



METROLOGIC INSTRUMENTS, INC.

**MS5100 Eclipse™ Series  
Installation and User's Guide**





# Locations

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## INTRODUCTION

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The MS5145 Eclipse™ is a single-line, hand-held laser scanner.

Equipped with Metrologic's patented CodeGate™ technology, Eclipse™ can be used in a wide variety of applications. CodeGate technology allows the user to easily target the desired bar code and complete the data transmission with a simple press of a button. This combination makes Eclipse™ a perfect selection for menu scanning, point-of-sale, document processing and inventory control.

With Metrologic's state-of-the-art scanning technology embedded inside, the MS5145 Eclipse™ has a longer working range and a wider scan field than a typical CCD. The width of the scan line grows as the scanner moves further away from bar codes. In addition, the laser beam pulses making lining up bar codes easy, and when the scanner senses a bar code (CodeSense™ Mode), the laser beam automatically switches to scan mode and activates CodeGate to ensure high-speed scanning and accuracy.

Metrologic has included many standard features such as: user programmable Flash ROM, PowerLink user-replaceable cables, MetroSet® 2 and MetroSelect® configuration, EMI rating of Class B, and data editing (parsing).

ECLIPSE	
MS5145 – 00	Laser Emulation
MS5145 – 9	OCIA
MS5145 – 11	IBM 468X/469X, RS232-TXD, RXD, RTS, CTS
MS5145 – 14	RS232 - TXD, RXD, RTS, CTS, DTR, DSR
MS5145 – 38	Low Speed HID/POS USB
MS5145 – 40	Full Speed USB
MS5145 – 41	RS232/Light Pen Emulation
MS5145 – 47	Keyboard Wedge
MS5145 - 48	Keyboard Wedge, Stand-Alone Keyboard

## SCANNER AND ACCESSORIES

<b>BASIC KIT</b>	
<b>Part #</b>	<b>Description</b>
MS5145	Eclipse Scanner
00-02544	MetroSelect Single-Line Configuration Guide*
70-79016	Installation and User's Guide*

\* Available on the Metrologic website - [www.metrologic.com](http://www.metrologic.com)

<b>OPTIONAL ACCESSORIES</b>	
<b>Part #</b>	<b>Description</b>
AC to DC Power Transformer- Regulated 5.2VDC @ 650 mA output.	
00-06155	120V United States
00-06156	220V-240V Continental European
00-06156	220V-240V United Kingdom
00-06148	220V-240V China
55-55000A-3	PowerLink Cable with built in power jack 2.1m (7') <i>straight</i> cord, long strain relief, black
55-55002A-3	Keyboard Wedge PowerLink Cable with Adapter Cable, black
55-55020A-3	Stand Alone Keyboard Wedge PowerLink Cable, black

*Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department at 1-800-ID-METRO or 1-800-436-3876.*

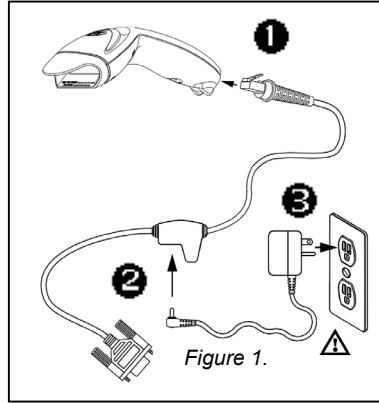
## SCANNER AND ACCESSORIES

OPTIONAL ACCESSORIES	
Part #	Description
55-55235A-N-3	USB Power/Communication Cable, 1.5 m (5') straight cord, long strain relief, black
55-55200A-N-3	USB Power/Communication Cable, 3 m (10') straight cord, long strain relief, black  <i>Not for use with Low Speed USB scanners. Use with Full Speed USB scanners only.</i>
MVC**	Metrologic Voltage Converter Cable +12VDC to +5.2VDC or -12VDC to +5.2VDC
** <i>Contact a Metrologic customer service representative for additional information on the MVC converter cable series and the host connections available.</i>	
46-46633	Countertop Stand

*Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department at 1-800-ID-METRO or 1-800-436-3876.*

## OPERATIONAL TEST

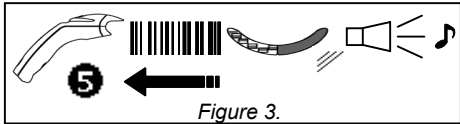
1. Connect the 10-pin RJ45 male connector into the jack on the Eclipse. You will hear a 'click' when the connection is made.
2. Connect the L-shaped plug of the power supply into the power jack on the PowerLink cable.
3. Connect the power supply into an AC outlet. Make sure the AC input requirements of the power supply match the AC outlet.



4. When the Eclipse is ready to scan, the green LED will turn on, the red LED will flash and the scanner will beep once.



5. Place a bar code in front of the scanning window. Press the CodeGate button to transmit the data. The scanner will beep once and flash the red LED if the bar code was successfully decoded and transmitted (*default mode only*).



All Eclipse's are shipped configured with factory defaults. Refer to the MetroSelect Configuration Guide or MetroSet® 2's help files for instructions on how to configure the scanner.

### Caution:



To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.


To maintain compliance with standard CSA C22.2 No. 950/UL 1950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.




# INSTALLING THE SCANNER TO THE HOST SYSTEM


## MS5145-00/9/11/14/41

1. Turn off the host system.
2. Connect the 10-pin RJ45 male connector into the jack on the Eclipse. You will hear a 'click' when the connection is made.

 If the scanner is receiving power from the host system, skip to step #5.

3. Connect the L-shaped plug of the power supply into the power jack on the PowerLink cable.
4. Make sure the AC input requirements of the power supply match the AC outlet. Connect the power supply into an AC outlet. The outlet should be near the equipment and easily accessible.
5. Connect the PowerLink cable to the proper port on the host system.
6. Turn on the host system.

 Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. All Eclipse's are shipped configured with a set of factory defaults. Please refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files for instructions on changing the scanner's configuration. It is important to check that the scanner and host system are using the same communication protocol.

 All **MS5145-00** scanners leave the factory with the *Laser Emulation Mode* enabled. If you *recall defaults* while re-configuring your scanner the *Laser Emulation Mode* will no longer be enabled. Refer to the *MS5145-00 Laser Emulation Mode* section of the MetroSelect Single-Line Configuration Guide for information on enabling the *Laser Emulation Mode*.

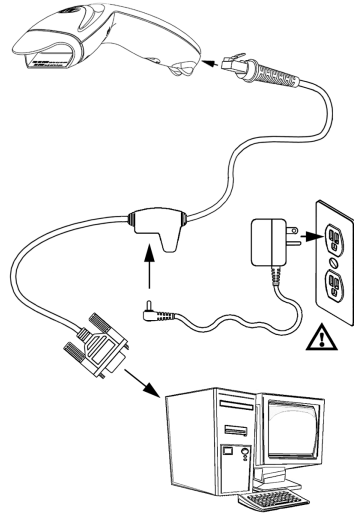



Figure 4.

### Caution:

 To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 950/UL 1950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

# INSTALLING THE SCANNER TO THE HOST SYSTEM

## Keyboard Wedge MS5145-47

1. Turn off the PC.
2. Connect the 10-pin RJ45 male connector into the jack on the Eclipse. You will hear a 'click' when the connection is made.
3. Connect the L-shaped plug of the power supply into the power jack on the PowerLink cable.



If the scanner is receiving power from the host system, skip to step #5.

4. Make sure the AC input requirements of the power supply match the AC outlet. Connect the power supply into an AC outlet. The outlet should be near the equipment and easily accessible.
5. Disconnect the keyboard from the PC.
6. Connect the PowerLink cable to the keyboard and the PC's keyboard port. If necessary use the supplied adapter cable (5-pin male DIN to 6-pin female mini DIN adapter).
7. Power up the PC.



Powering the MS5145-47 directly from the computer can sometimes cause interference with the operation of the scanner or the computer. Not all computers supply the same current through the keyboard port, explaining why a scanner may work on one computer and not another. Contact a Metrologic Customer Service Representative if you require an external power supply.

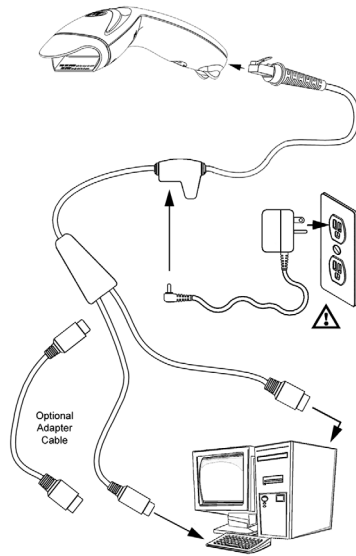


Figure 5.

### Caution:



To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 950/UL 1950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

# INSTALLING THE SCANNER TO THE HOST SYSTEM

## Stand Alone Keyboard MS5145-48

1. Turn off the host system.
2. Connect the 10-pin RJ45 male connector into the jack on the Eclipse. You will hear a 'click' when the connection is made.



If the scanner is receiving power from the host system, skip to step #5.

3. Connect the L-shaped plug of the power supply into the power jack on the PowerLink cable.
4. Make sure the AC input requirements of the power supply match the AC outlet. Connect the power supply into an AC outlet. The outlet should be near the equipment and easily accessible.
5. Connect the PowerLink cable to the keyboard port on the host system.
6. Turn on the host system.

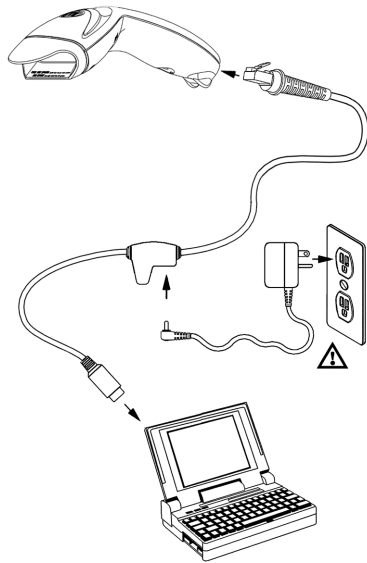


Figure 6.



Powering the MS5145-48 directly from the computer can sometimes cause interference with the operation of the scanner or the computer. Not all computers supply the same current through the keyboard port, explaining why a scanner would work on one computer and not another. Contact a Metrologic Customer Service Representative if you require an external power supply.



**Caution:**

To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 950/UL 1950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

## INSTALLING THE SCANNER TO THE HOST SYSTEM

### USB:                      LOW SPEED HID/POS USB MS5145-38                                     FULL SPEED USB MS5145-40

1. Turn off the host system.
2. Connect the 10-pin RJ45 male connector of the USB cable into the jack on the Eclipse. You will hear a 'click' when the connection is made.
3. Connect the other end of the USB cable to the host USB port.
4. Turn on the host system.



Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. All Eclipse's are shipped already configured with a set of factory defaults. Please refer to the MetroSelect Configuration Guide or MetroSet2's help files for instructions on changing the scanner's configuration. It is important to check that the scanner and host system are using the same communication protocol.

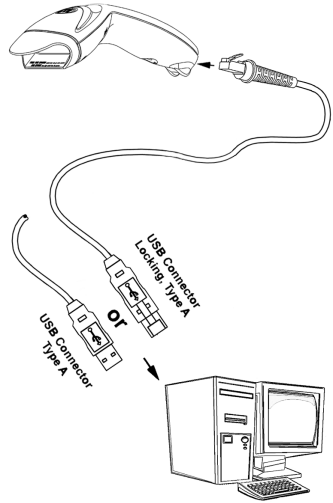


Figure 7.

#### Caution:



To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

To maintain compliance with standard CSA C22.2 No. 950/UL 1950 and norm EN 60950, the power source should meet applicable performance requirements for a limited power source.

# THE POWERLINK CABLE

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## Disconnecting the PowerLink Cable

Before removing the cable from the scanner, Metrologic recommends that the power on the host system is off and the power supply has been disconnected from the PowerLink cable.

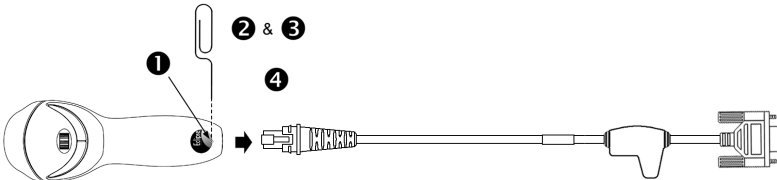


Figure 8.

1. Locate the small 'pin-hole' on the top of the unit near the bottom of the Eclipse logo.
2. Bend an ordinary paperclip into the shape shown above.
3. Insert the paperclip (or other small metallic pin) into the small 'pin-hole'.
4. You will here a faint 'click'. Pull gently on the strain-relief of the PowerLink cable and it will slide out of the scanner.

## Connecting the PowerLink Cable

**i** Important: If the PowerLink cable is not fully latched the unit can power intermittently.

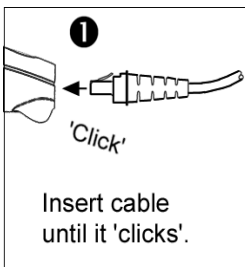


Figure 9a.

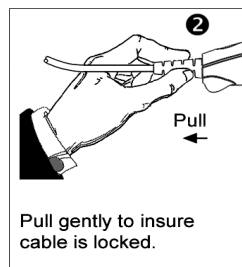
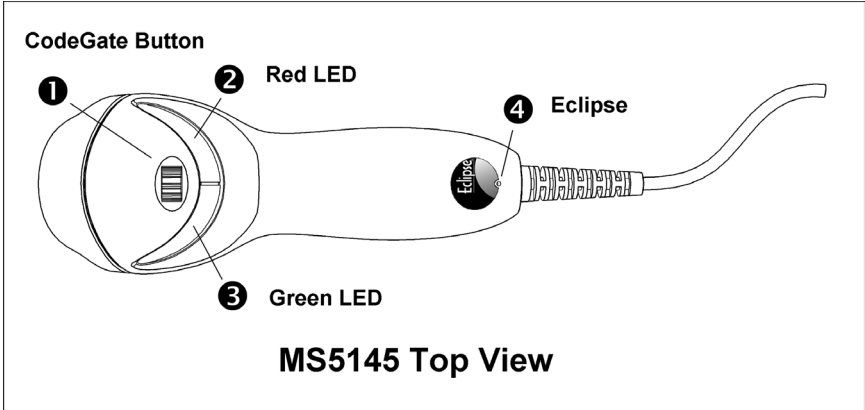


Figure 9b.



### Green & Red LEDs

The MS5145's laser pulses on and off when no bar code is presented, and stays on when it senses a bar code. The green LED remains on during normal pulse and scanning operation, and it blinks during power save mode. On a successful read of a bar code, the red LED will flash and the scanner will beep once. The LEDs are also used as diagnostic indicators and mode indicators.

### CodeGate Button

CodeGate technology allows the user to easily target the desired bar code and complete the data transmission with a simple press of a button.

# THE MS5145 ECLIPSE™ SERIES

## HOW TO USE CODEGATE AND THE MANUAL ACTIVATION MODE

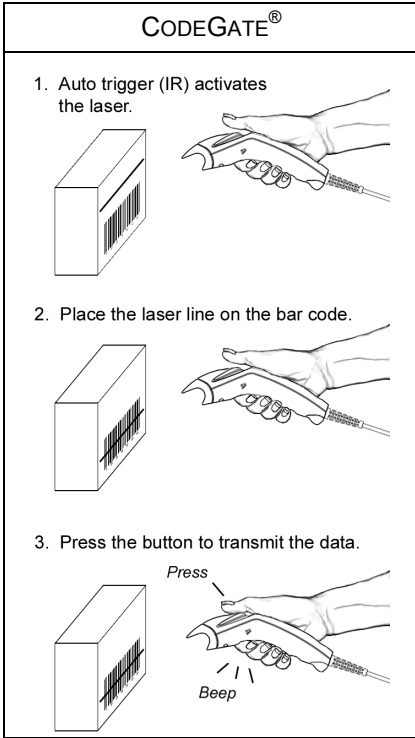


Figure 10a.

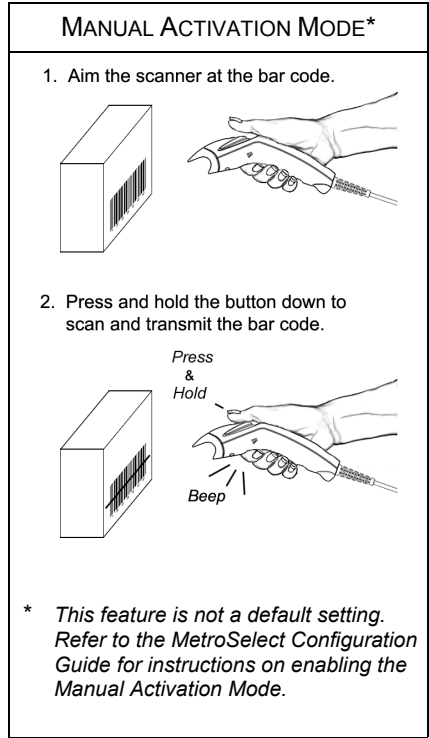


Figure 10b.

### TWO MODES OF OPERATION

#### CodeGate, Out-of-Stand

- CodeGate activates when removed from the stand
- Bar code data is transmitted when the button is pressed

#### Manual Activation Mode\*, Out-of-Stand

- Button activates laser
- Bar code data is scanned and transmitted while button is held down

## AUDIBLE INDICATORS

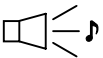
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When the MS5145 scanner is operational, it provides audible feedback. These sounds indicate the status of the scanner. Eight settings are available for the tone of the beep (normal, 6 alternate tones and no tone). To change the tone, refer to the Configuration Guide.



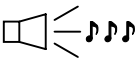
### **One Beep – on power up**

The green LED will turn on, then the red LED will flash and the scanner will beep once. The red LED will remain on for the duration of the beep. The scanner is now ready to scan.



### **One Beep – during operation**

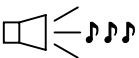
When the scanner successfully reads a bar code, the red LED will flash and the scanner will beep once (if programmed to do so). If the scanner does not beep once and the red light does not flash, then the bar code has not been successfully read.



### **Three Beeps – during operation**

When entering the program mode, the red LED will flash while the scanner simultaneously beeps three times. The red LED will continue to flash until the unit exits program mode. Upon exiting program mode, the scanner will beep three times and the red LED will stop flashing.

When configured for communication timeout, 3 beeps during operation will indicate that a communication timeout has occurred.



### **Three Beeps – on power up**

This is a failure indicator. Refer to the *Failure Modes* section of this guide on page 11.



### **Razzberry Tone**

This is a failure indicator or an invalid code read during program mode. Refer to the *Failure Modes* section of this guide on page 12.



## VISUAL INDICATORS

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There is a red LED and a green LED on the MS5145. When the scanner is on, the activity of the LEDs indicates the status of the current scan and the scanner.



### **Green and Red LEDs are off**

The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer.



### **Steady Green**

Indicates normal pulse or continuous laser operation. Accompanied by a razzberry tone, it indicates that an invalid bar code has been scanned.



### **Flashing Green**

After a period of inactivity, the *ON* time of the pulsing laser will be shortened. During this time the green LED will flash. This indicates that the scanner is in a *power saver* mode. When a bar code enters the laser field, the scanner will wake up and return to normal pulse mode.



### **Steady Green and Single Red Flash**

When the scanner successfully reads a bar code, the red LED will flash and the scanner will beep. If the red LED does not flash and the scanner does not beep, then the bar code has not been successfully read.



### **Steady Green and Steady Red**

After a successful read, the scanner transmits the data to the host device. Some communication modes require that the host inform the scanner when data is ready to be received. If the host is not ready to accept the information, the scanner's red LED will remain on until the data can be transmitted.



### **Steady Green and Continuous Flashing Red**

When entering the program mode, the red LED will flash, the green LED will turn on and the scanner will beep three times. The red LED will continue to flash and the green LED will stay on until the unit exits the program mode.

## FAILURE MODES

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### **One Razzberry Tone on Power-up**

This indicates the scanner has experienced a laser or flipper subsystem failure. Return the unit for repair to a Metrologic Authorized Service Center.



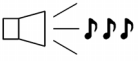
### **Continuous Razzberry Tone with all LEDs off**

If, upon power up, the scanner emits a continuous razzberry tone, then the scanner has an experienced an electronic failure. Return the unit for repair to a Metrologic Authorized Service Center.



### **Three Beeps – on power up**

If the scanner beeps 3 times on power up then, the non-volatile memory (NovRAM) that holds the scanner configuration has failed. Return the unit for repair to a Metrologic Authorized Service Center.



## PROGRAMMING MODES

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The MS5145 Eclipse has 3 modes of programming.

### ➤ **Bar Codes**

Eclipse can be configured by scanning the bar codes located in the MetroSelect® Single-Line Configuration Guide (MLPN 00-02544). Please refer to this guide for instructions. This manual can be downloaded for FREE from Metrologic's website ([www.metrologic.com](http://www.metrologic.com)).

### ➤ **MetroSet® 2**

This user-friendly Windows-based configuration program allows you to simply 'point-and-click' at the desired scanner options. This program can be downloaded for FREE from Metrologic' website ([www.metrologic.com](http://www.metrologic.com)), or set-up disks can be ordered by calling 1-800-ID-METRO.

### ➤ **Serial Programming**

This mode of programming is ideal for OEM applications. This mode gives the end-user the ability to send a series of commands using the serial port of the host system. The commands are equivalent to the numerical values of the bar codes located in the MetroSelect Single-Line Configuration Guide (MLPN 00-02544).

*How does Serial Programming work?*

1. Each command sent to the scanner is the ASCII representation of each numeral in the configuration bar code. The entire numeric string is framed with an ASCII [stx] and an ASCII [etx].

#### EXAMPLE #1:

Command for Disabling Codabar

Command = [stx]100104[etx]

String Sent to Scanner = 02h 31h 30h 30h 31h 30h 34h 03h

(All values are hexadecimal).

2. If the command sent to the scanner is valid, the scanner will respond with an [ack].
3. If the command sent to the scanner is invalid, the scanner will respond with a [nak].

**NOTE:** If this occurs, the end-user must start over at the very beginning of the configuration sequence. Re-transmitting the invalid command will not work, the user must start over.

## PROGRAMMING MODES

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4. During programming, the motor and laser turn off. YOU CANNOT SCAN A BAR CODE WHILE IN SERIAL PROGRAM MODE.
5. There is a 20 second window between commands. If a 20 second timeout occurs, the scanner will send a [nak] and you must start over.
6. To enter serial program mode, send the following command [stx]999999[etx].
7. To exit serial program mode, send the following command [stx]999999[etx], the scanner will respond with an [ack] followed by 3 beeps.
8. This mode uses the current Baud Rate, Parity, Stop Bits and Data Bits settings that are configured in the scanner. The default settings of the scanner are 9600, Space, 2, 7 respectively. If a command is sent to the scanner to change any of these settings, the change will NOT take effect until after serial program mode is exited.

### EXAMPLE #2:

The following example will set the scanner to the factory default settings, Disable Scanning of Code 128 bar codes, change the beeper tone, and add a "G" as a programmable prefix.

<u>FEATURE</u>	<u>HOST COMMAND</u>	<u>ASCII REPRESENTATION</u>	<u>SCANNER RESPONSE</u>
Enter Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
Load Defaults	[stx]999998[etx]	02h 39h 39h 39h 39h 39h 38h 03h	[ack] or 06h
Disable Code 128	[stx]100113[etx]	02h 31h 30h 30h 31h 31h 33h 03h	[ack] or 06h
Alternate Tone 1	[stx]318565[etx]	02h 33h 31h 38h 35h 36h 35h 03h	[ack] or 06h
Prog. Prefix #1	[stx]903500[etx]	02h 39h 30h 33h 35h 30h 30h 03h	[ack] or 06h
Code Byte 0	[stx]0[etx]	02h 30h 03h	[ack] or 06h
Code Byte 7	[stx]7[etx]	02h 37h 03h	[ack] or 06h
Code Byte 1	[stx]1[etx]	02h 31h 03h	[ack] or 06h
Exit Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h

The scanner will beep three times!

The commands sent to the scanner do not include the small superscripted '3' that you see in front of each bar code string in the MetroSelect manual. THE '3' SHOULD NOT BE SENT. IT IS A CODE TYPE DESIGNATION ONLY!

As you will note for commands requiring additional bar codes to be scanned (such as prefixes, suffixes, timeouts, etc.), simply send the code bytes in the same order that you would normally scan the bar codes.

# Programming Modes

---

## EXAMPLE #3:

The following example shows the events that occur when an invalid bar code is sent. This sample will load the factory default settings and then set the baud rate to 19200.

	HOST		SCANNER
<u>FEATURE</u>	<u>COMMAND</u>	<u>ASCII REPRESENTATION</u>	<u>RESPONSE</u>
Enter Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
Load Defaults	[stx]99999:[etx]	02h 39h 39h 39h 39h 39h 3Ah 03h	[nak] or 15h
Invalid command was sent, you must start over!			
Enter Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
Load Defaults	[stx]999998[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
19200 Baud Rate	[stx]415870[etx]	02h 34h 31h 35h 38h 37h 30h 03h	[ack] or 06h
Exit Program Mode	[stx]999999[etx]	02h 39h 39h 39h 39h 39h 39h 03h	[ack] or 06h
The scanner will beep three times!			

This example illustrates two important points.

First, if an invalid command is sent from the host, the scanner responds with a [nak] and the end-user must start over from the beginning.

Second, if a command is sent to change the Baud Rate, the new baud rate does not take effect until after the end-user exits program mode.

ABBREVIATED ASCII TABLE

Character	Hex Value	Decimal Value
[STX]	02h	2
[ETX]	03h	3
[ACK]	06h	6
[NAK]	15h	21
0	30h	48
1	31h	49
2	32h	50
3	33h	51
4	34h	52
5	35h	53
6	36h	54
7	37h	55
8	38h	56
9	39h	57

## Upgrading the Flash ROM Firmware

---

The MetroSet2 program is a functional component of Metrologic's new line of Flash-based scanners. This program allows the user of a Metrologic scanner to quickly upgrade to a new or custom version of software. It requires the use of a personal computer running under Windows 95 or greater and the use of a communication port. The user merely connects the scanner to a communications port of the PC, launches the MetroSet2 program, and blasts off to new software upgrades.

Each MS5145, regardless of the version number or communication protocol, can be upgraded. In other words, all RS232 (-41), keyboard wedge (-47), light pen (-41), laser emulation (-00), OCIA (-9), IBM 468X/469X (-11), low speed HID/POS USB (-38), and integrated full speed USB (-40) units can be upgraded. To upgrade all units, a power supply and PowerLink cable (MLPN 54-54012) are required. For RS232 units the 54-54000-3 cable will work.

The upgrades and custom software versions will be supplied by Metrologic in files called Motorola S-record files. These files contain all the information needed to upgrade the scanner. Simply add this file to the working directory or retrieve from its current location.

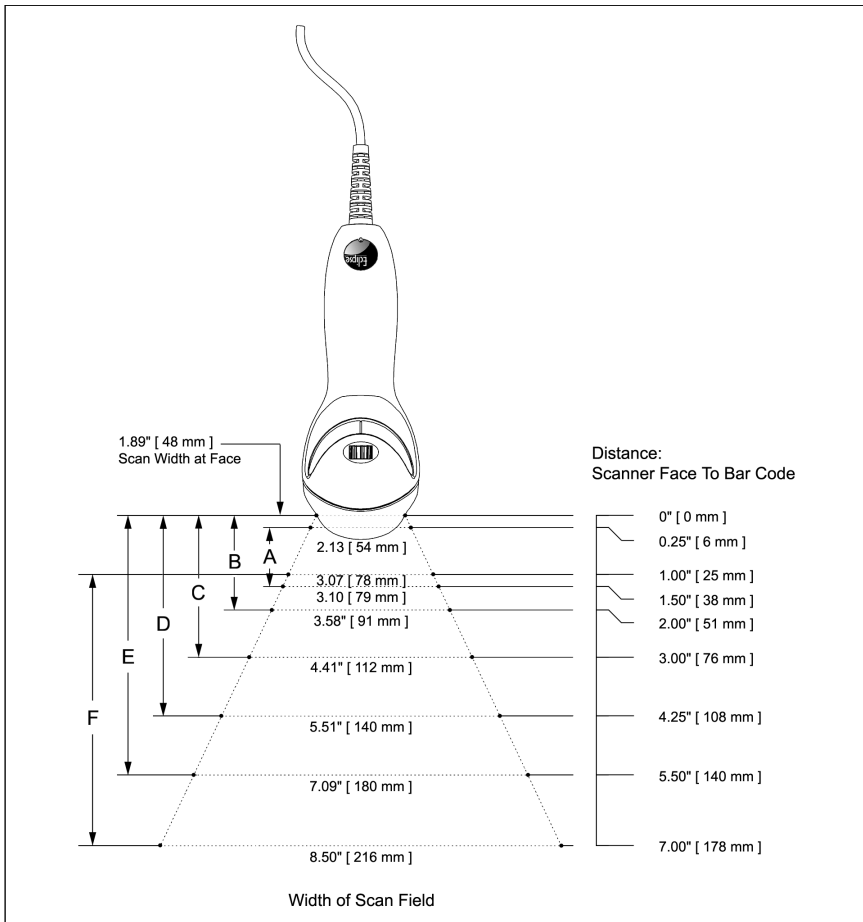
The program guides the user with its simplistic one click approach. The user must first select the file; once selected and verified the file is ready to be used in the upgrade. Press the button to upgrade the scanner, the unit will go into a "flash mode" – both the green\* and red\* LEDs will be on. The user can follow the progress of the upgrade by watching the screen for details. When the upgrade is complete, the scanner will respond with its normal one beep on power up. If two beeps occur, the scanner did not upgrade properly. Contact a Metrologic service representative for additional assistance.



MetroSet2 incorporates all functions that were previously in Meteor.

\* In some *custom* units the standard green LED has been replaced with a blue LED and the red LED has been replaced with a white LED.

# SCAN AREA



Minimum Bar Code Element Width						
	A	B	C	D	E	F
mm	.10	.12	.17	.26	.33	.66
mils	4.1	4.8	6.8	10.4	13	26

# LABELS

Each scanner has one label on the underside of the unit. This label has the model number, date of manufacture, serial number, laser and caution information. The following is an example of this label.

EVITER TOUTE EXPOSITION - Lumierelaser emis par cette ouverture.  
 AVOID EXPOSURE - Laser light is emitted from this aperture.

**Eclipse™** Metrologic Instruments, Inc.  
 Made by Metro (Suzhou) Technologies Co., Ltd. China  
 Model: MS5145 RS232/LP CodeGate® CodeSense™  
 Complies with 21 CFR 1040.10 and 1040.11 except for  
 deviations pursuant to Laser Notice No. 50, dated July 26,  
 2001.

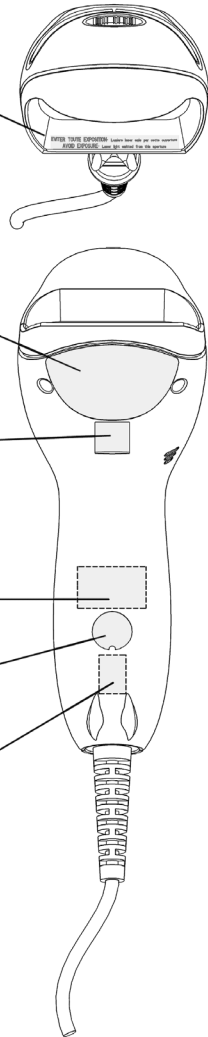
August 2004      5204322920  
 5V<sup>---</sup> (F) 41        
 (EU)

1.0 MILLIWATT (PEAK)  
 VISIBLE LASER DIODE  
 CLASS I LASER PRODUCT  
 IEC 60825-1:1993+A1:  
 1997+A2:2001

CAUTION: CLASS 2 LASER LIGHT WHEN  
 OPEN. DO NOT STARE INTO BEAM.  
 ATTENTION: RAYONNEMENT LASER  
 CLASSE 2 LORS DE L'OUVERTURE. NE PAS  
 REGARDER FIXEMENT DANS LE FAISCEAU.  
 VORSICHT: KLASSE 2 LASERSTRAHLUNG,  
 WIENN ABDECKUNG GEÖFFNET.  
 NICHT IN DEN STRAHL BLICKEN.  
 CUIDADO: LUZ LASER CLASSE 2 AL ABRIR.  
 NO FIJAR LA VISTA EN EL RAYO.  
 Warranty VOID if case is opened.  
 Contains no user serviceable parts.  
 See manual for patent information.

Do Not Stare Into Beam CAUTION - Laser Light When Open

5V<sup>---</sup>   
 US  
 LISTED  
 94J8  
 I.T.E.





## APPLICATIONS AND PROTOCOLS

---

The model number on each scanner includes the scanner number and factory default communications protocol.

Scanner	Version Identifier	Communication Protocol(s)
MS5145	00	Laser Emulation
	9	OCIA
	11	IBM 468X/469X, RS232 - TXD, RXD, RTS, CTS
	38	Low Speed HID/POS USB
	40	Full Speed USB
	41	RS232/Light Pen Emulation
	47	Keyboard Wedge,
	48	Keyboard Wedge, Stand-Alone Keyboard

The MS5145Keyboard Wedge Series (-47) is designed for keyboard emulation only. Many RS232 programmable functions available in other Metrologic scanners are also available as keyboard wedge functions.

The following are the most important selectable options specific to keyboard wedge:

### Keyboard Type

- \*\*AT (includes IBM® PS2 models 50, 55, 60, 80)
- IBM PS2 (includes models 30, 70, 8556)

### Keyboard Country Type

- |           |            |                  |
|-----------|------------|------------------|
| • **USA   | • German   | • Spanish        |
| • Belgium | • Italian  | • Swiss          |
| • French  | • Japanese | • United Kingdom |

\*\* Indicates a default setting (see pages 33-37 for additional information). Refer to the MetroSelect Single-Line Configuration Guide (MLPN 00-02544) or MetroSet2's help files for information on how to change the default settings.

## TROUBLESHOOTING GUIDE

The following guide is for reference purposes only. Contact a Metrologic representative at 1-800-ID-Metro or 1-800-436-3876 to preserve the limited warranty terms.

Symptoms	Possible Causes	Solution
<i>All Interfaces</i>		
The unit has no LEDs, beep or laser.	No power is being supplied to the unit.	Check the transformer, the outlet and power strip. Make sure the cable is plugged into the unit.
	No power is being supplied to the unit from host.	Some host systems cannot supply enough current to power Eclipse. A power supply may be needed.
At power up the unit beeps 2 times and alternately flashes the LEDs.	There is a ROM failure.	A flash ROM upgrade is required.
At power up the unit beeps 3 times.	There is a non-volatile RAM failure.	Contact a Metrologic service representative.
At power up there is a continuous razz tone.	There is a RAM or ROM failure.	
At power up there is a razz tone and the green LED flashes.	There is a VLD failure.	
At power up there is a razz tone and both LEDs flash.	There is a scanning mechanism failure.	
The unit scans, communicates and beeps twice.	The same symbol timeout is set too short.	Adjust the same symbol timeout for a longer time.
The unit powers up, but does not beep.	The beeper may be disabled or no tone has been selected.	Enable beeper and select a tone.
The unit powers up, but does not scan and/or beep.	The unit is trying to scan a particular symbology that is not enabled.	UPC/EAN, Code 39, interleaved 2 of 5, Code 93, Code 128 and Codabar are enabled by default. Verify that the type of bar code being read has been selected.

# TROUBLESHOOTING GUIDE

Symptoms	Possible Causes	Solution
The unit powers up, but does not scan and/or beep.	The bar code being scanned does not satisfy the programmed criteria for character length lock or minimum length.	Verify that the bar code being scanned falls into the programmed criteria.  <i>The scanner defaults to a minimum of 3 character bar code.</i>
The unit scans a bar code, but locks up after the first scan and the red* LED stays on.	The unit is configured to support some form of host handshaking but is not receiving the signal.	If the unit is setup to support ACK/NAK, RTS/CTS, XON/XOFF or D/E, verify that the host cable and host are supporting the handshaking properly.
The unit scans, but the data transmitted to the host is incorrect.	The unit's data format does not match the host system's requirements.	Verify that the unit's data format matches that required by the host. Make sure that the unit is connected to the proper host port.
The unit beeps at some bar codes but NOT for others of the same bar code symbology.	The print quality of the bar code is suspect.	Check the print mode. The type of printer could be the problem. Change the print settings.
	The aspect ratio of the bar code is out of tolerance.	i.e. Change to econo mode or high speed.
	The bar code may have been printed incorrectly.	Check if it is a check digit/character/or border problem.
	The unit is not configured correctly for the type of bar code being scanned.	
	The minimum symbol length setting does not work with the bar code.	Check if the correct minimum symbol length is set.
The unit scans the bar code but there is no data.	The unit's configuration is not correct.	Make sure the scanner is configured for the appropriate mode.

## TROUBLESHOOTING GUIDE

Symptoms	Possible Causes	Solution
The unit scans but the data is not correct.	The unit's configuration is not correct.	Make sure that the proper PC type AT, PS2 or XT is selected. Verify the correct country code and data format is selected. Adjust the inter-character delay symptom.
The unit is transmitting each character twice.	The unit's configuration is not correct.	Increase the interscan code delay setting. Adjust whether the F0 break is transmitted. It may be necessary to try this in both settings.
Alpha characters show as lower case.	The computer is in <i>Caps Lock</i> mode.	Enable the <i>Caps Lock</i> detect feature of the scanner to detect whether the PC is operating in <i>Caps Lock</i> .
Everything works except for a couple of characters.	These characters may not be supported by that country's key look up table.	Try operating the scanner in Alt mode.
The unit powers-up OK and scans OK but does not communicate properly to the host.	The com port at the host is not working or not configured properly.	Check to make sure that the baud rate and parity of the scanner and the communication port match and that the program is looking for "RS232" data.
	The cable is not connected to the proper com port.	Check to make sure that the unit is connected to the correct com port on the host device.
The host is receiving data but the data does not look correct.	The scanner and host may not be configured for the same interface parameters.	Check that the scanner and the host are configured for the same interface parameters.
Characters are being dropped.	Inter-character delay needs to be added to the transmitted output.	Add some inter-character delay to the transmitted output by using the MetroSelect Single-Line Configuration Guide.

## RS232 DEMONSTRATION PROGRAM

---

If an RS232 scanner is not communicating with your IBM compatible PC, key in the following BASIC program to test that the communication port and scanner are working.

This program is for demonstration purposes only. It is only intended to prove that cabling is correct, the COM port is working, and the scanner is working. If the bar code data displays on the screen while using this program, it only demonstrates that the hardware interface and scanner are working. At this point, investigate whether the application software and the scanner configuration match.

If the application does not support RS232 scanners, a software wedge program that will take RS232 data and place it into a keyboard buffer may be needed. This program tells the PC to ignore RTS-CTS, Data Set Ready (DSR) and Data Carrier Detect (DCD) signals. If the demonstration program works and yours still does not, jumper RTS to CTS and Data Terminal Reading (DTR) to DCD and DSR on the back of your PC.

```
10     CLS
20     ON ERROR GOTO 100
30     OPEN "COM1:9600,S,7,1,CSO,DSO,CD0,LF" AS#1
35     PRINT "SCAN A FEW BAR CODES"
40     LINE INPUT #1, BARCODE$
50     PRINT BARCODE$
60     K$ = INKEY$: IF K$ = CHR$(27) THEN GOTO 32766
70     GOTO 40
100    PRINT "ERROR NO.": ERR ; "PRESS ANY KEY TO TERMINATE."
110    KK$ = INKEY$: IF K$ = "" THEN GOTO 110
32766  CLOSE: SYSTEM
32767  END
```

## DESIGN SPECIFICATIONS

<b>OPERATIONAL</b>	
Light Source	Visible Laser Diode 650 nm ± 10 nm
Laser Power (peak)	<1.0 mW
Depth of Scan Field (for 13mil at Default)	0 mm – 140 mm (0" – 5.5")
Scan Speed	72 ± 2 scan lines per second
Scan Pattern	Single scan line
Minimum Bar Width	0.089 mm (3.5 mil)
Decode Capability	Autodiscriminates all standard bar codes; for others call Metrologic
System Interfaces	RS232, Keyboard Wedge, USB ,Light Pen Emulation, IBM 468X/469X, OCIA, Stand Alone Keyboard
Print Contrast	35% minimum reflectance difference
Number Characters Read	Up to 80 data characters (Maximum number will vary based on symbology and density)
Roll, Pitch, Yaw	70°, 70°, 70°
Beeper Operation	7 tones or no beep
Indicators (LED)	Green = laser on, ready to scan Red = good read
<b>MECHANICAL</b>	
Length	170 mm (6.7")
Width-Handle Width-Head	39 mm (1.5") 63 mm (2.5")
Height-Head Height-Handle	35 mm (1.4") 31 mm (1.2")
Weight	100.8 g (3.56 oz)
Cable	Long bend relief PowerLink Cable ( <i>see Page 2</i> )

## DESIGN SPECIFICATIONS

---

<b>ELECTRICAL</b>	
Input Voltage	5 VDC $\pm$ 0.25 V
Power - Operating	675 mW
Current - Operating	125 mA Average @ 5 VDC
DC Transformers	Class 2; 5.2 V @ 650 mA
UL	UL listed for US and Canada; UL 60950, C22.2 No. 60950
Laser Class	CDRH and IEC Laser Class 1 - In accordance with IEC 60825-1:1993 + A1:1997 + A2:2001 Class 1
EMC	Class B: FCC Part 15, ICES-003, European Union Directive 89/336/EEC
<b>ENVIRONMENTAL</b>	
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-40°C to 60°C (-40°F to 140°F)
Humidity	5% to 95% relative humidity, non-condensing
Light Levels	Up to 4842 Lux (450 footcandles)
Shock	Designed to withstand 1.5 m (5') drops
Contaminants	Sealed to resist airborne particulate contaminants
Ventilation	None required

## DEFAULT SETTINGS

Many functions of the scanner can be “configured” or enabled/disabled. The scanner is shipped from the factory configured to a set of default conditions. All default parameters of the scanner have an asterisk ( \* ) marked in the default column. If an asterisk is not in the default column then the default setting is *off* or *disabled*. Every interface does not support every parameter. A check mark (✓) will appear in the interface column if it supports the parameter listed.

Parameter	Default	PCI	RS232	High Pen	IBM 46xx	KBW	USB	Laser Emulator
Normal Scan Mode	*	✓	✓	✓	✓	✓	✓	✓
Continuous Scan Mode		✓	✓	✓	✓	✓	✓	✓
Blinky Scan		✓	✓	✓	✓	✓	✓	✓
Continuous Blinky Scan		✓	✓	✓	✓	✓	✓	✓
Custom (one shot) Scan		✓	✓	✓	✓	✓	✓	✓
Manual Activation Mode		✓	✓	✓	✓	✓	✓	✓
CodeGate Active	*	✓	✓	✓	✓	✓	✓	✓
CodeGate Inactive		✓	✓	✓	✓	✓	✓	✓
UPC/EAN	*	✓	✓	✓	✓	✓	✓	✓
Code 128	*	✓	✓	✓	✓	✓	✓	✓
Code 93	*	✓	✓	✓	✓	✓	✓	✓
Codabar	*	✓	✓	✓	✓	✓	✓	✓
Interleaved 2 of 5 (ITF)	*	✓	✓	✓	✓	✓	✓	✓
MOD 10 check on ITF		✓	✓	✓	✓	✓	✓	✓
Code 11		✓	✓	✓	✓	✓	✓	✓
Code 39	*	✓	✓	✓	✓	✓	✓	✓
Full ASCII Code 39		✓	✓	✓	✓	✓	✓	✓



# DEFAULT SETTINGS

Parameter	Default	CI	S23	igh Pen	IBM 46x	KBW	JSB	Laser Emulator
Mod 43 Check on Code 39		✓	✓	✓	✓	✓	✓	✓
MSI-Plessey 10/10 Check Digit		✓	✓	✓	✓	✓	✓	✓
MSI-Plessey Mod 10 Check Digit	*	✓	✓	✓	✓	✓	✓	✓
Paraf Support ITF		✓	✓	✓	✓	✓	✓	✓
ITF Symbol Lengths	Variable	✓	✓	✓	✓	✓	✓	✓
Minimum Symbol Length	3	✓	✓	✓	✓	✓	✓	✓
Symbol Length Lock	None	✓	✓	✓	✓	✓	✓	✓
Bars High as Code 39	*			✓				✓
Spaces High as Code 39				✓				✓
Bars High as Scanned				✓				✓
Spaces High as Scanned				✓				✓
DTS/SIEMENS		✓						
DTS/NIXDORF	*	✓						
NCR F		✓						
NCR S		✓						
Poll light pen source				✓				✓
Beeper tone	Normal	✓	✓	✓	✓	✓	✓	✓
Beep/transmit sequence	Before transmit	✓	✓	✓	✓	✓	✓	✓
Communication timeout	None	✓	✓	✓	✓	✓	✓	✓
Razzberry tone on timeout		✓	✓	✓	✓	✓	✓	✓
Three beeps on timeout		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 250 msec		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 375 msec		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 500 msec		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 625 msec		✓	✓	✓	✓	✓	✓	✓

## DEFAULT SETTINGS

Parameter	Default	OCI	IS23	High Pen	IBM 46x	KBW	JSB	Laser Emulator
Same symbol rescan timeout: 750 msec		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 875 msec	*	✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 1000 msec		✓	✓	✓	✓	✓	✓	✓
No Same symbol timeout		✓	✓	✓	✓	✓	✓	✓
Infinite Same symbol timeout		✓	✓	✓	✓	✓	✓	✓
Inter-character delay Program able in 1 msec steps (max 255 msec)	msec 0 msec n KBW	✓	✓	✓	✓	✓	✓	✓
Number of scan buffers (maximum)	4	✓	✓	✓	✓	✓	✓	✓
Transmit UPC-A check digit	*	✓	✓	✓	✓	✓	✓	✓
Transmit UPC-E check digit		✓	✓	✓	✓	✓	✓	✓
Expand UPC-E		✓	✓	✓	✓	✓	✓	✓
Convert UPC-A to EAN-13		✓	✓	✓	✓	✓	✓	✓
Transmit lead zero on UPC-E		✓	✓	✓	✓	✓	✓	✓
Transmit UPC-A number system	*	✓	✓	✓	✓	✓	✓	✓
Transmit UPC-A Manufacturer ID#	*	✓	✓	✓	✓	✓	✓	✓
Transmit UPC -A Item ID#	*	✓	✓	✓	✓	✓	✓	✓
Transmit Codabar Start/Stop Characters		✓	✓		✓	✓	✓	
CLSI Editing (Enable)		✓	✓		✓	✓	✓	
Transmit Mod 43 Check digit on Code 39		✓	✓		✓	✓	✓	
Transit Mod 10/ITF		✓	✓		✓	✓	✓	
Transmit MSI-Plessey		✓	✓		✓	✓	✓	
Parity	Space		✓		✓		✓	
Baud Rate	9600		✓					
8 Data Bits			✓					
7 Data Bits	*		✓					
Stop Bits	2		✓					

# DEFAULT SETTINGS

Parameter	Default	OCI	IS23	High Pen	IBM 46x	KBW	JSB	Laser Emulator
Transmit Sanyo ID Characters			✓			✓		
Nixdorf ID			✓			✓		
LRC Enabled			✓			✓		
UPC Prefix			✓			✓		
UPC Suffix			✓			✓		
Carriage Return	*		✓			✓		
Line Feed-Disabled by default in KBW	*		✓			✓		
Tab Prefix			✓			✓		
Tab Suffix			✓			✓		
"DE" Disable Command			✓					
"FL" Laser			✓					
Enable Command			✓					
DTR Handshaking support			✓					
RTS/CTS Handshaking			✓					
Character	*		✓					
Message RTS/CTS			✓					
XON/XOFF Handshaking			✓					
ACK/NAK			✓					
Two Digit Supplements		✓	✓	as code 39	✓	✓	✓	as code 39
Five Digit Supplements		✓	✓	as code 39	✓	✓	✓	as code 39
Bookland		✓	✓	as code 39	✓	✓	✓	as code 39
977 (2 digit) Supplemental Requirement		✓	✓	✓	✓	✓	✓	✓
Supplements are not Required	*	✓	✓	✓	✓	✓	✓	✓
Two Digit Redundancy	*	✓	✓	✓	✓	✓	✓	✓
Five digit Redundancy		✓	✓	✓	✓	✓	✓	✓

## DEFAULT SETTINGS

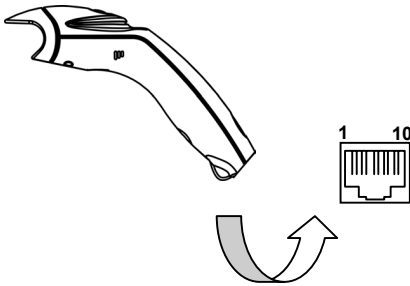
Parameter	Default	⌋CI/	⌋S23	igh Pen	IBM 46x	⌋BW	JSB	Laser Emulator
100 msec to Find Supplement Programmable in 100 msec steps (max 800 msec)	*	✓	✓	✓	✓	✓	✓	✓
Coupon Code 128		✓	✓	as code 39	✓	✓	✓	as code 39
† Programmable Code Lengths	7 avail	✓	✓	✓	✓	✓	✓	✓
† Code Selects with programmable Code Length Locks	3 avail	✓	✓	✓	✓	✓	✓	✓
Programmable Prefix characters	10 avail		✓			✓		
Suffix characters	10 avail		✓			✓		
Prefixes for Individual Code types			✓			✓		
Editing		✓	✓	✓	✓	✓	✓	✓
Inter Scan-Code delay programmable (100 µsec steps)	800 µsec					✓		
Function/control Key Support								
Minimum Element width Programmable in 5.6 µsec steps	1 msec			✓				✓

† THESE OPTIONS ARE MUTUALLY EXCLUSIVE. ONE CAN NOT BE USED IN CONJUNCTION WITH THE OTHER.

# SCANNER AND CABLE TERMINATIONS

## Scanner Pinout Connections

The MS5145 scanner Interfaces terminate to a 10-pin modular jack. The serial # label indicates the interface enabled when the scanner is shipped from the factory.



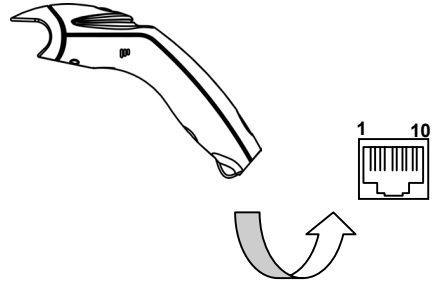
MS5145-41 RS232C and Light Pen Emulation	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input/LTPN Source
7	Reserved
8	LTPN Data
9	+5VDC
10	Shield Ground

MS5145-47 Keyboard Wedge and Stand-Alone Keyboard	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	PC Data
5	PC Clock
6	KB Clock
7	PC +5V
8	KB Data
9	+5VDC
10	Shield Ground

MS5145-11 IBM 468X/469X	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input
7	IBM B-Transmit
8	IBM A+ Receive
9	+5VDC
10	Shield Ground

## SCANNER AND CABLE TERMINATIONS

MS5145-9 OCIA	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RDATA
5	RDATA Return
6	Clock In
7	Clock Out
8	Clock in Return/Clock out Rtrn
9	+5VDC
10	Shield Ground

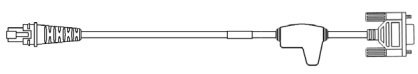
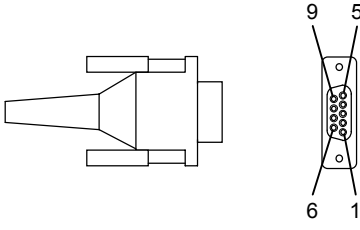



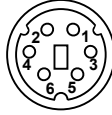
MS5145-00 Laser Emulation	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	Flip Sense/Start of Scan Output
5	Proximity Detect/Trigger Emulation Output
6	Scan/Laser Enable Input
7	Reserved
8	Data Out
9	+5VDC
10	Shield Ground

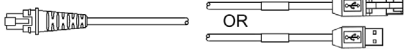
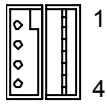
MS5145 Full Speed (-40) & Low Speed (-38) USB	
Pin	Function
1	Ground
2	N/C
3	N/C
4	N/C
5	N/C
6	D+
7	PC +5V/V_USB
8	D-
9	N/C
10	Drain Wire

# SCANNER AND CABLE TERMINATIONS

## Cable Connector Configurations (Host End)

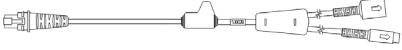

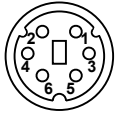
"Standard" PowerLink Cable 55-55000A-3		
Pin	Function	 <p>9-Pin D-Type Connector</p>
1	Shield Ground	
2	RS232 Transmit Output	
3	RS232 Receive Input	
4	DTR Input/Light Pen Source	
5	Power/Signal Ground	
6	Light Pen Data (DSR Out for -14 interfaces)	
7	CTS Input	
8	RTS Output	
9	+5VDC	

Stand Alone Keyboard PowerLink Cable 55-55020A-3		
Pin	Function	 <p>6-Pin Male Mini-DIN Connector</p>
1	PC Data	
2	NC	
3	Power Ground	
4	+5VDC PC Power to KB	
6	NC	



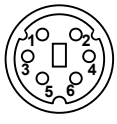
USB Power/Communication Cable 55-55235A-N-3 or 55-55200A-N-3		
Pin	Function	 <p>USB Type A Locking with Power</p>
1	PC +5V/V_USB	
2	D-	
3	D+	
4	Ground	
Shield	Shield	

# SCANNER AND CABLE TERMINATIONS

## Cable Connector Configuration (Host End)

Keyboard Wedge PowerLink Cable 55-55002A-3		
<b>Pin</b>	<b>Function</b>	 <p>5-Pin DIN, Female</p>
1	Keyboard Clock	
2	Keyboard Data	
3	No Connect	
4	Power Ground	
5	+5 Volts DC	 <p>6-Pin DIN, Male</p>
<b>Pin</b>	<b>Function</b>	
1	PC Data	
2	No Connect	
3	Power Ground	
4	+5 Volts DC	
5	PC Clock	
6	No Connect	

Metrologic will supply an adapter cable with a 5-pin DIN male connector on one end and a 6-pin mini DIN female connector on the other. According to the termination required, connect the appropriate end of the adapter cable to the PowerLink cable, leaving the necessary termination exposed for connecting to the keyboard and the keyboard port on the PC.

Keyboard Wedge Adapter Cable		
<b>Pin</b>	<b>Function</b>	 <p>5-Pin DIN, Male</p>
1	PC Clock	
2	PC Data	
3	No Connect	
4	Power Ground	
5	+5 Volts DC	 <p>6-pin Mini DIN, Female</p>
<b>Pin</b>	<b>Function</b>	
1	Keyboard Data	
2	No Connect	
3	Power Ground	
4	+5 Volts DC	
5	Keyboard Clock	
6	No Connect	



## LIMITED WARRANTY

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The MS5145 scanner is manufactured by Metrologic at its Suzhou, China facility. The MS5145 scanners have a two (2) year limited warranty from the date of manufacture. Metrologic warrants and represents that all MS5100 scanners are free of all defects in material, workmanship and design, and have been produced and labeled in compliance with all applicable U.S. Federal, state and local laws, regulations and ordinances pertaining to their production and labeling.

This warranty is limited to repair, replacement of Product or refund of Product price at the sole discretion of Metrologic. Faulty equipment must be returned to Metrologic. To do this, contact Metrologic's Customer Service/Repair Department to obtain a Returned Material Authorization (RMA) number.

In the event that it is determined the equipment failure is covered under this warranty, Metrologic shall, at its sole option, repair the Product or replace the Product with a functionally equivalent unit and return such repaired or replaced Product without charge for service or return freight, whether distributor, dealer/reseller, or retail consumer, or refund an amount equal to the original purchase price.

This limited warranty does not extend to any Product which, in the sole judgement of Metrologic, has been subjected to abuse, misuse, neglect, improper installation, or accident, nor any damage due to use or misuse produced from integration of the Product into any mechanical, electrical or computer system. The warranty is void if the case of Product is opened by anyone other than Metrologic's repair department or authorized repair centers.

THIS LIMITED WARRANTY, EXCEPT AS TO TITLE, IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES, EITHER EXPRESS OR IMPLIED, AND SPECIFICALLY EXCLUDES, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE UNDER THE UNIFORM COMMERCIAL CODE, OR ARISING OUT OF CUSTOM OR CONDUCT. THE RIGHTS AND REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND IN LIEU OF ANY OTHER RIGHTS OR REMEDIES. IN NO EVENT SHALL METROLOGIC BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES, INCIDENTAL DAMAGES, DAMAGES TO PERSON OR PROPERTY, OR EFFECT ON BUSINESS OR PROPERTY, OR OTHER DAMAGES OR EXPENSES DUE DIRECTLY OR INDIRECTLY TO THE PRODUCT, EXCEPT AS STATED IN THIS WARRANTY. IN NO EVENT SHALL ANY LIABILITY OF METROLOGIC EXCEED THE ACTUAL AMOUNT PAID TO METROLOGIC FOR THE PRODUCT. METROLOGIC RESERVES THE RIGHT TO MAKE ANY CHANGES TO THE PRODUCT DESCRIBED HEREIN.

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---

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Suzhou, China 215021

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Fax: 86-512-2571517  
Email: [info@cn.metrologic.com](mailto:info@cn.metrologic.com)

### Notice

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 and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to 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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Notice

This Class B digital apparatus complies with Canadian ICES-003.

### Remarque

Cet appareil numérique de la class B est conforme à la norme NMB-003 du Canada.



### Caution

#### Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure. Under no circumstances should the customer attempt to service the laser scanner. Never attempt to look at the laser beam, even if the scanner appears to be nonfunctional. Never open the scanner in an attempt to look into the device. Doing so could result in hazardous laser light exposure. The use of optical instruments with the laser equipment will increase eye hazard.

#### Atención

La modificación de los procedimientos, o la utilización de controles o ajustes distintos de los especificados aquí, pueden provocar una luz de láser peligrosa. Bajo ninguna circunstancia el usuario deberá realizar el mantenimiento del láser del escáner. Ni intentar mirar al haz del láser incluso cuando este no esté operativo. Tampoco deberá abrir el escáner para examinar el aparato. El hacerlo puede conllevar una exposición peligrosa a la luz de láser. El uso de instrumentos ópticos con el equipo láser puede incrementar el riesgo para la vista.

#### Attention

L'emploi de commandes, réglages ou procédés autres que ceux décrits ici peut entraîner de graves irradiations. Le client ne doit en aucun cas essayer d'entretenir lui-même le scanner ou le laser. Ne regardez jamais directement le rayon laser, même si vous croyez que le scanner est inactif. N'ouvrez jamais le scanner pour regarder dans l'appareil. Ce faisant, vous vous exposez à une rayonnement laser qui est dangereux. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

#### Achtung

Die Verwendung anderer als der hier beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine gefährliche Laserstrahlung hervorrufen. Der Kunde sollte unter keinen Umständen versuchen, den Laser-Scanner selbst zu warten. Sehen Sie niemals in den Laserstrahl, selbst wenn Sie glauben, daß der Scanner nicht aktiv ist. Öffnen Sie niemals den Scanner, um in das Gerät hineinzusehen. Wenn Sie dies tun, können Sie sich einer gefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

#### Attenzione

L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli descritti nel presente Manuale può provocare delle esposizioni a raggi laser rischiose. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai il raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Facendolo potete esporVi ad una esposizione laser rischiosa. L'uso di apparecchi ottici, equipaggiati con raggi laser, aumenta il rischio di danni alla vista.

## PATENTS

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### Patent Information

“This METROLOGIC product may be covered by one or more of the following U.S. Patents:

U.S. Patent No.;

5,260,553; 5,340,971; 5,424,525; 5,484,992; 5,525,789; 5,528,024;  
5,616,908; 5,627,359; 5,661,292; 5,777,315; 5,789,730; 5,789,731;  
5,811,780; 5,828,048; 5,925,870; 6,029,894; 6,209,789; 6,227,450;  
6,283,375;

No license right or sublicense is granted, either expressly or by implication, estoppel, or otherwise, under any METROLOGIC or third party intellectual property rights (whether or not such third party rights are licensed to METROLOGIC), including any third party patent listed above, except for an implied license only for the normal intended use of the specific equipment, circuits, and devices represented by or contained in the METROLOGIC products that are physically transferred to the user, and only to the extent of METROLOGIC'S license rights and subject to any conditions, covenants and restrictions therein.”

OTHER WORLDWIDE PATENTS PENDING.

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