Metrologic®

We really work for you.™

METROLOGIC INSTRUMENTS, INC.

MS9500 Voyager® Series
Single-Line Hand Held Laser Scanner
Installation and User's Guide

Voyager

TABLE OF CONTENTS

TABLE OF CONTENTS

INTRODUCTION

Metrologic's MS9520 Voyager and the MS9540 Voyager*CG*® are a group of single-line laser bar code scanners that have the ability to decode all standard 1D, RSS-14, RSS Limited and RSS Expanded bar codes. The MS9520 is packed with all of the same features as the MS9540, with the exception of Metrologic's patented CodeGate® technology.

Some additional key product features include:

- Auto-trigger operation and auto-stand detect

- CodeGate data transmission technology (MS9540 only)

- Flash – Upgradeable Firmware

- Detachable user-replaceable cables

- Easy configuration with MetroSelect® barcodes and MetroSet®*2* Windows® compatible software

- Support for common interfaces including USB (see chart below)

- A 5-year limited warranty

- Sunrise 2005 compliant

The MS9540 includes Metrologic's patented auto-trigger and CodeGate button feature. When a bar code is place in the scanner's IR range the auto-trigger activates the laser allowing the user to easily align the visible laser line over the bar code selected for scanning. Then just press the CodeGate button and the data is transmitted to the host system.

Equipped with both 'in-stand' and 'out-of-stand' operation, the Voyager and Voyager*CG* can be used as hand-held or fixed projection scanners. The Voyager*CG* automatically senses when it is placed in the stand and de-activates the CodeGate button for hands free operation.

VOYAGER	VOYAGERCG	INTERFACE
MS9520 – 00	MS9540 – 00	Laser Emulation RS232 Transmit/Receive
MS9520 – 9	MS9540 – 9	OCIA
MS9520 – 11	MS9540 – 11	IBM 468X/469X, RS232-TXD, RXD, RTS, CTS
MS9520 – 14	MS9540 – 14	RS232 - TXD, RXD, RTS, CTS, DTR, DSR
MS9520 – 38	MS9540 – 38	Low Speed USB, Serial Emulation or Keyboard Emulation
MS9520 – 40	MS9540 – 40	Full Speed USB
MS9520 – 41	MS9540 – 41	RS232/Light Pen Emulation
MS9520 – 47	MS9540 – 47	Keyboard Wedge, Stand-Alone Keyboard and RS232 Transmit/Receive

SCANNER AND ACCESSORIES

BASIC KIT	
Part #	**Description**
MS9520 – xx or MS9540 – xx	Voyager or Voyager*CG* Bar Code Scanner
00-02544	MetroSelect Single-Line Configuration Guide[*]
00-02410	MS9500 Voyager Series Single-Line Hand Held Laser Scanner Installation and User's Guide[*]

* Available for download on the Metrologic website - www.metrologic.com

OPTIONAL ACCESSORIES	
Part #	**Description**
AC to DC Power Transformer- Regulated 5.2VDC @ 650 mA output.	
45-45593	120V United States
45-45591	220V-240V Continental European
45-45592	220V-240V United Kingdom
46-46803	220V-240V Australia
46-46931	220V-240V China
53-53000x-3	RS232 PowerLink Cable with Built in Power Jack 2.7 m (9 ft.) *coiled* cord, long strain relief, black
54-54000x-3	RS232 PowerLink Cable with Built in Power Jack 2.1 m (7 ft.) *straight* cord, short strain relief, black
53-53002x-3	Keyboard Wedge PowerLink Cable with Adapter Cable 2.7 m (9 ft.) *coiled* cord, long strain relief, black
53-53020x-3	Stand Alone Keyboard Wedge PowerLink Cable 2.7 m (9 ft.) *coiled* cord, long strain relief, 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**
53-53015x-3	OCIA PowerLink Cable with Built in Power Jack 2.7 m (9 ft.) *coiled* cord, long strain relief, black
53-53213x -N-3	USB Power/Communication Cable, Locking Type A 2.7 m (9 ft.) coiled cord, long strain relief, black
53-53214x -N-3	USB Power/Communication Cable, Locking Type A 4.5 m (15 ft.) coiled cord, long strain relief, black ⚠ *Not for use with Low Speed USB scanners.* *Use with Full Speed USB scanners only.*
53-53235x -N-3	Low Speed USB Communication Cable, Non-Locking Type A 2.7 m (9 ft.) coiled cord, long strain relief, black
MVC**	Metrologic Voltage Converter Cable ±12VDC to +5.2VDC
**	*Contact a Metrologic customer service representative for additional information on the MVC converter cable series and the host connections available.*
46-46128	Free-Standing Stand with Accessories
46-46351	Hard Mount Accessory Kit (*used with kit #46-46128)*
46-46433 OR 46-46508	Wall Mount Hanger Accessory Kit

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.

RS232, OCIA, LASER EMULATION, AND LIGHT PEN EMULATION MS9520-00/ 9/14 /41 AND MS9540-00/9/14/ 41

1. Turn off the host system.

2. Connect the 10-pin RJ45 male connector into the jack on the scanner. 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.
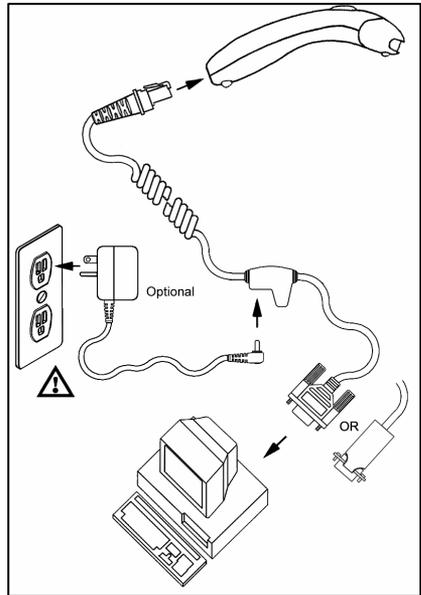
6. Turn on the host system.

Figure 1.

📝 Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. Please refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files for instructions on changing the scanner's factory default configuration. The scanner and host system must use the same communication protocols.

📝 All MS95x0-**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 *MS95x0-00 Laser Emulation Mode* section of the MetroSelect Single-Line Configuration Guide for information on enabling the *Laser Emulation Mode.*

⚠️ **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.

IBM 46*XX* MS9520-11 AND MS9540-11

1. Turn off the host system.

2. Plug the male 10-pin RJ45 end of the MVC cable into the 10-pin socket on the scanner. You will hear a 'click' when the connection is made.

3. Connect the other end of the MVC cable to the host device.
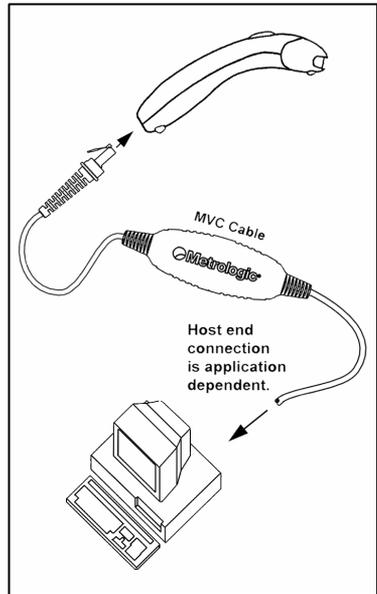
4. Turn on the host system.

Figure 2.

Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. Please refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files for instructions on changing the scanner's factory default configuration. The scanner and host system must use the same communication protocols.

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/IEC 60950.

To maintain compliance with standard CSA-C22.2 No. 60950-00/UL 60950 and norm EN/IEC 60950, the power source should meet applicable performance requirements for a limited power source.

KEYBOARD WEDGE MS9520-47 AND MS9540-47

1. Turn off the host system.

2. Connect the 10-pin RJ45 male connector into the jack on the scanner. 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).
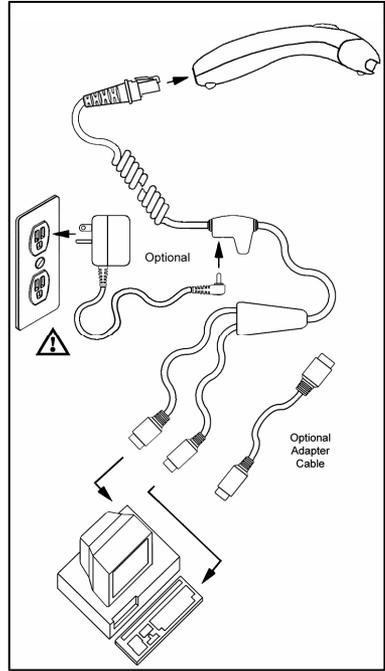
7. Power up the host system.

Figure 3.

> Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. Please refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files for instructions on changing the scanner's factory default configuration. The scanner and host system must use the same communication protocols.

> Powering the MS95x0-**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.

> **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.

STAND-ALONE KEYBOARD MS9520-47 AND MS9540-47

1. Turn off the host system.

2. Connect the 10-pin RJ45 male connector into the jack on the scanner. 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.
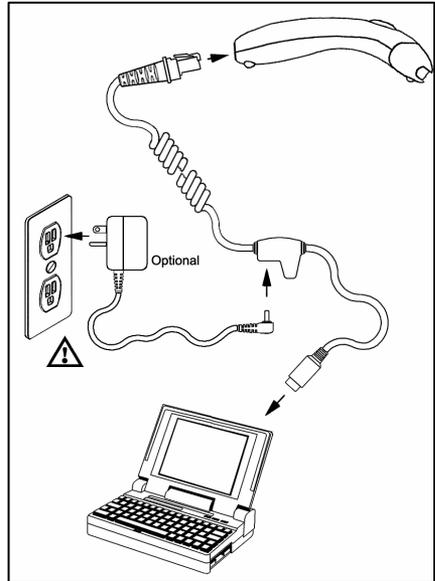
6. Turn on the host system.

Figure 4.

📝 Powering the MS95x0-**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 would work on one computer and not another. Contact a Metrologic Customer Service Representative if you require an external power supply.

📝 Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. Please refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files for instructions on changing the scanner's factory default configuration. The scanner and host system must use the same communication protocols.

⚠️ **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.

INTEGRATED USB: FULL SPEED MS9520-40 AND MS9540-40
LOW SPEED MS9520-38 AND MS9540-38

1. Turn off the host system.

2. Connect the 10-pin RJ45 male connector of the USB cable into the jack on the scanner. You will hear a 'click' when the connection is made.

3. Connect the other end of the USB cable to the host USB port.
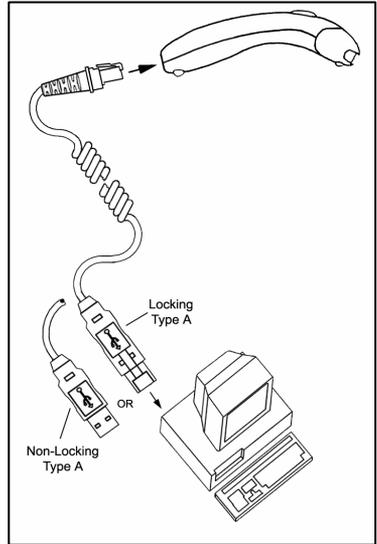
4. Turn on the host system.

Figure 5.

As a default, the MS95*x*0-**38** leaves the factory with USB Keyboard Emulation Mode eabled.

For information on configuring the MS95*x*0-**38** for USB Serial Emulation Mode, please refer to the USB section of the MetroSelect Single-Line Configuration Guide (MLPN 00-02544).

Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. Please refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files for instructions on changing the scanner's factory default configuration. The scanner and host system must use the same communication protocols.

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.

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.
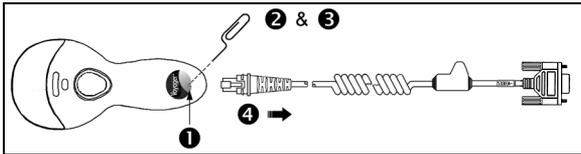

Figure 6.

1. Locate the small 'pin-hole' on the top of the unit near the bottom of the Voyager 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 hear 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.
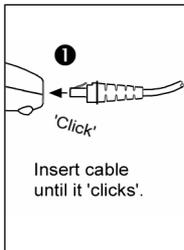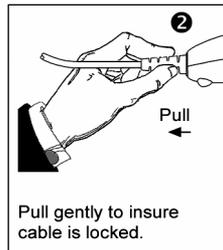

Figure 7.

Figure 8.

HOW TO USE CODEGATE AND THE MANUAL ACTIVATION MODE

CODEGATE®	MANUAL ACTIVATION MODE*
1. Auto trigger (IR) activates the laser.	1. Aim the scanner at the bar code.
2. Place the laser line on the bar code.	2. Press and hold the button down to scan and transmit the bar code. *Press & Hold* / \ *Beep*
3. Press the button to transmit the data. *Press* / \ *Beep*	* *This feature is not a default setting. Refer to the MetroSelect Configuration Guide for instructions on enabling the Manual Activation Mode.*

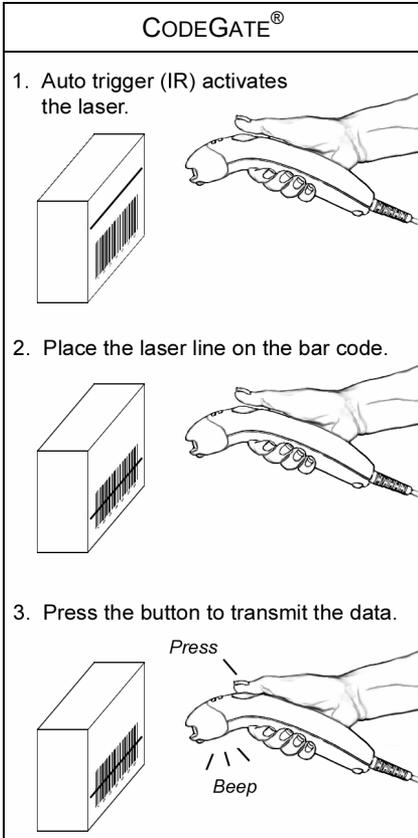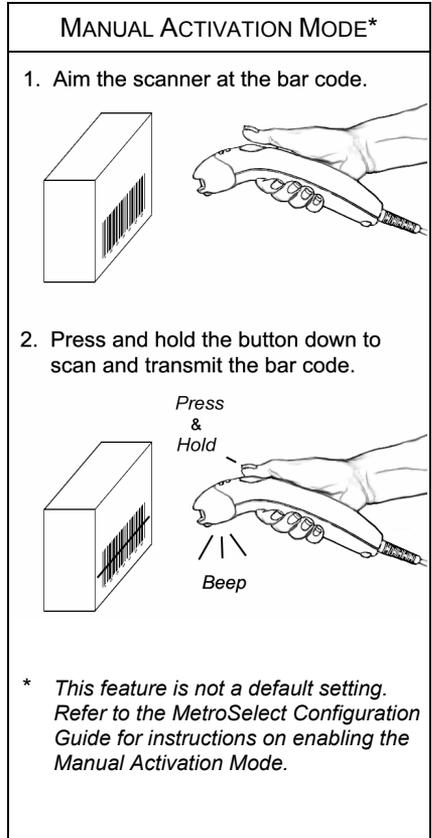*Figure 9.*   *Figure 10.*

THREE MODES OF OPERATION

Auto Trigger, In-Stand
- Auto-triggers while in the stand
- Bar code is automatically decoded and transmitted

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

STAND KITS

Free Standing Kits #46-46128

Contains:

a. Stand (*MLPN 36-00454*) .... Qty 1
b. Apron (*MLPN 50-50440*) .... Qty 1
c. Screw, M3 x 6 mm (*MLPN 18-18670*) .... Qty 2
d. Washer, #5 x .5 OD (*MLPN 18-18671*) .... Qty 2
e. Stand Anchor (*MLPN 50-50449*) .... Qty 1
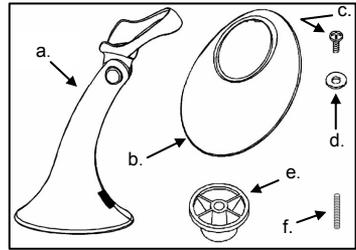f. M3 x 20 mm Set Screw (*MLPN 18-1867*2) .... Qty 1

Figure 11.

Optional Hard Mount Accessory Kit #46-46351

This kit, used in conjunction with the stand kit (#46-46128), can be used to hard mount (bolt) the MS9500 to the countertop.

Contains:

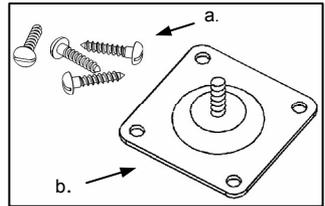a. Screw, #8 Round Head (*MLPN 18-18057*) .... Qty 4
b. Base (*MLPN 36-36080*) .... Qty 1

Figure 12.

Optional Wall Mount Hanger Accessory Kit #46-46433

Contains:

a. Screw #8 Round Head (*MLPN 18-18057*) Qty.2
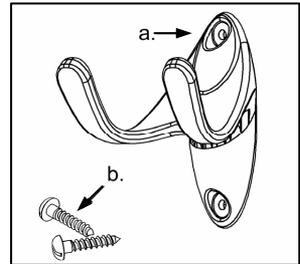b. Wall Mount Hanger (*MLPN 18-18057*) Qty.1

Figure 13.

Optional Wall Mount Hanger Kit #46-46508

Contains:

a. Wall Mount Hanger *(MLPN 36-00611)* .... Qty. 1
b. Wall Mount Base *(MLPN 36-00812)* .... Qty. 1
c. 4.8 x 13 mm, Self Tapping Screw .... Qty. 2
    (MLPN 18-18233)
d. Double-Sided Adhesive Tape .... Qty. 1
    (MLPN 36-00821)
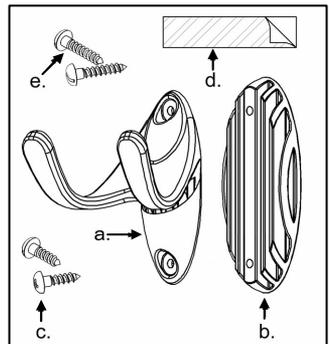e. #8 Wood Screw *(MLPN 18-18057)* .... Qty. 2

Figure 14.

11

ASSEMBLING THE STAND

There are two options for assembling the stand. The first option is a self-supporting stand that can be moved freely about on the countertop. The second option is used if the stand will be bolted or hard-mounted to the countertop.

Stand Option 1: Self-Supported Stand Kit #46-46128

Step 1

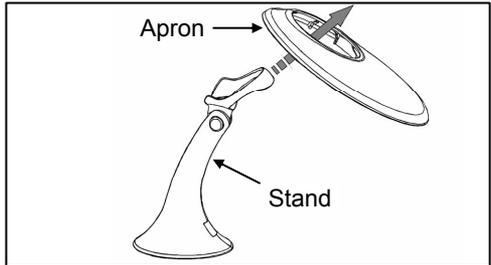Slide the apron (*MLPN 50-50440*) over the stand (*MLPN 36-00454*).

Figure 15.

Step 2

Position the stand so that it sits under the tab on the apron. Then secure the apron to the stand using the two M3 x 6 mm screws (*MLPN 18-18670*) and the two #5 washers (*MLPN 18-18671*) provided.
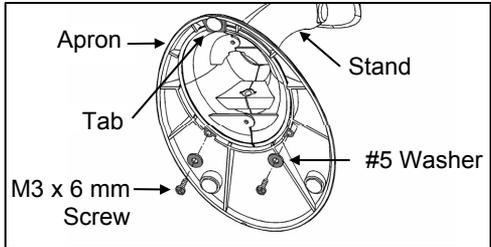
Figure 16.

Stand Option 2: Hard-Mount Accessory Kit #46-46351
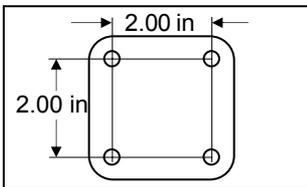
2.00 in

2.00 in

Figure 17.

Step 1

Drill four #39 holes in the countertop.
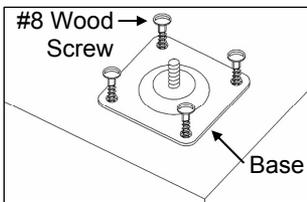
#8 Wood Screw

Base

Figure 18.

Step 2

Secure the base *(MLPN 36-36080)* to the countertop with the four #8 wood screws *(MLPN 18-18057)* provided.

ASSEMBLING THE STAND

**Stand Option 2:   Hard-Mount Kits #46-46128, #46-46351 and
                            MS951 Stand Replacements**

Anchor from Kit #46-46128

Base Assembly from Kit #46-46351 or MS951 Stand Base
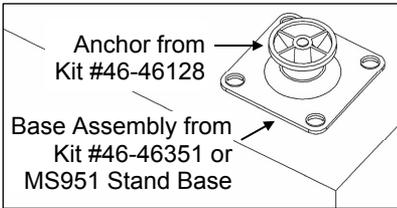
Figure 19.

Step 3

Screw the stand anchor (*MLPN 50-50449*) onto the base assembly until it sits flush.

Figure 20.

Step 4

Remove the logo plate on the stand by gently using an exacto knife to release the plate hook.

Figure 21.

Step 5

Position the stand over the base assembly.
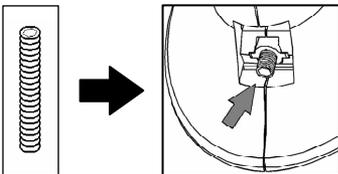
Figure 22.

Step 6

Secure the stand to the base assembly by installing and tightening the M3 set screw (*MLPN 18-18672*) under the logo plate as shown.
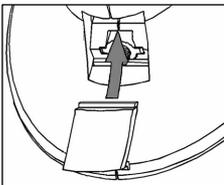
Figure 23.

Step 7

Snap the logo plate back into place.

Wall Mount, Option 1:

For Kit #46-46433 or #46-46508

Figure 24.

Step 1

Drill two #39 pilot holes 3.00" apart.

Step 2

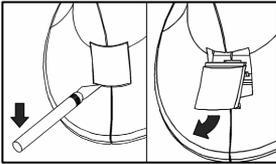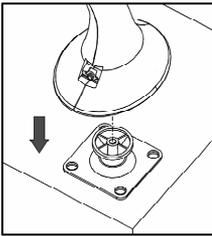Attach the *Wall Mount Hanger* to the wall with the two #8 wood screws provided.
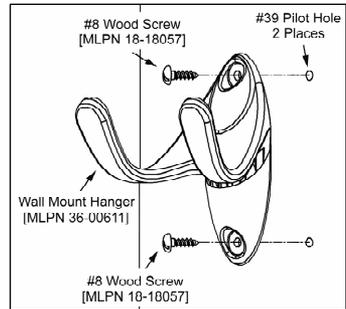
Wall Mount, Option 2:

Kit #46-46508

Step 1

Attach the Wall Mount Base to the Wall Mount Hanger with the two 4.8 x 13 mm self-tapping screws.

Step 2

Remove <u>one</u> side of the protective backing from the double-sided adhesive tape.
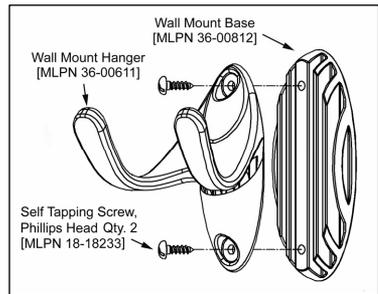
Figure 25.

Step 3

Attach the tape to the back of the Wall Mount Hanger as shown.

Step 4

Remove the protective backing from the double-sided adhesive tape and apply hook to the wall.

Figure 26.

14

Yellow LED*

CodeGate Button*

Red LED**

Green LED**

MS9500 Top View

Output Window

Cable Connection

MS9500 Side View

* This feature is not available on the MS9520.

** 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.

Figure 27.

AUDIBLE INDICATORS

When the Voyager is in operation, 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 beeper tone, refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files.

One Beep
When the scanner *first* receives power, 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 ready to scan.

When the scanner *successfully* reads a bar code, the red LED will flash and the scanner beeps once (if configured 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.

Razzberry Tone
This tone is a failure indicator. Refer to "Failure Modes" on page 18.
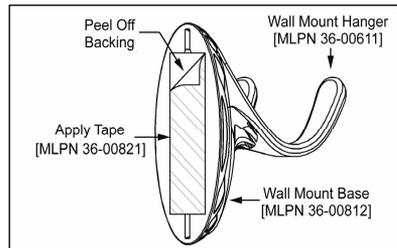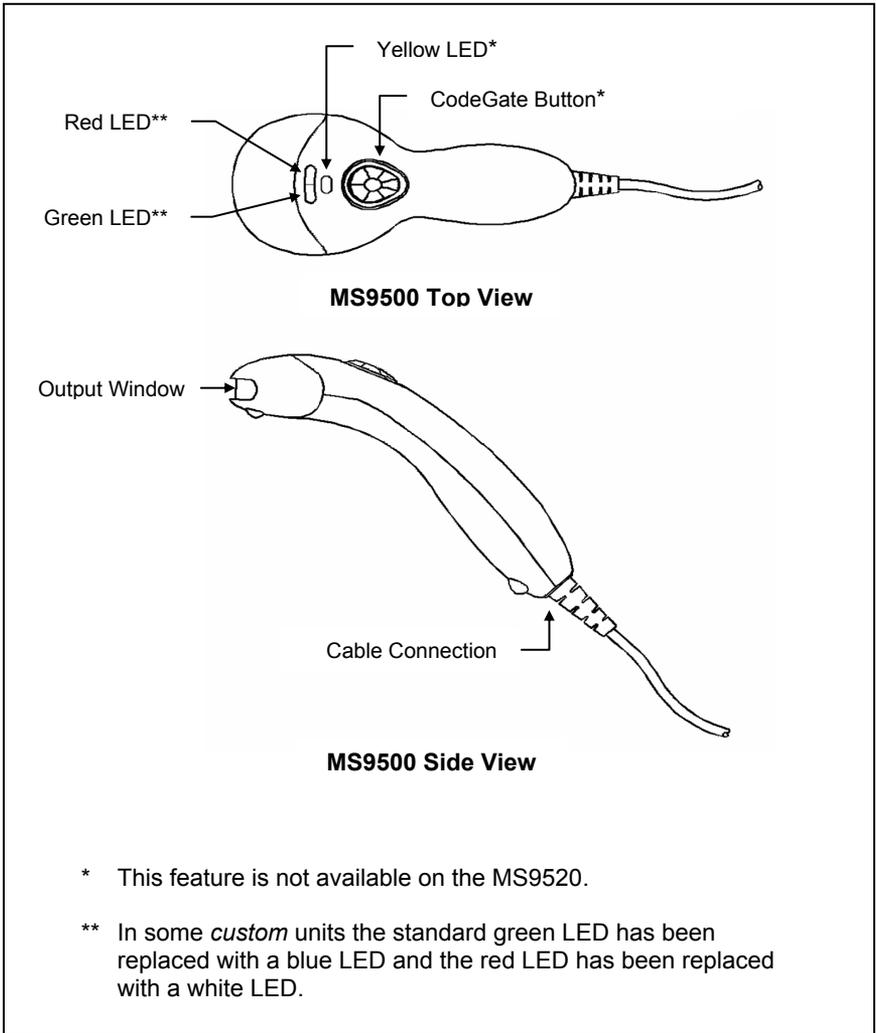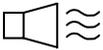
Two Beeps – On Power Up
When a Flash ROM upgrade is needed, the scanner will beep twice followed by alternating flashes of the green and red LEDs.

Three Beeps - During Operation
When entering configuration mode, the red LED will flash while the scanner simultaneously beeps three times. The red and green LEDs will continue to flash while in this mode. Upon exiting configuration mode, the scanner will beep three times, and the LEDs will stop flashing.

When configured, 3 beeps can also indicate a communications timeout during normal scanning mode.

When using one-code-configuration, the scanner will beep three times (the current selected tone), followed by a short pause then by a high tone and a low tone. This tells the user that the single configuration bar code has successfully configured the scanner.

Three Beeps - On Power Up
This is a failure indicator. Refer to "Failure Modes" on page 18.

*   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.

VISUAL INDICATORS

The MS9540 has three LED indicators (green, red and yellow) located on the head of the scanner. The MS9520 has two LED indicators (green***** and red*****) located on the head of the scanner.   When the scanner is on, the flashing or stationary activity of the LEDs indicates the status of the current scan and the scanner.

Green*, Red* & Yellow (*MS9540's Only*) LEDs are off
The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer.

The scanner is in stand-by mode, and CodeGate is enabled. Present a bar code to the scanner and the green LED will turn on when the laser turns on.
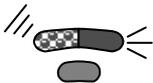
Steady Yellow (*MS9540's Only*)
The CodeGate button is not active. If a bar code is in the scan field, the laser will turn on. The bar code will be decoded and transmitted to the host automatically.

Steady Green
When the laser is active, the green LED is illuminated. The green LED will remain illuminated until the laser is deactivated (*default mode only).*

Steady Green and Single Red Flash
When the scanner successfully reads a bar code, the red LED will flash and the scanner will beep once. If the red LED does not flash or the scanner does not beep once, then the bar code has not been successfully read (*default mode only).*

Steady Green and Steady Red
After a successful scan, 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.

Alternating Flashing of Green and Red
This indicates the scanner is configuration mode. A razzberry tone indicates that an invalid bar code has been scanned while in this mode**.**

The scanner needs a Flash ROM upgrade if the red and green LEDs flash alternately and the unit beeps three times during startup.
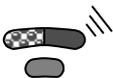
Steady Red, Green off
This indicates the scanner may be waiting for communication from the host.

*   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.

FAILURE MODES
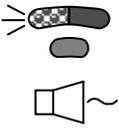
Flashing Green* and one Razzberry Tone
This indicates the scanner has experienced a laser sub-system failure. Return the unit for repair to an authorized service center.

Flashing Red* and Green* with Two Razzberry Tones
This indicates the scanner has experienced a scanning mechanism failure. Return the unit for repair to an authorized service center.
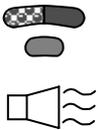
Continuous Razzberry Tone with all LEDs off
If, upon power, the scanner emits a continuous razzberry tone, then the scanner has an experienced an electronic failure. Return the unit for repair to an authorized service center.
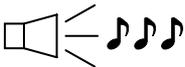
Three Beeps – on power up
If the scanner beeps 3 times on power up then the non-volatile memory (NovRAM) that holds the scanner configuration has failed. If the scanner does not respond after reconfiguring, return the scanner for repair to an authorized service center.

*   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.

18

CONFIGURATION MODES

The MS9500 Voyager has 3 modes of configuration.

- **Bar Codes**
  Voyager or Voyager CG can be configured by scanning the bar codes
  located in the MetroSelect® Single-Line Configuration Guide
 (MLPN 00-02544). This manual can be downloaded for FREE at
  www.metrologic.com.

- **MetroSet®2**
  This user-friendly Windows-based configuration software allows you to
  simply 'point-and-click' at the desired scanner options. This software can be
  downloaded for FREE at www.metrologic.com or set-up disks can be
  ordered by calling 1-800-ID-METRO.

- **Serial Configuration**
  This mode of configuration 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 Configuration 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 in 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.

4. During configuration, the motor and laser turn off. YOU CANNOT SCAN A BAR CODE WHILE IN SERIAL CONFIGURATION 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 configuration mode, send the following command [stx]999999[etx].

7. To exit serial configuration 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 configuration 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 configurable prefix.

FEATURE	HOST COMMAND	ASCII REPRESENTATION	SCANNER RESPONSE
Enter Configuration 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
Configure. 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 Configuration 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.

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.

FEATURE	HOST COMMAND	ASCII REPRESENTATION	SCANNER RESPONSE
Enter Configuration 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 Configuration 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 Configuration Mode	[stx]999999[etx]	02h 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 configuration 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 MS9500, 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 USB (-38), and full speed USB (-40) units can be upgraded. To upgrade all units, a power supply and PowerLink cable (MLPN 54-54012) are required.

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.

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*   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.

LABELS

Every scanner has labels and molded text located on the underside of the unit. The labels and text contain important information such as the unit's date of manufacture, serial number, CE and caution information. Figure 28 provides examples of the labels and the molded text.
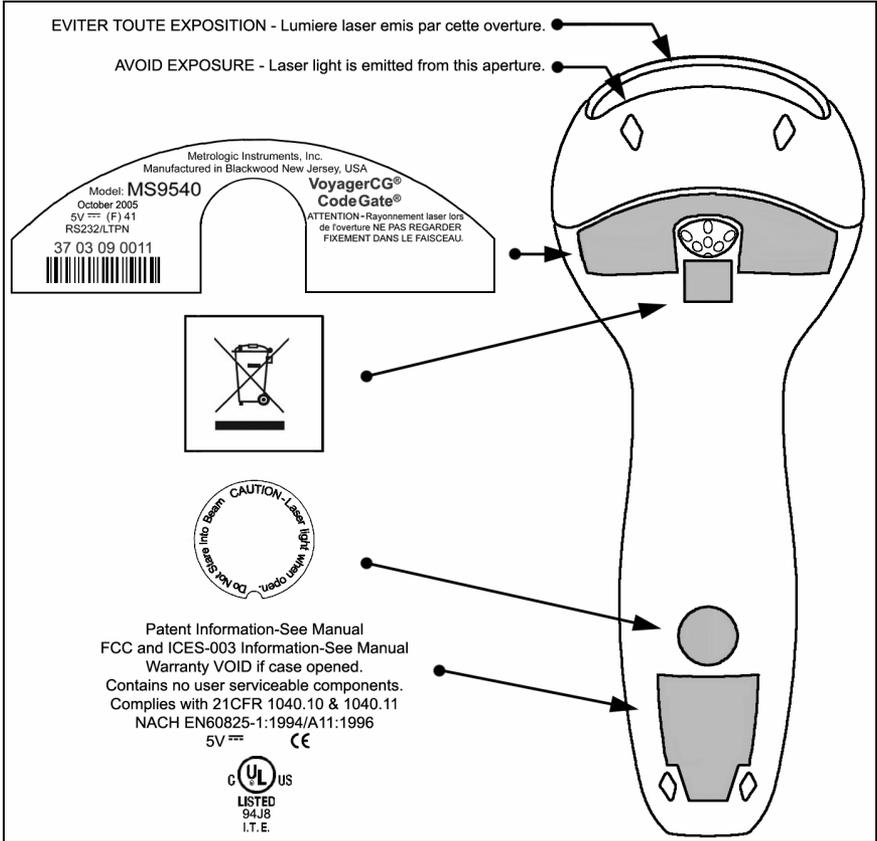

Figure 28 . Molded Text and Label Examples

MAINTENANCE

Smudges and dirt can interfere with the proper scanning of a bar code. Therefore, the output window will need occasional cleaning.

1. Spray glass cleaner onto lint free, non-abrasive cleaning cloth.
2. Gently wipe the scanner window.

2.5" [64 mm]
Scan Width
at Face

Distance from Face

3.0" [76 mm]
3.4" [86 mm]

4.4" [112 mm]
4.8" [122 mm]

A
B
E
G
H
J

7.1" [180 mm]

8.5" [216 mm]

9.8" [249 mm]

11.7" [297 mm]

0.0" [0 mm]
0.5" [12.7 mm]
1.0" [25.4 mm]

2.0" [51 mm]
2.5" [64 mm]

5.0" [127 mm]

6.5" [165 mm]

8.0" [203 mm]

10.0" [254 mm]

Width of Scan Field

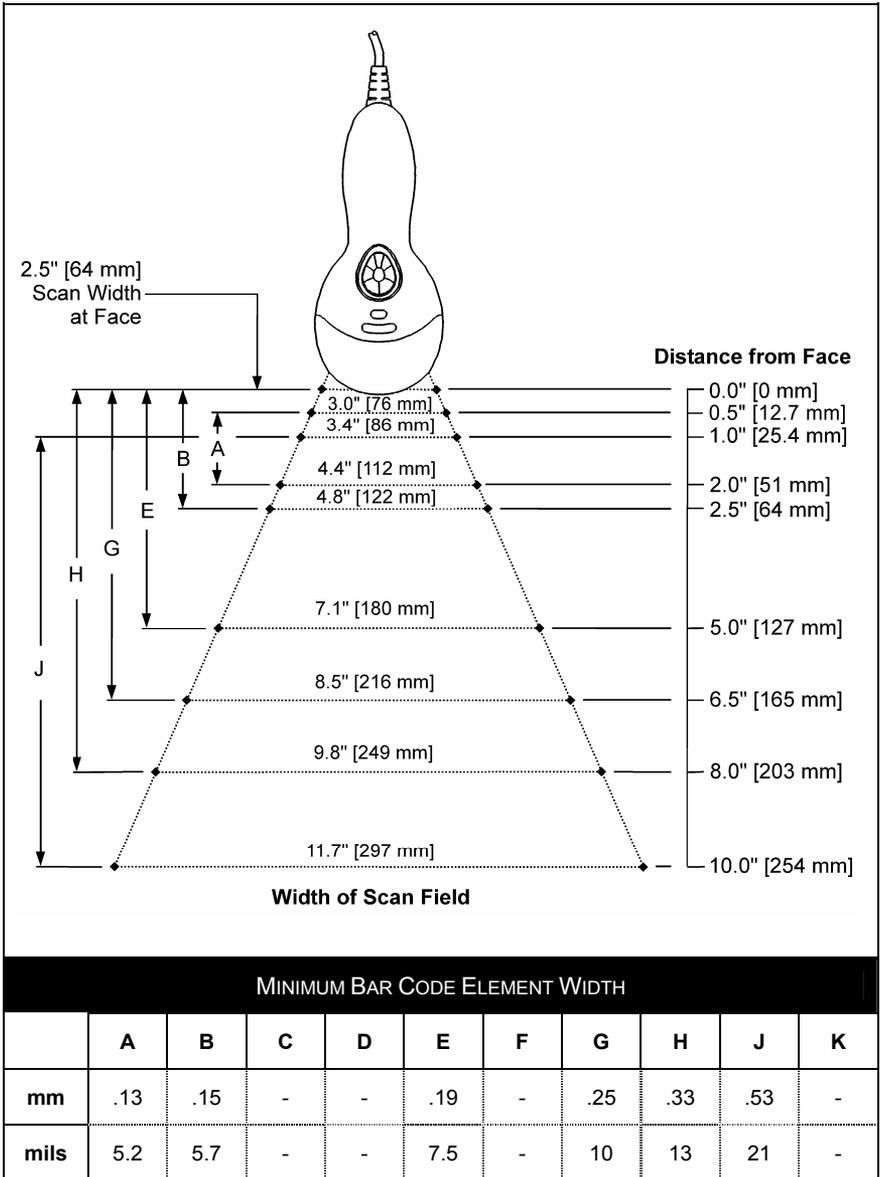| MINIMUM BAR CODE ELEMENT WIDTH										
	A	B	C	D	E	F	G	H	J	K
mm	.13	.15	-	-	.19	-	.25	.33	.53	-
mils	5.2	5.7	-	-	7.5	-	10	13	21	-

Figure 29.

IR Activation

The default laser/scan mode for the MS95x0 series is Normal Scan. Any movement detected by the IR in the activation area will cause the scanner to automatically turn the laser on, preparing the scanner for bar code recognition, decoding and transmission.
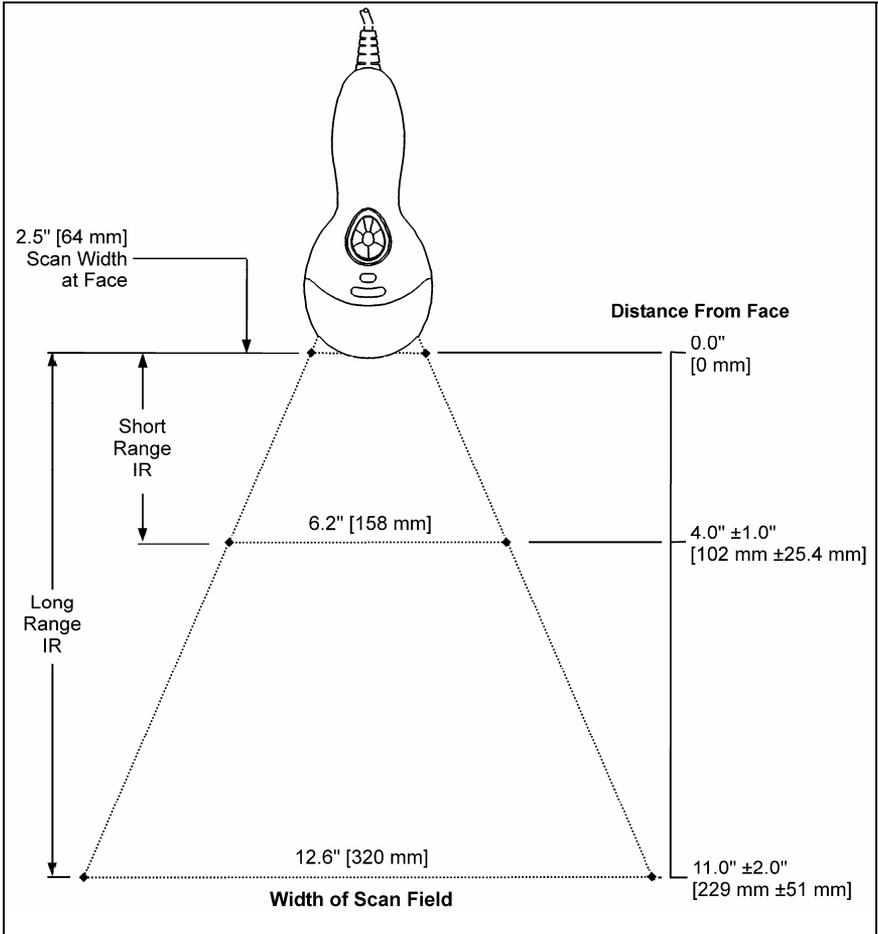

Figure 30. Short and Long IR Activation Area

APPLICATIONS AND PROTOCOLS

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

Scanner	Version Identifier	Communication Protocol(s)
MS9520 Or MS9540	00	Laser Emulation and RS232 Transmit/Receive
	9	OCIA and RS232 Transmit/Receive
	11	IBM 468X/469X, RS232 - TXD, RXD, RTS, CTS
	14	RS232 - TXD, RXD, RTS, CTS, DTR, DSR
	38	Low Speed USB, Serial Emulation or Keyboard Emulation
	40	Full Speed Integrated USB
	41	RS232/Light Pen Emulation
	47	Keyboard Wedge, Stand-Alone Keyboard and RS232 Transmit/Receive

The MS9520/9540 Keyboard Wedge Series (-47) is designed for keyboard emulation only. Many RS232 configurable 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)
- XT
- IBM PS2 (includes models 30, 70, 8556)

Keyboard Country Type

- **USA
- Belgium
- French
- German
- Italian
- Japanese
- Spanish
- Swiss
- 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
All Interfaces		
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 Voyager. 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.
* 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.		

Symptoms	Possible Causes	Solution
The unit powers up, but does not scan and/or beep.	The bar code being scanned does not satisfy the configured criteria for character length lock or minimum length.	Verify that the bar code being scanned falls into the configured criteria. *The scanner defaults to a minimum of 3 character bar code.*
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.

*   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.

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 *Caps Lock* mode.	Enable the *Caps Lock* detect feature of the scanner to detect whether the PC is operating in Caps Lock.
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

	MS9500 Series Specifications
OPERATIONAL	
Light Source	Visible Laser Diode 650 nm
Laser Power:	Less than 1 mW (peak)
Depth of Scan Field:	0 mm - 203 mm (0" - 8") for 0.330 mm (13 mil) bar code@ *default setting*
Scan Speed:	72 scan lines per second
Scan Pattern:	Single scan line
Minimum Bar Width:	0.127 mm (5.0 mil)
Infrared Activation:	Long Range: 0 mm – 279 mm ± 51 mm (0" – 11" ± 2") Short Range: 0 mm – 102 mm ± 25 mm (0" – 4" ± 1")
Decode Capability	Autodiscriminates all standard bar codes for others call a Metrologic service representative
System Interfaces	RS232, PC Keyboard Wedge, Stand-Alone Keyboard, OCIA, IBM 468X/469X, Light Pen Emulation, Laser Emulation, RS232 with DSR, Low Speed USB (Serial Emulation or Keyboard Emulation), Full Speed USB
Print Contrast:	35% minimum reflectance difference
Number Characters Read:	Up to 80 data characters (*Maximum number will vary based on symbology & density*)
Roll, Pitch, Yaw:	42°, 68°, 52°
Beeper Operation:	7 tones or no beep
Visual Indicators: *Default Settings*	Green* LED = laser on, ready to scan
	Red* LED = good read
	Yellow LED (MS9540 Only) = ON, CodeGate button is inactive OFF, CodeGate button is active
* 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.	

Specifications subject to change without notice.

DESIGN SPECIFICATIONS

	MS9500 Series Specifications
MECHANICAL	
Length:	198 mm (7.8")
Width:	Handle - 45 mm (1.8"), Head - 78 mm (3.1")
Depth:	40 mm (1.6")
Weight:	149 g (5.25 oz)
ELECTRICAL	
Input Voltage:	5VDC ± 0.25V
Power:	Operating = 0.825 W, Standby = 0.600 W
Current:	Operating = 165 mA @ 5VDC, Standby = 120 mA @ 5VDC
DC Transformers:	Class 2; 5.2V @ 650 mA
Laser Class 1:	IEC 60825-1:1993+A1:1997+A2:2001 EN 60825-1:1994/A11:1996
CDRH:	Class II
EMC:	FCC Class B
ENVIRONMENTAL	
Temperature:	Operating = 0°C to 40° (32° to 104°F) Storage = -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 ft.) drops
Contaminants:	Sealed to resist airborne particulate contaminants
Ventilation:	None required

Specifications subject to change without notice.

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	OCIA	RS232	Light Pen	IBM 46xx	KBW	USB	Laser Emulation
Normal Scan Mode	*	✓	✓	✓	✓	✓	✓	✓
Continuous Scan Mode		✓	✓	✓	✓	✓	✓	✓
Blinky Scan		✓	✓	✓	✓	✓	✓	✓
Continuous Blinky Scan		✓	✓	✓	✓	✓	✓	✓
Custom (one shot) Scan		✓	✓	✓	✓	✓	✓	✓
Manual Activation Mode		✓	✓	✓	✓	✓	✓	✓
Long-Range In-Stand	*	✓	✓	✓	✓	✓	✓	✓
Short-Range In-Stand		✓	✓	✓	✓	✓	✓	✓
Long-Range Out-of-Stand	*	✓	✓	✓	✓	✓	✓	✓
Short-Range Out-of-Stand		✓	✓	✓	✓	✓	✓	✓
CodeGate Active In-Stand		✓	✓	✓	✓	✓	✓	✓
CodeGate Inactive In-Stand	*	✓	✓	✓	✓	✓	✓	✓
CodeGate Active Out-of Stand	*	✓	✓	✓	✓	✓	✓	✓
CodeGate Inactive Out-of Stand		✓	✓	✓	✓	✓	✓	✓
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	OCIA	RS232	Light Pen	IBM 46xx	KBW	USB	Laser Emulation
Mod 43 Check on Code 39		✓	✓	✓	✓	✓	✓	✓
MSI-Plessy 10/10 Check Digit		✓	✓	✓	✓	✓	✓	✓
MSI-Plessy 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 msecs		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 375 msecs		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 500 msecs		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 625 msecs		✓	✓	✓	✓	✓	✓	✓

DEFAULT SETTINGS

Parameter	Default	OCIA	RS232	Light Pen	IBM 46xx	KBW	USB	Laser Emulation
Same symbol rescan timeout: 750 msecs		✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 875 msecs	*	✓	✓	✓	✓	✓	✓	✓
Same symbol rescan timeout: 1000 msecs		✓	✓	✓	✓	✓	✓	✓
No Same symbol timeout		✓	✓	✓	✓	✓	✓	✓
Infinite Same symbol timeout		✓	✓	✓	✓	✓	✓	✓
Inter-character delay Configurable in 1 msec steps (max 255 msecs)	1 msecs 10 msecs in 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-Plessy		✓	✓		✓	✓	✓	
Parity	Space		✓		✓		✓	
Baud Rate	9600		✓					
8 Data Bits			✓					
7 Data Bits	*		✓					
Stop Bits	2		✓					

Parameter	Default	OCIA	RS232	Light Pen	IBM 46xx	KBW	USB	Laser Emulation
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	OCIA	RS232	Light Pen	IBM 46xx	KBW	USB	Laser Emulation
100 msec to Find Supplement Configurable in 100 msec steps (max 800 msec)	*	✓	✓	✓	✓	✓	✓	✓
Coupon Code 128		✓	✓	as code 39	✓	✓	✓	as code 39
† Configurable Code Lengths	7 avail	✓	✓	✓	✓	✓	✓	✓
† Code Selects with configurable Code Length Locks	3 avail	✓	✓	✓	✓	✓	✓	✓
Configurable Prefix characters	10 avail		✓			✓		
Suffix characters	10 avail		✓			✓		
Prefixes for Individual Code types			✓			✓		
Editing		✓	✓	✓	✓	✓	✓	✓
Inter Scan-Code delay configurable (100 µsec steps)	800 µsec					✓		
Function/control Key Support								
Minimum Element width Configurable in 5.6 µsec steps	1 msec			✓				✓

† These options are mutually exclusive. One can not be used in conjunction with the other.

Scanner Pinout Connections

The MS9520 and MS9540 scanner interfaces terminate to a 10-pin modular jack. The serial # label indicates the interface enabled when the scanner is shipped from the factory.
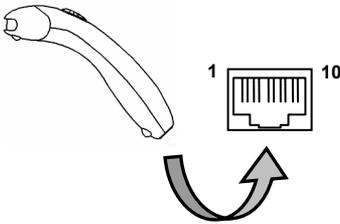
MS95x0-41 RS232 and Light Pen Emulation	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input/LTPN Source
7	Reserved
8	LTPN Data
9	+5VDC
10	Shield Ground

MS95x0-47 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

1 · · · · 10

MS95x0-11 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

MS95x0-9 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
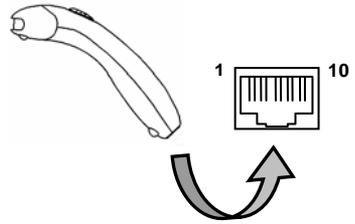
MS95x0-00 Laser Emulation	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	Flip Sense/Start of Scan Output
5	Proximity Detect/Trigger Emulation Output
6	Scan/Laser Enable Input
7	Reserved
8	Data Out
9	+5VDC
10	Shield Ground

MS95x0-14 RS232	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input
7	Reserved
8	DSR Out
9	+5VDC
10	Shield Ground

MS95x0-40 Full Speed USB & MS95x0-38 Low Speed USB	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	D+
7	PC +5V/V_USB
8	D-
9	N/C
10	Drain Wire

Cable Connector Configurations (Host End)

RS232 PowerLink Cable MLPN 53-53000x-N-3	
Pin	**Function**
1	Shield Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	DTR Input/Light Pen Source
5	Signal Ground
6	Light Pen Data *(DSR Out for -14 interfaces)*
7	CTS Input
8	RTS Output
9	+5VDC

5   1

9   6

9-Pin Female, D-Type

OCIA PowerLink Cable MLPN 53-53015x-3	
Pin	**Function**
1	Shield Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	Clock Out
5	Signal Ground
6	Clock In Return /
7	Clock Out Return
8	Clock In
9	+5VDC - Host
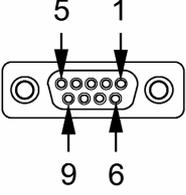
5   1

9   6

9-Pin Female

Cable Connector Configurations (Host End)

USB Cables MLPN 53-53213*x*-N-3, 53-53214*x*-N-3 or 53-53235*x*-N-3		
Pin	**Function**	
1	PC +5V/V_USB	Locking Type A / Non-Locking Type A
2	D-	
3	D+	
4	Ground	
Shield	Shield	

Stand-Alone Keyboard PowerLink Cable MLPN 53-53020*x*-3		
Pin	**Function**	
1	PC Data	6-Pin Male Mini-DIN Connector
2	NC	
3	Power Ground	
4	+5VDC PC Power to KB	
5	PC Clock	
6	NC	
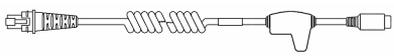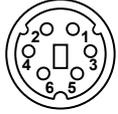
Cable Connector Configuration (Host End)

Keyboard Wedge PowerLink Cable MLPN 53-53002*x*-3	
Pin	**Function**	5-Pin DIN, Female
1	Keyboard Clock	
2	Keyboard Data	
3	No Connect	
4	Power Ground	
5	+5 Volts DC	
Pin	**Function**	6-Pin DIN, Male
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	
Pin	**Function**	5-Pin DIN, Male
1	PC Clock	
2	PC Data	
3	No Connect	
4	Power Ground	
5	+5 Volts DC	
Pin	**Function**	6-pin Mini DIN, Female
1	Keyboard Data	
2	No Connect	
3	Power Ground	
4	+5 Volts DC	
5	Keyboard Clock	
6	No Connect	
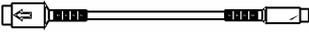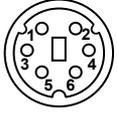
LIMITED WARRANTY

The MS9500 Voyager and Voyager*CG* series scanners are manufactured by Metrologic at its Blackwood, New Jersey, U.S.A. facility. The MS9500 Voyager and Voyager*CG* series scanners have a five (5) year limited warranty from the date of manufacture. Metrologic warrants and represents that all MS9500 Voyager and Voyager*CG* series 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 one of the following Metrologic repair facilities: Blackwood, New Jersey, USA; Madrid, Spain; or Suzhou, China. To do this, contact the appropriate Metrologic 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 judgment 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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LASER AND PRODUCT SAFETY

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 numerique de la class B est conforme à la norme NMB-003 du Canada.

CLASS 1 LASER PRODUCT
APPAREIL A LASER DE CLASSE 1
LASER KLASSE 1 PRODUKT
LASER CLASE 1 PRODUCTO

Laser and Product Safety

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 qú êst hazardous. 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

Patent Information

This METROLOGIC product may be covered by one or more of the following US Patents:

US Patent No. 4,958,984; 5,081,342; 5,260,553; 5,340,971; 5,340,973; 5,424,525; 5,468,951; 5,484,992; 5,525,789; 5,528,024; 5,591,953; 5,616,908; 5,627,359; 5,661,292; 5,777,315; 5,789,730; 5,789,731; 5,811,780; 5,825,012; 5,828,048; 5,883,375; 5,886,337; 5,895,907; 5,925,870; 5,925,871; 5,939,698; 6,029,894; 6,189,793; 6,209,789; 6,227,450; 6,283,375; D408,532;

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Other worldwide patents pending.

October 2005

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