-13		Enable/Disable	Enable
	6. Code 39		Enable/Disable	Enable
	7. Code 128		Enable/Disable	Enable
	8. EAN 128		Enable/Disable	Enable
	9. I 2 of 5		Enable/Disable	Enable
	10. Code 93		Enable/Disable	Disable
	11. Codabar		Enable/Disable	Disable
	12. Code 11		Enable/Disable	Disable
	13. MSI		Enable/Disable	Disable
	14. UPC-E1		Enable/Disable	Disable
	15. Bookland EAN		Enable/Disable	Disable
	16. Discreate 2 of 5		Enable/Disable	Disable
	17. Chinese 2 of 5		Enable/Disable	Disable
	18. GS1-14		Enable/Disable	Disable

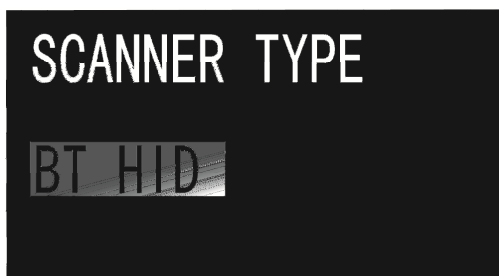
To enter main menu of MS916, press Page Up and Page Down button simultaneously. You will see the following screen on the MS916 display. Now you can use **Page Up/Down button** to scroll through the menu and use **Scan button** to make your selection.



The following sections will introduce each function in the menu.

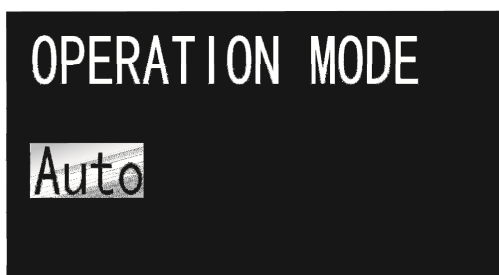
General Setting

Scanner Type



- MS916 can be set to five types: **BT HID/USB SPP/BT SPP (Master)/BT SPP (Slave)**. The default scanner type is **BT HID**.

Operation Mode



- MS916 can be operated under three modes: **Auto Mode/Wedge Mode/Batch Mode**. The default operation mode is **Auto Mode**.

Date/Time



- There are 4 functions under **Date/Time** menu. The **View Date/Time** function can show date/time which has been set in MS916 on the scanner display.
- You can use **Set Date/Time** function to set current date/time. First enter current date (yyyy-mm-dd) and then current time (hh:mm:ss).
- You can use **Time Display** function to set time to be either **Always** or **Auto** displayed. The default value is **Auto**.
- The final function **Exit** can guide you to return to previous menu level.

Power Manager



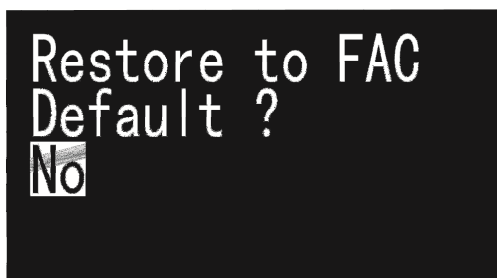
- The first function under **Power Manager** menu is **Power Saving**. You can use this function to choose the time duration for the scanner coming into idle mode after no command received. The default value is **15 seconds**.
- You can use **Auto Power Off** to choose the time duration for the scanner turning off automatically after no command received. The default value is **5 minutes**.
- The final function **Exit** can guide you to return to previous menu level.

Beep & Vibrate



- You can use **Beep & Vibrate** function to set scanner's beep volume and turn on/off scanner vibration. The options are: **High Volume/Medium Volume/Low Volume/Mute&Vibrate/Mute**. The default option is **Medium Volume**.

FAC Default



- Use this function to restore MS916 to factory default.

FW Version



- Use this function to show the current FW version of MS916.

Data & Memory

Buffer Data



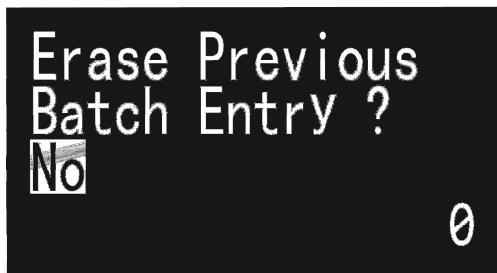
DATA & MEMORY
Buffer Data
Batch Data
Free Mem Space



Erase Previous
Buffer Entry ?
No 0

- You can use **Buffer Data** function to erase previous buffer entry.

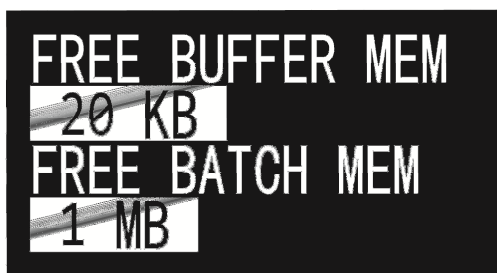
Batch Data



Erase Previous
Batch Entry ?
No 0

- You can use **Batch Data** function to erase previous batch entry.

Free Mem Space



FREE BUFFER MEM
20 KB
FREE BATCH MEM
1 MB

- You can use **Free Mem Space** function to see how much free buffer and batch memory left.

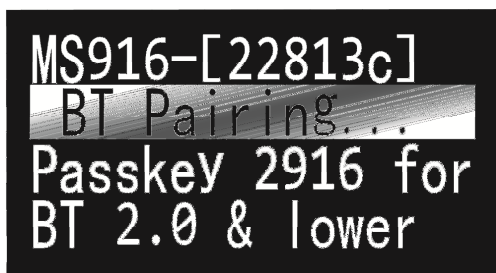
Erase Memory



- Under ERASE MEMORY menu, you can select **Erase Buffer** and **Erase Batch** function.
- You can use **Erase Buffer** function to empty buffer memory.
- You can use **Erase Batch** function to empty batch memory.

BT Configuring

BT Pairing



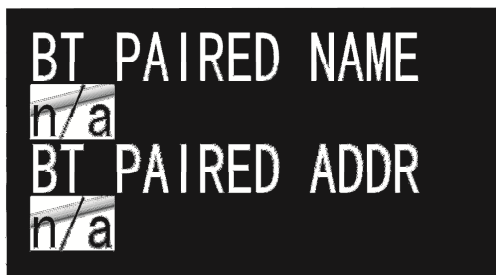
- You can use **BT Pairing** function to pair MS916 with your host device. (PC/Notebook/Smartphone/etc.) After select this function, MS916 will be discoverable and ready to connect with your host device.

BT MAC Address



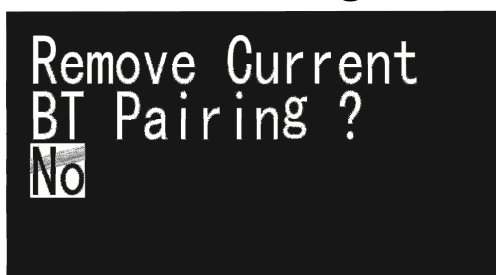
- You can use **BT MAC ADDR** function to show the BT MAC address of MS916.

BT Paired Device



- You can use **BT PAIRED DEV** function to show the name and MAC address of the paired Bluetooth device.

Remove Pairing



- If a BT device has been paired with MS916, you can use this function to remove the connection.

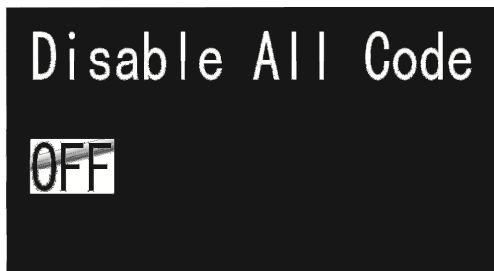
BT FW Version



- You can use **BT FW Version** to show the Bluetooth firmware version of MS916.

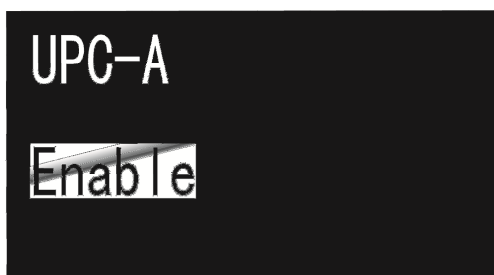
Barcode setting

Disable All Code



- You can use **Disable All Code** function to turn on/off all barcodes scanning availability.

UPC-A / UPC-E / EAN-8 / EAN-13 / Code 39 / Code 128 / EAN 128 / I 2 of 5 / Code 93 / Codabar / Code 11 / MSI / UPC-E1 / Bookland EAN / Discreate 2 of 5 / Chinese 2 of 5 / GS1-14



- You can **Enable** or **Disable** these supported barcode's scanning availability.

Chapter 4

Parameter Menus

Introduction

This chapter describes the programmable parameters, provides bar codes for programming, and hexadecimal equivalents for host parameter programming through SSI.

Operational Parameters

The MS916 is shipped with the factory default settings shown in *Table 3-1 on page 26*. These factory default values are stored in non-volatile memory and are preserved even when the scan engine is powered down.

Changes to the factory default values can be stored as custom defaults. These values are also stored in

non-volatile memory and are preserved even when the scan engine is powered down.

To change the parameter values:

- Scan the appropriate bar codes included in this chapter. The new values replace the existing memory values. To set the new values as custom defaults, scan the **Write to Custom Defaults** bar code. The factory default or custom default parameter values can be recalled by scanning the **Set Factory Defaults** bar code or the **Restore Defaults** bar code on *page 29*.

or

- Send the parameter through the scan engine's serial port using the SSI command PARAM_SEND. Hexadecimal parameter numbers are shown in this chapter below the parameter title, and options appear in parenthesis beneath the accompanying bar codes. **Instructions for changing parameters using this method are found in Chapter 10, Simple Serial Interface.**

Parameter Programming Recommendations

When setting parameters via bar code or via SSI with the permanent flag set, the following conditions must be met:

- The system must have stable power applied to the scanner.
- The engine and host must be operating and communicating with no interference.
- Power must be maintained for at least two seconds after sending the command or scanning the parameter bar code.

If sending parameters upon every power up, ensure they are temporary.

Motorola does not recommend sending permanent parameters or Set Defaults upon every power up. Motorola also recommends not using a hard power switch on the power supply.

Failure to meet these conditions can corrupt the scan engine's memory.

Parameter Defaults

Table 3-1 lists the factory defaults for all parameters. To change any option, scan the appropriate bar code(s).

Table 3-1 *Factory Default Table*

Parameter	Parameter Number (Hex)	Factory Default	Page Number
Set Factory Default		All Defaults	29
Beeper Volume	0x8C	Medium	30
Beeper Tone	0x91	Medium Frequency	30
Laser On Time	0x88	3.0 sec	31
Aim Duration	0xED	0.0 sec	32
Trigger Mode	0x8A	Level	32
Time-out Between Same Symbol	0x89	1.0 sec	34
Beep After Good Decode	0x38	Enable	34
Parameter Scanning	0xEC	Enable	35
Parameter Pass Through	F1h 71h	Disable	35
Disable All Symbolologies	N/A	N/A	36
Linear Code Type Security Levels	0x4E	1	37
Bi-directional Redundancy	0x43	Disable	38
UPC/EAN			
UPC-A	0x01	Enable	39
UPC-E	0x02	Enable	40
UPC-E1	0x0C	Disable	40
EAN-8	0x04	Enable	41
EAN-13	0x03	Enable	41
Bookland EAN	0x53	Disable	42
UPC-A Preamble	0x22	System Character	42
UPC-E Preamble	0x23	System Character	43
UPC-E1 Preamble	0x24	System Character	44
Convert UPC-E to A	0x25	Disable	45
Convert UPC-E1 to A	0x26	Disable	45
EAN-8 Zero Extend	0x27	Disable	46
Bookland ISBN Format	F1h 40h	ISBN-10	46
Code 128			
Code 128	0x08	Enable	47
Code 39			
Code 39	0x00	Enable	48
Trioptic Code 39	0x0D	Disable	48

Convert Code 39 to Code 32	0x56	Disable	49
Code 32 Prefix	0xE7	Disable	49
Set Length(s) for Code 39	0x12	2-55	50
Code 39 Check Digit Verification	0x13	Disable	51
Transmit Code 39 Check Digit	0x30	Disable	52
Code 39 Full ASCII Conversion	0x2B	Disable	52
Code 93			
Code 93	0x09	Disable	53
Set Length(s) for Code 93	0x1A 0x1B	4-55	54
Code 11			
Code 11	0x0A	Disable	55
Set Lengths for Code 11	0x1C 0x1D	4 to 55	56
Code 11 Check Digit Verification	0x34	Disable	57
Transmit Code 11 Check Digit(s)	0x2F	Disable	58
Interleaved 2 of 5			
Interleaved 2 of 5	0x06	Enable	58
Set Length(s) for I 2 of 5	0x16 0x17	14	59
I 2 of 5 Check Digit Verification	0x31	Disable	60
Transmit I 2 of 5 Check Digit	0x2C	Disable	61
Convert I 2 of 5 to EAN 13	0x52	Disable	61
Discrete 2 of 5			
Discrete 2 of 5	0x05	Disable	62
Set Length(s) for D 2 of 5	0x14 0x15	12	62
Chinese 2 of 5			
Chinese 2 of 5	0xF0 0x98	Disable	64
Codabar			
Codabar	0x07	Disable	64
Set Lengths for Codabar	0x18 0x19	5-55	65
CLSI Editing	0x36	Disable	66
NOTIS Editing	0x37	Disable	67
MSI			
MSI	0x0B	Disable	67
Set Length(s) for MSI	0x1E 0x1F	6-55	68

MSI Check Digits	0x32	One	69
Transmit MSI Check Digit	0x2E	Disable	70
MSI Check Digit Algorithm	0x33	Mod 10/Mod 10	70
GS1 DataBar			
GS1 DataBar-14	0xF0 0x52	Disable	71
GS1 DataBar Limited	0xF0 0x53	Disable	71
GS1 DataBar Expanded	0xF0 0x54	Disable	72
Convert GS1 DataBar to UPC/EAN	0xF0 0x8D	Disable	72
Data Options			
Transmit Code ID Character	0x2D	None	73
Prefix/Suffix Values			
Prefix	0x69	NULL	74
Suffix 1	0x68	LF	
Suffix 2	0x6A	CR	
Scan Data Transmission Format	0xEB	Data as is	75

Set Default Parameter

The MS916 can be reset to two types of defaults: factory defaults or custom defaults. Scan the appropriate bar code below to reset the MS916 to its default settings and/or set the scan engine's current settings as the custom default.

- **Restore Defaults** - Scan this bar code to reset all default parameters as follows.
 - If custom defaults were set by scanning **Write to Custom Defaults**, scan **Restore Defaults** to retrieve and restore the scan engine's custom default settings.
 - If no custom defaults were set, scan **Restore Defaults** to restore the factory default values listed in *Table 3-1 on page 26*.
- **Set Factory Defaults** - Scan this bar code to restore the factory default values listed in *Table 3-1 on page 26*. If custom defaults were set, they are eliminated.
- **Write to Custom Defaults** - Scan this bar code to store the current scan engine settings as custom defaults. Once custom default settings are stored, they can be recovered at any time by scanning **Restore Defaults**.



* Restore Defaults



Set Factory Defaults



Write to Custom Defaults

Beeper Volume

Parameter # 0x8C

To select a decode beep volume, scan the appropriate bar code.



Low
(0x02)



*Medium
(0x01)



High
(0x00)

Beeper Tone

Parameter # 0x91

To select a decode beep frequency (tone), scan the appropriate bar code.



Low Frequency
(0x02)



***Medium Frequency
(0x01)**



**High Frequency
(0x00)**

Laser On Time

Parameter # 0x88

This parameter sets the maximum time decode processing continues during a scan attempt. It is programmable in 0.1 second increments from 0.50 to 25.5 seconds.

To set a Laser On Time, scan the bar code below. Next scan two numeric bar codes beginning on *page 77* that correspond to the desired on time. Single digit numbers must have a leading zero. For example, to set an on time of 0.5 seconds, scan the bar code below, then scan the "0", "5" and "0" bar codes; to set an on time of 10.5 seconds, scan the bar code below, then scan the "1", "0" and "5" bar codes. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



**Laser On Time
(Default: 3.0 sec.)**

Aim Duration

Parameter # 0xED

When a scan engine with an aim mode is triggered either by a trigger pull, or a *START_DECODE* command, this parameter sets the duration the aiming pattern is seen before a scan attempt begins. It does not apply to the aim signal or the *AIM_ON* command. It is programmable in 0.1 second increments from 0.0 to 9.9 seconds. No aim pattern is visible when the value is 0.0.

To set an aim duration, scan the bar code below. Next scan two numeric bar codes beginning on *page 77* that correspond to the desired aim duration. Single digit numbers must have a leading zero. For example, to set an aim duration of 0.5 seconds, scan the bar code below, then scan the “0” and “5” bar codes. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Aim Duration
(Default: 0.0 sec.)

Triggering Modes

Parameter # 0x8A

Choose one of the options below to trigger the scan engine. Bar codes and option numbers are on the following page.

- **Scan (Level)** - A trigger pull activates the laser and decode processing. The laser remains on and decode processing continues until a trigger release, a valid decode, or the Laser On Time-out is reached.
- **Scan (Pulse)** - A trigger pull activates the laser and decode processing. The laser remains on and decode processing continues until a valid decode or the Laser On Time-out is reached.

- **Continuous** - The laser is always on and decoding.
- **Blink** - This trigger mode is used for trigger less operation. Scanning range is reduced in this mode. This mode cannot be used with engines that support an aim mode.
- **Host** - A host command issues the triggering signal. The scan engine interprets an actual trigger pull as a Level triggering option.



***Level**
(0X00)



Pulse
(0X02)



Continuous
(0X04)



Blinking
(0X07)



Host
(0X08)

Time-out Between Same Symbol

Parameter # 0x89

When in Continuous triggering mode, this parameter sets the minimum time that must elapse before the scan engine decodes a second bar code identical to one just decoded. This reduces the risk of accidentally scanning the same symbol twice. It is programmable in 0.1 second increments from 0.0 to 9.9 seconds.



Time-out Between Same Symbol
(Default: 1.0 sec.)

To set a time-out between same symbol, scan the bar code below. Next scan two numeric bar codes beginning on *page 77* that correspond to the desired time-out. Single digit values must have a leading zero. For example, to set a time-out of 0.5 seconds, scan the bar code below, then scan the “0” and “5” bar codes. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.

Beep After Good Decode

Parameter # 0x38

Scan this symbol to set the scan engine to beep after a good decode.



***Beep After Good Decode**
(0x01)

Scan this symbol to set the scan engine not to beep after a good decode. The beeper still operates during parameter menu scanning and indicates error conditions.



Do Not Beep After Good Decode
(0x00)

Parameter Scanning

Parameter # 0xEC

To disable decoding of parameter bar codes, scan the bar code below. The **Set Defaults** parameter bar code can still be decoded. To enable decoding of parameter bar codes, either scan **Enable Parameter Scanning** below, **Set Factory Defaults** on *page 29* or set this parameter to 0x01 via a serial command.



***Enable Parameter Scanning**
(0x01)



Disable Parameter Scanning
(0x00)

Parameter Pass Through

Parameter # 0xF1 0x71

Enable **Parameter Pass Through** to transmit bar codes in the following format, in Code 128, to the host:

<FNC3>L<any length data>

<FNC3>B<12 characters of data>

Note that the special Code 128 character <FNC3> must appear at the beginning of this data. However, if the appropriate data does not follow this as shown above, it does not transmit to the host device.



**Enable Parameter Pass Through
(0x01)**



***Disable Parameter Pass Through
(0x00)**

Disable All Symbolologies

Scan the bar code below to disable the decoding of all symbolologies. Use this to simplify selecting a single symbology to decode by scanning this, then scanning the desired enable code type bar code. Note that the decoder can still decode parameter bar codes.



Disable All Symbolologies

Linear Code Type Security Level

Parameter # 0x4E

The MS916 offers four levels of decode security for linear code types (e.g. Code 39, Interleaved 2 of 5). Select higher security levels for decreasing levels of bar code quality. As security levels increase, the scan engine's aggressiveness decreases.

Select the security level appropriate for your bar code quality.

Linear Security Level 1

The following code types must be successfully read twice before being decoded:

Code Type	Length
Codabar	All
MSI	4 or less
D 2 of 5	8 or less
I 2 of 5	8 or less



***Linear Security Level 1
(0x01)**

Linear Security Level 2

All code types must be successfully read twice before being decoded.



**Linear Security Level 2
(0x02)**

Linear Security Level 3

Code types other than the following must be successfully read twice before being decoded. The following codes must be read three times:

Code Type	Length
MSI	4 or less
D 2 of 5	8 or less
I 2 of 5	8 or less



Linear Security Level 3
(0x03)

Linear Security Level 4

All code types must be successfully read three times before being decoded.



Linear Security Level 4
(0x04)

Bi-directional Redundancy

Parameter # 0x43

This parameter is only valid when a *Linear Code Type Security Level* is enabled (see *page 37*). When this parameter is enabled, a bar code must be successfully scanned in both directions (forward and reverse) before being decoded.



**Enable Bi-directional Redundancy
(0x01)**



***Disable Bi-directional Redundancy
(0x00)**

UPC/EAN

Enable/Disable UPC-A

Parameter # 0x01

To enable or disable UPC-A, scan the appropriate bar code below.



***Enable UPC-A
(0x01)**



**Disable UPC-A
(0x00)**

Enable/Disable UPC-E

Parameter # 0x02

To enable or disable UPC-E, scan the appropriate bar code below.



***Enable UPC-E
(0x01)**



**Disable UPC-E
(0x00)**

Enable/Disable UPC-E1

Parameter # 0x0C

To enable or disable UPC-E1, scan the appropriate bar code below.

✓ **NOTE** UPC-E1 is not a UCC (Uniform Code Council) approved symbology.



**Enable UPC-E1
(0x01)**



***Disable UPC-E1
(0x00)**

Enable/Disable EAN-8

Parameter # 0x04

To enable or disable EAN-8, scan the appropriate bar code below.



***Enable EAN-8
(0x01)**



**Disable EAN-8
(0x00)**

Enable/Disable EAN-13

Parameter # 0x03

To enable or disable EAN-13, scan the appropriate bar code below.



***Enable EAN-13
(0x01)**



**Disable EAN-13
(0x00)**

Enable/Disable Bookland EAN Parameter # 0x53

To enable or disable EAN Bookland, scan the appropriate bar code below.



**Enable Bookland EAN
(0x01)**



***Disable Bookland EAN
(0x00)**

✓ **NOTE** If you enable Bookland EAN, select a *Bookland ISBN Format* on page 46.

UPC-A Preamble Parameter # 0x22

Preamble characters (Country Code and System Character) can be transmitted as part of a UPC-A symbol.

Select one of the following options for transmitting UPC-A preamble to the host device: transmit system character only, transmit system character and country code ("0" for USA), or transmit no preamble.



**No Preamble
(<DATA>)
(0x00)**



***System Character**
(<SYSTEM CHARACTER> <DATA>)
(0x01)



System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)
(0x02)

UPC-E Preamble

Parameter # 0x23

Preamble characters (Country Code and System Character) can be transmitted as part of a UPC-E symbol.

Select one of the following options for transmitting UPC-E preamble to the host device: transmit system character only, transmit system character and country code ("0" for USA), or transmit no preamble.



No Preamble
(<DATA>)
(0x00)



***System Character**
(<SYSTEM CHARACTER> <DATA>)
(0x01)



System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)
(0x02)

UPC-E1 Preamble Parameter # 0x24

Preamble characters (Country Code and System Character) can be transmitted as part of a UPC-E1 symbol.

Select one of the following options for transmitting UPC-E1 preamble to the host device: transmit system character only, transmit system character and country code ("0" for USA), or transmit no preamble.



No Preamble
(<DATA>)
(0x00)



***System Character**
(<SYSTEM CHARACTER> <DATA>)
(0x01)



System Character & Country Code
(< COUNTRY CODE> <SYSTEM CHARACTER> <DATA>)
(0x02)

Convert UPC-E to UPC-A

Parameter # 0x25

Enable this parameter to convert UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

Scan **DO NOT CONVERT UPC-E TO UPC-A** to transmit UPC-E (zero suppressed) decoded data.



Convert UPC-E to UPC-A (Enable)
(0x01)



*Do Not Convert UPC-E to UPC-A (Disable)
(0x00)

Convert UPC-E1 to UPC-A

Parameter # 0x26

Enable this parameter to convert UPC-E1 (zero suppressed) decoded data to UPC-A format before transmission. After conversion, data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

Scan **DO NOT CONVERT UPC-E TO UPC-A** to transmit UPC-E1 (zero suppressed) decoded data.



Convert UPC-E1 to UPC-A (Enable)
(0x01)



***Do Not Convert UPC-E1 to UPC-A (Disable)**
(0x00)

EAN Zero Extend

Parameter # 0x27

When enabled, this parameter adds five leading zeros to decoded EAN-8 symbols to make them compatible in format to EAN-13 symbols.

Disable this parameter to transmit EAN-8 symbols as is.



Enable EAN Zero Extend
(0x01)



***Disable EAN Zero Extend**
(0x00)

Bookland ISBN Format

Parameter # 0xF1 0x40

If you enabled Bookland EAN using *Enable/Disable Bookland EAN on page 42*, select one of the following formats for Bookland data:

- **Bookland ISBN-10** - The scanner reports Bookland data starting with 978 in traditional 10-digit format with the special Bookland check digit for backward-compatibility. Data starting with 979 is not considered Bookland in this mode.
- **Bookland ISBN-13** - The scanner reports Bookland data (starting with either 978 or 979) as EAN-13 in 13-digit format to meet the 2007 ISBN-13 protocol.



***Bookland ISBN-10
(0x00)**



**Bookland ISBN-13
(0x01)**

✓ **NOTE** For Bookland EAN to function properly, first enable Bookland EAN using *Enable/Disable Bookland EAN* on page 42.

Code 128

Enable/Disable Code 128

Parameter # 0x08

To enable or disable Code 128, scan the appropriate bar code below.



**Disable Code 128
(0x00)**



***Enable Code 128
(0x01)**

Code 39

Enable/Disable Code 39

Parameter # 0x00

To enable or disable Code 39, scan the appropriate bar code below.



***Enable Code 39
(0x01)**



**Disable Code 39
(0x00)**

Enable/Disable Trioptic Code 39

Parameter # 0x0D

Trioptic Code 39 is a variant of Code 39 used in marking computer tape cartridges. Trioptic Code 39 symbols always contain six characters.

To enable or disable Trioptic Code 39, scan the appropriate bar code below.



**Enable Trioptic Code 39
(0x01)**



***Disable Trioptic Code 39
(0x00)**

✓ **NOTE** Trioptic Code 39 and Code 39 Full ASCII cannot be enabled simultaneously. If an error beep sounds when enabling Trioptic Code 39, disable Code 39 Full ASCII and try again.

Convert Code 39 to Code 32 (Italian Pharma Code)

Parameter # 0x56

Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Scan the appropriate bar code below to enable or disable converting Code 39 to Code 32.

✓ **NOTE** Code 39 must be enabled in order for this parameter to function.



**Enable Convert Code 39 to Code 32
(0x01)**



***Disable Convert Code 39 to Code 32
(0x00)**

Code 32 Prefix

Parameter # 0xE7

Enable this parameter to add the prefix character “A” to all Code 32 bar codes. Convert Code 39 to Code 32 (Italian Pharma Code) must be enabled for this parameter to function.



**Enable Code 32 Prefix
(0x01)**



***Disable Code 32 Prefix
(0x00)**

Set Lengths for Code 39

Parameter # L1 = 0x12, L2 = 0x13

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for Code 39 may be set for any length, one or two discrete lengths, or lengths within a specific range. If Code 39 Full ASCII is enabled, **Length Within a Range** or **Any Length** are the preferred options. **To set lengths via serial commands, see *Setting Code Lengths Via Serial Commands* on page B-6.**

✓ **NOTE** When setting lengths, single digit numbers must always be preceded by a leading zero.

One Discrete Length - This option limits decodes to only those Code 39 symbols containing a selected length. Lengths are selected from the numeric bar codes beginning on *page 77*. For example, to decode only Code 39 symbols with 14 characters, scan **Code 39 - One Discrete Length**, then scan **1** followed by **4**. To change the selection or cancel an incorrect entry, scan *Cancel* on *page 78*.



Code 39 - One Discrete Length

Two Discrete Lengths - This option limits decodes to only those Code 39 symbols containing either of two selected lengths. Lengths are selected from

the numeric bar codes beginning on *page 77*. For example, to decode only those Code 39 symbols containing either 2 or 14 characters, select **Code 39 - Two Discrete Lengths**, then scan **0, 2, 1**, and then **4**. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Code 39 - Two Discrete Lengths

Length Within Range - This option limits decodes to only those Code 39 symbols within a specified range. For example, to decode Code 39 symbols containing between 4 and 12 characters, first scan **Code 39 - Length Within Range**. Then scan **0, 4, 1**, and **2**. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Code 93 - Length Within Range

Any Length - Scan this option to decode Code 39 symbols containing any number of characters.



Code 93 - Any Length

Code 39 Check Digit Verification

Parameter # 0x30

When this feature is enabled, the scan engine checks the integrity of all Code 39 symbols to verify that the data complies with specified check digit algorithm. Only those Code 39 symbols which include a modulo 43 check digit are decoded. Only enable this feature if your Code 39 symbols contain a module 43 check digit.



**Verify Code 39 Check Digit
(0x01)**



***Do Not Verify Code 39 Check Digit
(0x00)**

Transmit Code 39 Check Digit Parameter # 0x2B

Scan this symbol to transmit the check digit with the data.



**Transmit Code 39 Check Digit (Enable)
(0x01)**

Scan this symbol to transmit data without the check digit.



***Do Not Transmit Code 39 Check Digit (Disable)
(0x00)**

Enable/Disable Code 39 Full ASCII Parameter # 0x11

Code 39 Full ASCII is a variant of Code 39 which pairs characters to encode the full ASCII character set. To enable or disable Code 39 Full ASCII, scan the appropriate bar code below.

See *Table B-5 on page B-7* for the mapping of Code 39 characters to ASCII values.



**Enable Code 39 Full ASCII
(0x00)**



***Disable Code 39 Full ASCII
(0x00)**

✓ **NOTE** Trioptic Code 39 and Code 39 Full ASCII cannot be enabled simultaneously. If you get an error beep when enabling Code 39 Full ASCII, disable Trioptic Code 39 and try again.

Code 93

Enable/Disable Code 93 Parameter # 0x09

To enable or disable Code 93, scan the appropriate bar code below.



**Enable Code 93
(0x01)**



***Disable Code 93
(0x00)**

Set Lengths for Code 93

Parameter # L1 = 0x1A, L2 = 0x1B

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for Code 93 may be set for any length, one or two discrete lengths, or lengths within a specific range. **To set lengths via serial commands, see *Setting Code Lengths Via Serial Commands on page B-6*.**

One Discrete Length - Select this option to decode only those codes containing a selected length. For example, select **Code 93 One Discrete Length**, then scan **1, 4**, to limit the decoding to only Code 93 symbols containing 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Code 93 - One Discrete Length

Two Discrete Lengths - Select this option to decode only those codes containing two selected lengths. For example, select **Code 93 Two Discrete Lengths**, then scan **0, 2, 1, 4**, to limit the decoding to only Code 93 symbols containing 2 or 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Code 93 - Two Discrete Lengths

Length Within Range - This option sets the unit to decode a code type within a specified range. For example, to decode Code 93 symbols containing between 4 and 12 characters, first scan **Code 93 Length Within Range**, then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero).

Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Code 93 - Length Within Range

Any Length - Scan this option to decode Code 93 symbols containing any number of characters.



Code 93 - Any Length

Code 11

Enable/Disable Code 11

Parameter # 0x0A

To enable or disable Code 11, scan the appropriate bar code below.



**Enable Code 11
(0x01)**



***Disable Code 11
(0x00)**

Set Lengths for Code 11

Parameter # L1 = 0x1C, L2 = 0x1D

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Set lengths for Code 11 to any length, one or two discrete lengths, or lengths within a specific range.

- **One Discrete Length** - Select this option to decode only Code 11 symbols containing a selected length. Select the length using the numeric bar codes beginning on *page 77*. For example, to decode only Code 11 symbols with 14 characters, scan **Code 11 - One Discrete Length**, then scan **1** followed by **4**. To correct an error or to change the selection, scan *Cancel on page 78*.
- **Two Discrete Lengths** - Select this option to decode only Code 11 symbols containing either of two selected lengths. Select lengths using the numeric bar codes beginning on *page 77*. For example, to decode only those Code 11 symbols containing either 2 or 14 characters, select **Code 11 - Two Discrete Lengths**, then scan **0, 2, 1**, and then **4**. To correct an error or to change the selection, scan *Cancel on page 78*.
- **Length Within Range** - Select this option to decode a Code 11 symbol with a specific length range. Select lengths using numeric bar codes beginning on *page 77*. For example, to decode Code 11 symbols containing between 4 and 12 characters, first scan **Code 11 - Length Within Range**. Then scan **0, 4, 1**, and **2** (single digit numbers must always be preceded by a leading zero). To correct an error or change the selection, scan *Cancel on page 78*.
- **Any Length** - Scan this option to decode Code 11 symbols containing any number of characters within the scan engine capability.



Code 11 - One Discrete Length



Code 11 - Two Discrete Lengths



Code 11 - Length Within Range



Code 11 - Any Length

Code 11 Check Digit Verification Parameter # 0x34

This feature allows the scan engine to check the integrity of all Code 11 symbols to verify that the data complies with the specified check digit algorithm. This selects the check digit mechanism for the decoded Code 11 bar code. The options are to check for one check digit, check for two check digits, or disable the feature.

To enable this feature, scan the bar code below corresponding to the number of check digits encoded in your Code 11 symbols.



***Disable
(0x00)**



**One Check Digit
(0x01)**



Two Check Digits
(0x02)

Transmit Code 11 Check Digits Parameter # 0x2F

This feature selects whether or not to transmit the Code 11 check digit(s).



Transmit Code 11 Check Digit(s) (Enable)
(0x01)



*Do Not Transmit Code 11 Check Digit(s) (Disable)
(0x00)

✓ **NOTE** Code 11 Check Digit Verification must be enabled for this parameter to function.

Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5 Parameter # 0x06

To enable or disable Interleaved 2 of 5, scan the appropriate bar code below.



***Enable Interleaved 2 of 5
(0x01)**



**Disable Interleaved 2 of 5
(0x00)**

Set Lengths for Interleaved 2 of 5 Parameter # L1 = 0x16, L2 = 0x17

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for I 2 of 5 may be set for any length, one or two discrete lengths, or lengths within a specific range. **To set lengths via serial commands, see *Setting Code Lengths Via Serial Commands* on page B-8.**

✓ **NOTE** When setting lengths, single digit numbers must always be preceded by a leading zero.

One Discrete Length - Select this option to decode only those codes containing a selected length. For example, select **I 2 of 5 One Discrete Length**, then scan **1, 4**, to decode only I 2 of 5 symbols containing 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



I 2 of 5 - One Discrete Length

Two Discrete Lengths - Select this option to decode only those codes containing two selected lengths. For example, select **I 2 of 5 Two Discrete Lengths**, then scan **0, 6, 1, 4**, to decode only I 2 of 5 symbols containing 6 or 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



I 2 of 5 - Two Discrete Lengths

Length Within Range - Select this option to decode only codes within a specified range. For example, to decode I 2 of 5 symbols containing between 4 and 12 characters, first scan **I 2 of 5 Length Within Range**, then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



I 2 of 5 - Length Within Range

Any Length - Scan this option to decode I 2 of 5 symbols containing any number of characters.

✓ **NOTE** Selecting this option may lead to misdecodes for I 2 of 5 codes.



I 2 of 5 - Any Length

I 2 of 5 Check Digit Verification

Parameter # 0x31

When enabled, this parameter checks the integrity of an I 2 of 5 symbol to ensure it complies with a specified algorithm, either USS (Uniform Symbology Specification), or OPCC (Optical Product Code Council).



***Disable**
(0x00)



**USS Check Digit
(0x01)**



**OPCC Check Digit
(0x02)**

Transmit I 2 of 5 Check Digit Parameter # 0x2C

Scan this symbol to transmit the check digit with the data.



**Transmit I 2 of 5 Check Digit (Enable)
(0x01)**

Scan this symbol to transmit data without the check digit.



***Do Not Transmit I 2 of 5 Check Digit (Disable)
(0x00)**

Convert I 2 of 5 to EAN-13 Parameter # 0x52

This parameter converts a 14 character I 2 of 5 code into EAN-13, and transmits to the host as EAN-13. To accomplish this, I 2 of 5 must be enabled, one length must be set to 14, and the code must have a leading zero and a valid EAN-13 check digit.



Convert I 2 of 5 to EAN-13 (Enable)
(0x01)



***Do Not Convert I 2 of 5 to EAN-13 (Disable)**
(0x00)

Discrete 2 of 5

Enable/Disable Discrete 2 of 5 Parameter # 0x05

To enable or disable Discrete 2 of 5, scan the appropriate bar code below.



Enable Discrete 2 of 5
(0x01)



***Disable Discrete 2 of 5**
(0x00)

Set Lengths for Discrete 2 of 5 Parameter # L1 = 0x14, L2 = 0x15

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for D 2 of 5 may be set for any length, one or two discrete lengths, or lengths within a

specific range. To set lengths via serial commands, see *Setting Code Lengths Via Serial Commands on page B-6*.

One Discrete Length - Select this option to decode only those codes containing a selected length. For example, select **D 2 of 5 One Discrete Length**, then scan **1, 4**, to decode only D 2 of 5 symbols containing 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



D 2 of 5 - One Discrete Length

Two Discrete Lengths - Select this option to decode only those codes containing two selected lengths. For example, select **D 2 of 5 Two Discrete Lengths**, then scan **0, 2, 1, 4**, to decode only D 2 of 5 symbols containing 2 or 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



D 2 of 5 - Two Discrete Lengths

Length Within Range - Select this option to decode codes within a specified range. For example, to decode D 2 of 5 symbols containing between 4 and 12 characters, first scan **D 2 of 5 Length Within Range**, then scan **0, 4, 1 and 2** (single digit numbers must be preceded by a leading zero). Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



D 2 of 5 - Length Within Range

Any Length - Scan this option to decode D 2 of 5 symbols containing any number of characters.

✓ **NOTE** Selecting this option may lead to misdecodes for D 2 of 5 codes.



D 2 of 5 - Any Length

Chinese 2 of 5

Enable/Disable Chinese 2 of 5

Parameter # 0xF0 0x98

To enable or disable Chinese 2 of 5, scan the appropriate bar code below.



Enable Chinese 2 of 5
(0x01)



*Disable Chinese 2 of 5
(0x00)

Codabar

Enable/Disable Codabar

Parameter # 0x07

To enable or disable Codabar, scan the appropriate bar code below.



Enable Codabar
(0x01)



***Disable Codabar
(0x00)**

Set Lengths for Codabar

Parameter # L1 = 0x18, L2 = 0x19

The length of a code refers to the number of characters (i.e., human readable characters), including check digit(s) the code contains. Lengths for Codabar may be set for any length, one or two discrete lengths, or lengths within a specific range. To set lengths via serial commands, see *Setting Code Lengths Via Serial Commands on page B-6*.

One Discrete Length - Select this option to decode only those codes containing a selected length. For example, select **Codabar One Discrete Length**, then scan **1, 4**, to decode only Codabar symbols containing 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Codabar - One Discrete Length

Two Discrete Lengths - This option sets the unit to decode only those codes containing two selected lengths. For example, select **Codabar Two Discrete Lengths**, then scan **0, 2, 1, 4**, to decode only Codabar symbols containing 6 or 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Codabar - Two Discrete Lengths

Length Within Range - Select this option to decode a code within a specified range. For example, to decode Codabar symbols containing between 4 and 12 characters, first scan **Codabar Length Within Range**, then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



Codabar - Length Within Range

Any Length - Scan this option to decode Codabar symbols containing any number of characters.



Codabar - Any Length

CLSI Editing Parameter # 0x36

When enabled, this parameter strips the start and stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar symbol.

✓ **NOTE** Symbol length does not include start and stop characters.



**Enable CLSI Editing
(0x01)**



***Disable CLSI Editing
(0x00)**

NOTIS Editing Parameter # 0x37

When enabled, this parameter strips the start and stop characters from decoded Codabar symbol.



**Enable NOTIS Editing
(0x01)**



***Disable NOTIS Editing
(0x00)**

MSI

Enable/Disable MSI Parameter # 0x0B

To enable or disable MSI, scan the appropriate bar code below.



**Enable MSI
(0x01)**



***Disable MSI
(0x00)**

Set Lengths for MSI

Parameter # L1 = 0x1E, L2 = 0x1F

The length of a code refers to the number of characters (i.e., human readable characters) the code contains, and includes check digits. Lengths for MSI can be set for any length, one or two discrete lengths, or lengths within a specific range. See Table B-5 on page B-9 for ASCII equivalents. To set lengths via serial commands, see *Setting Code Lengths Via Serial Commands on page B-6*.

One Discrete Length - Select this option to decode only those codes containing a selected length. For example, select **MSI Plessey One Discrete Length**, then scan **1, 4**, to decode only MSI Plessey symbols containing 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



MSI - One Discrete Length

Two Discrete Lengths - Select this option to decode only those codes containing two selected lengths. For example, select **MSI Plessey Two Discrete Lengths**, then scan **0, 6, 1, 4**, to decode only MSI Plessey symbols containing 6 or 14 characters. Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



MSI - Two Discrete Lengths

Length Within Range - Select this option to decode codes within a specified range. For example, to decode MSI symbols containing between 4 and 12 characters, first scan **MSI Length Within Range**, then scan **0, 4, 1** and **2** (single digit numbers must always be preceded by a leading zero). Numeric bar codes begin on *page 77*. To change the selection or cancel an incorrect entry, scan *Cancel on page 78*.



MSI - Length Within Range

Any Length - Scan this option to decode MSI Plessey symbols containing any number of characters.

✓ **NOTE** Selecting this option may lead to misdecodes for MSI codes.



MSI - Any Length

MSI Check Digits

Parameter # 0x32

These check digits at the end of the bar code verify the integrity of the data. At least one check digit is always required. Check digits are not automatically transmitted with the data.



***One MSI Check Digit
(0x00)**

If two check digits are selected, also select an *MSI Check Digit Algorithm* on page 70.



**Two MSI Check Digit
(0x01)**

Transmit MSI Check Digit Parameter # 0x2E

Scan this symbol to transmit the check digit with the data.



**Transmit MSI Check Digit (Enable)
(0x01)**

Scan this symbol to transmit data without the check digit.



***Do Not Transmit MSI Check Digit (Disable)
(0x00)**

MSI Check Digit Algorithm Parameter # 0x33

When the Two MSI check digits option is selected, an additional verification is required to ensure integrity.

Select one of the following algorithms.



MOD 10/ MOD 11
(0x00)



*MOD 10/ MOD 10
(0x01)

GS1 DataBar

Enable/Disable GS1 DataBar-14

Parameter # 0xF0 0x52

To enable or disable GS1 DataBar-14, scan the appropriate bar code below.



Enable GS1 DataBar-14
(0x01)



*Disable GS1 DataBar-14
(0x00)

Enable/Disable GS1 DataBar Limited

Parameter # 0xF0 0x53

To enable or disable GS1 DataBar Limited, scan the appropriate bar code below.



**Enable GS1 DataBar Limited
(0x01)**



***Disable GS1 DataBar Limited
(0x00)**

Enable/Disable GS1 DataBar Expanded Parameter # 0xF0 0x54

To enable or disable GS1 DataBar Expanded, scan the appropriate bar code below.



**Enable GS1 DataBar Expanded
(0x01)**



***Disable GS1 DataBar Expanded
(0x00)**

Convert GS1 DataBar to UPC/EAN Parameter # 0xF0 0x8D

This parameter only applies to GS1 DataBar-14 and GS1 DataBar Limited symbols. When this conversion is enabled, GS1 DataBar-14 and GS1 DataBar Limited symbols encoding a single zero as the first digit have the leading '010' stripped and the bar code reported as EAN-13.

Bar codes beginning with two or more zeros but not six zeros have the leading '0100' stripped and the bar code reported as UPC-A. The UPC-A Preamble parameter to transmit the system character and country code applies to converted bar codes. Note that neither the system character nor the check digit can be stripped.



Enable Convert GS1 DataBar to UPC/EAN



***Disable Convert GS1 DataBar to UPC/EAN**

Transmit Code ID Character

Parameter # 0x2D

A code ID character identifies the code type of a scanned bar code. This can be useful when decoding more than one code type. The code ID character is inserted between the prefix character (if selected) and the decoded symbol.

Select no code ID character, a Symbol Code ID character, or an AIM Code ID character. The Symbol Code ID characters are listed below; see *Appendix B, Miscellaneous Code Information for AIM Code Identifiers*.

- A = UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13
- B = Code 39, Code 32
- C = Codabar
- D = Code 128, ISBT 128
- E = Code 93
- F = Interleaved 2 of 5
- G = Discrete 2 of 5
- J = MSI

- K = GS1-DataBar
- L = Bookland EAN
- M = Trioptic Code 39
- N = Coupon Code
- R = GS1 DataBar-14, GS1 DataBar Limited, GS1 DataBar Expanded.



Symbol Code ID Character
(0x02)



Aim Code ID Character
(0x01)



*None
(0x00)

Prefix/Suffix Values

Parameter # P = 0x69, S1 = 0x68, S2 = 0x6A

A prefix and/or one or two suffixes can be appended to scan data for use in data editing. To set these values, scan a four-digit number (i.e. four bar codes) that corresponds to ASCII values. *See the Table B-5 on page B-7 and Numeric Bar Codes on page 77.* To change the selection or cancel an incorrect entry, scan *Cancel on page 78.* To set the Prefix/Suffix values via serial commands, see *Setting Prefixes and Suffixes Via Serial Commands on page B-7.*

✓ **NOTE** In order to use Prefix/Suffix values, the *Scan Data Transmission Format* on page 75 must be set. See page 75.



Scan Prefix



Scan Suffix 1



Scan Suffix 2



Data Format Cancel

Scan Data Transmission Format

Parameter # 0xEB

To change the Scan Data Transmission Format, scan one of the eight bar codes corresponding to the desired format.



***Data As Is
(0x00)**



<DATA> <SUFFIX 1>
(0x01)



<DATA> <SUFFIX 2>
(0x02)



<DATA> <SUFFIX 1> <SUFFIX 2>
(0x03)



<PREFIX> <DATA >
(0x04)

Numeric Bar Codes

For parameters requiring specific numeric values, scan the appropriately numbered bar code(s).



0



1



2



3



4



5



6



7



8



9

Cancel

To change the selection or cancel an incorrect entry, scan the bar code below.



Cancel

Regulatory Compliance Statements

FCC Warning Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
 2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. To maintain compliance with FCC RF exposure requirements, avoid direct contact to the transmitting antenna during transmitting.
 3. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

FCC Label Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Canadian Compliance Statement

This Class B Digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte les exigences du Règlement sur le matériel brouilleur du Canada.

European Conformity Statement

This device complies with the R&TTE Directive (1999/5/EC) issued by the Commission of the European Community.

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.

TaiwanNCC Warning Statement

低功率電波輻射性電機管理辦法

第十二條：經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條：低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。低功率射頻電機需忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Laser Information

The Unitech MS916 series is certified in the U.S. to conform to the requirements of DHHS/CDRH 21CFR Subchapter J and to the requirements of IEC 825-1. Class II and Class 2 products are not considered to be hazardous. The MS916 series contains internally a Visible Laser Diode (VLD) whose emissions do not exceed the maximum limits as set forth in the above regulations. The scanner is designed so that there is no human access to harmful laser light during normal operation, user maintenance or prescribed service operations.

The laser safety warning label required by the DHHS/IEC for the MS916 series' optional laser scanner module is located on the memory compartment cover, on the back of the unit.

CAUTION! Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light. Use of optical instruments with the scanner, including binoculars, microscopes, and magnifying glasses, with will increase eye damage. This does not include eyeglasses worn by the user.