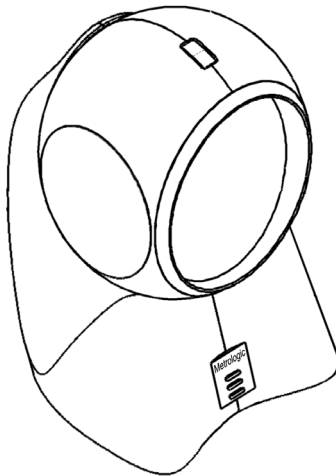




METROLOGIC INSTRUMENTS, INC.

MS7120 Orbit[®] Presentation
Laser Scanner
Installation and User's Guide



Copyright

© 2008 by Metrologic Instruments, Inc. All rights reserved. No part of this work may be reproduced, transmitted, or stored in any form or by any means without prior written consent, except by reviewer, who may quote brief passages in a review, or provided for in the Copyright Act of 1976.

Trademarks

Metrologic is a registered trademark of Metrologic Instruments, Inc. Products identified in this document are hereby acknowledged as trademarks, registered or otherwise, of Metrologic Instruments, Inc. or their respective companies.

TABLE OF CONTENTS

Introduction

Product Overview	1
Scanner and Accessories	2
Scanner Components	4
Cable Removal	4
Caution and Serial Number Labels	5
Maintenance	5
Mounting Specifications	6

Installation

RS232, or Light Pen	7
RS485	8
Keyboard Wedge	9
Stand-Alone Keyboard Wedge	10
Full Speed or Low Speed USB	11

Scanner Operation

Indicators

Audible	12
Visual	13
Failure	14

Depth of Field Specifications

Normal Scan Zone	15
Reduced Scan Zone	15

Depth of Field by Bar Code Element Width

Normal Scan Zone	16
Reduced Scan Zone	17

Troubleshooting Guide	18
-----------------------------	----

Design Specifications	22
-----------------------------	----

Applications and Protocols	24
----------------------------------	----

TABLE OF CONTENTS

Default Settings - Communication Parameters.....	25
Scanner Configuration.....	30
Configuration Modes	30
Bar Codes	30
MetroSet2.....	30
Serial Configuration.....	30
Upgrading the Firmware.....	31
Scanner and Cable Terminations	
Scanner Pinout Connections	32
Cable Connector Configurations (Host End)	33
Regulatory Compliance	
Safety	35
EMC	36
Limited Warranty	38
Patents	39
Index	40
Contact Information and Office Locations.....	42

INTRODUCTION

Orbit® is an aggressive, omnidirectional laser bar code scanner ideal for use in retail, convenience, liquor and specialty stores. Designed to be lightweight and rugged, Orbit's small size makes it ideal for applications where counter space is limited. It's unique contoured shape allows it to be picked-up and used as a hand-held scanner when scanning large or bulky items.

Key Product Features

- Fully Automatic Scanning Operation
- Adjustable Scan Head
- User-Replaceable Single Cable Interface To Host (Powerlink Compatible)
- Seven Beeper Tones
- Configurable Depth of Field
- Firmware updates are easily loaded into Flash memory
- OPOS and JPOS System Compatible
- Support For Common Interfaces Including USB (See Table Below)
- Easy Bar Code Configuration

ORBIT MODEL NUMBER	INTERFACE
MS7120-38	RS232 Low Speed USB, Keyboard Emulation Mode or Serial Emulation Mode*
MS7120-41	RS232/Light Pen Emulation
MS7120-47	Keyboard Wedge, Stand-Alone Keyboard and RS232 Transmit/Receive
MS7120-106	RS485 [▲] and Full Speed USB

* Configurable for Keyboard Emulation Mode or Serial Emulation Mode.
Default setting is Keyboard Emulation Mode.

▲ Applicable for IBM® Host applications.

INTRODUCTION

Scanner and Accessories


BASIC KIT COMPONENTS	
Part No.	Description
MS7120	Orbit Presentation Laser Bar Code Scanner
00-02282.x	MS7120 Orbit Presentation Laser Bar Code Scanner Installation and User's Guide
00-02407.x	MetroSelect® Configuration Guide

* Guides also available for download at www.metrologic.com.

OPTIONAL ACCESSORIES	
Part No.	Description
AC to DC Power Transformer - Regulated 5.2VDC @ 1A output.	
46-00525	90VAC to 255VAC United States, Canada and Japan
46-00526	90VAC to 255VAC Continental European
46-00527	90VAC to 255VAC United Kingdom
46-00528	90VAC to 255VAC Australia
46-00529	90VAC to 255VAC China
46-00530	90VAC to 255VAC India
59-59000x -3	RS232 PowerLink Cable with Built in Power Jack straight cord, short strain relief

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 1-800-436-3876.

Scanner and Accessories

OPTIONAL ACCESSORIES	
Part No.	Description
MVC**	RS485 [▲] Applications Metrologic Voltage Converter Cable ±12VDC to +5.2VDC
** Contact a Metrologic customer service representative for additional information on the MVC cable series and the host connections available.	
59-59002x-3	Keyboard Wedge PowerLink Cable straight cord, short strain relief
59-59020x-3	Stand Alone Keyboard PowerLink Cable straight cord, short strain relief
54-54213x-N-3	USB Full Speed Cable, Locking Plus-Power™ Type A straight cord, short strain relief
54-54214x-N-3	USB Full Speed Cable, Locking Plus-Power™ Type A straight cord, short strain relief  This cable is for use with full speed USB (-106) interface only.
59-59235x-N-3	USB Low Speed Communication Cable, Type A straight cord, short strain relief
45-45619	Counter/Wall Mount 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 1-800-436-3876.

[▲] *Applicable for IBM® Host applications.*

Scanner Components

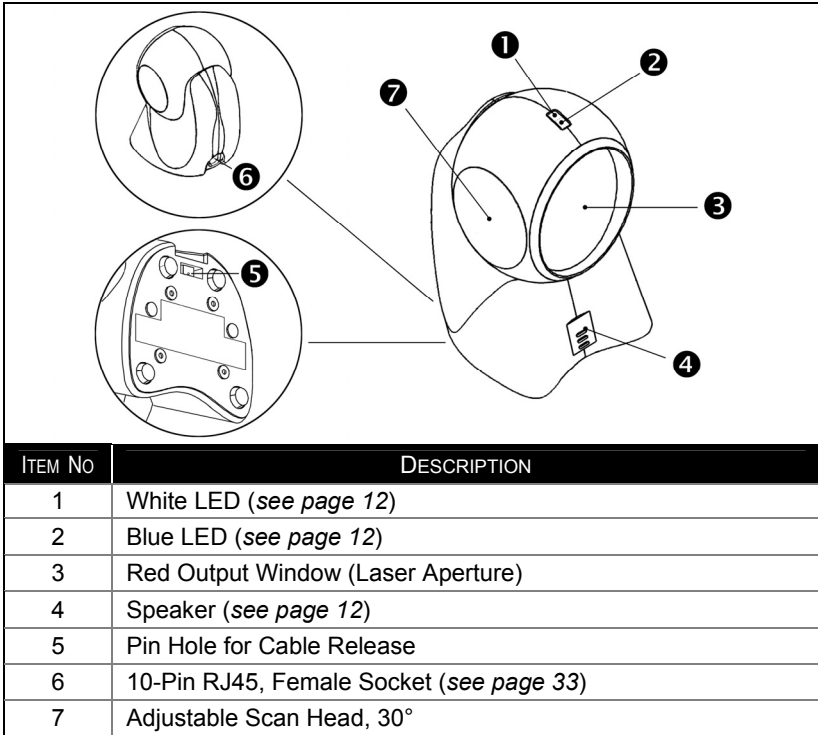


Figure 1. Scanner Components

Cable Removal

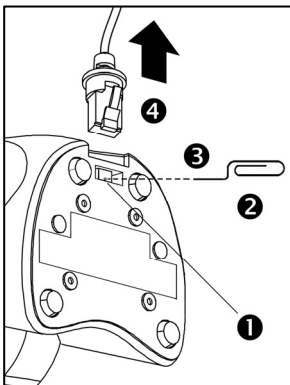


Figure 2. Cable Release

1. Locate the small 'pin-hole' on the bottom of the scanner near the cable.
2. Bend an ordinary paperclip into the shape shown.
3. Insert the paperclip into the small 'pin-hole'.
4. There will be a faint 'click' when the cable lock is released. Pull gently on the strain-relief of the PowerLink cable to remove it from the scanner.

Caution and Serial Number Labels

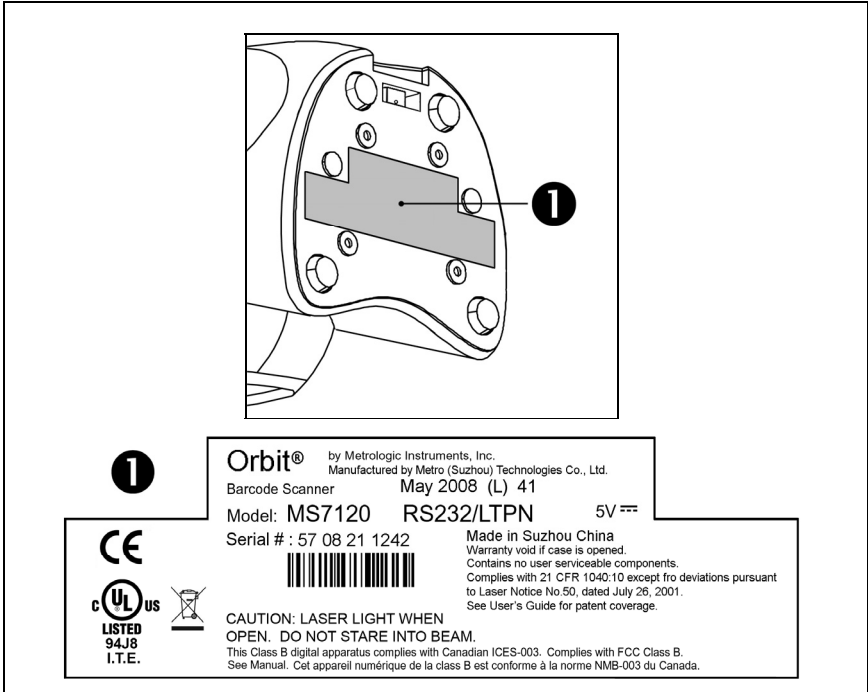


Figure 3. Labeling Locations on the Bottom of the Scanner and Examples

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 60950-1.



To maintain compliance with standard CSA C22.2 No. 60950-1/UL 60950-1 and norm EN/IEC 60950-1, the power source should meet applicable performance requirements for a limited power source.

Maintenance

Smudges and dirt on the unit's window can interfere with the unit's performance. If the window requires cleaning, use only a mild glass cleaner containing no ammonia. When cleaning the window, spray the cleaner onto a lint free, non-abrasive cleaning cloth then gently wipe the window clean.

If the unit's case requires cleaning, use a mild cleaning agent that does not contain strong oxidizing chemicals. Strong cleaning agents may discolor or damage the unit's exterior.

Mounting Specifications

Optional Wall/Counter Mount

Item	Description	Qty.	
a.	Locking Plate, <i>MLPN 50-50302</i>	1	
b.	Base Cover, <i>MLPN 50-50301</i>	1	
c.	#7 x 1.00" Wood Screw, <i>MLPN 18-18013</i>	3	
d.	M3 x 8 mm Flathead Screw, <i>MLPN 18-18004</i>	4	

Figure 4. Kit Components

- Drill three #39 pilot holes.**
 Note the position Orbit will rest (see Figure 5). Use the dimensions provided in Figure 5 or the locking plate as a template to drill three #39 pilot holes in the mounting surface.

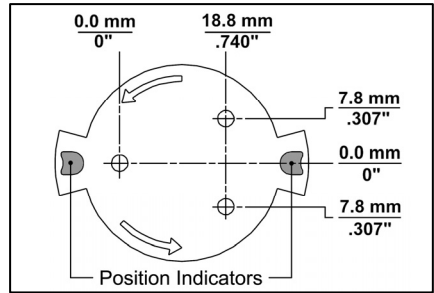


Figure 5

- Attach the locking plate to the wall/counter.**
 Secure the locking plate to the counter/wall with the three #7 x 1.00" wood screws provided (see Figure 6).
- Attach the base plate to the Orbit.**
 Secure the base cover to the bottom of Orbit using the four M3 x 8 mm screws provided (see Figure 7).
- Mount Orbit to the locking plate.**
 Hold Orbit 90° clockwise from the desired position then lower it over the locking plate until it sits flush to the countertop. Twist Orbit counter clockwise 90° to lock the scanner in place (see Figure 8).

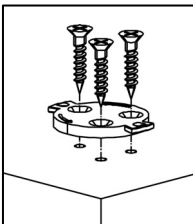


Figure 6

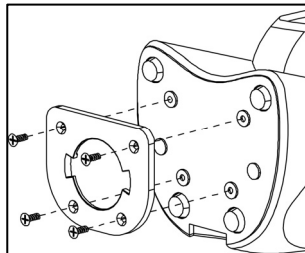


Figure 7

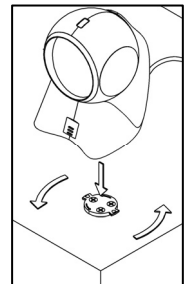


Figure 8

INSTALLATION

RS232, Light Pen Emulation

1. Turn off the host device.
2. Plug the male 10-pin RJ45 end of the PowerLink cable into the 10-pin socket on the MS7120.
3. Connect the 9-pin female end of the PowerLink cable to the host device.
4. Plug the external power supply into the power jack on the PowerLink cable.



Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet must be located near the equipment and be easily accessible.

5. Connect AC power to the transformer.
6. Turn on the host device.

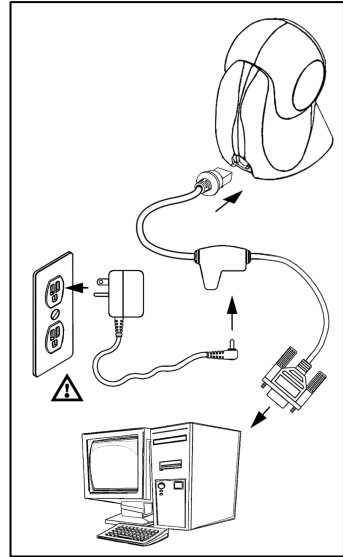


Figure 9.



When the scanner first receives power, the blue and white LED will toggle on and off then the scanner will beep once.



Plugging the scanner into the serial port of the PC does not guarantee that scanned information will appear at the PC. A software driver and correct configuration setting are also required for proper communication to occur.



Powering the MS7120 directly from the host device can cause interference with the operation of the scanner or the computer. Not all computers supply the same current. For this reason, Metrologic recommends using an external power supply. For additional information contact a Metrologic customer service representative.



See page 5.

INSTALLATION

RS485[▲]

1. Turn off the host device.
2. Plug the male 10-pin RJ45 end of the MVC cable into the 10-pin socket on the MS7120.
3. Connect the other end of the MVC cable to the host device.
4. Turn on the host device.

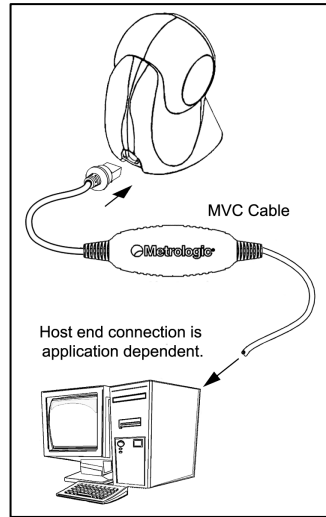


Figure 10.



When the scanner first receives power, the blue and white LED will toggle on and off then the scanner will beep once.



Plugging the scanner into the serial port of the PC does not guarantee that scanned information will appear at the PC. A software driver and correct configuration setting are also required for proper communication to occur.

[▲] Applicable for IBM[®] Host applications.

INSTALLATION

Keyboard Wedge

1. Turn off the host device.
2. Plug the male 10-pin RJ45 end of the PowerLink cable into the 10-pin socket on the MS7120.
3. Disconnect the keyboard from the host device.
4. Connect the “Y” end of the PowerLink cable to the keyboard and the keyboard port on the host PC. If necessary use the male/female adapter cable supplied with the scanner for proper connections.
5. Plug the external power supply into the power jack on the PowerLink cable.



Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet must be located near the equipment and be easily accessible.

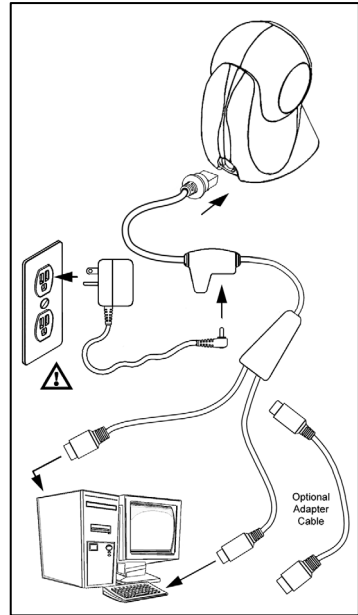


Figure 11.

6. Connect AC power to the transformer.
7. Turn on the host device.



When the scanner first receives power, the blue and white LED will toggle on and off then the scanner will beep once.



Powering the MS7120 directly from the host device can sometimes cause interference with the operation of the scanner or the computer. Not all computers supply the same current through the keyboard port. For this reason, Metrologic recommends using an external power supply. For additional information contact a Metrologic customer service representative.



See page 5.

Stand-Alone Keyboard

1. Turn off the host device.
2. Plug the male 10-pin RJ45 end of the PowerLink cable into the 10-pin socket on the MS7120.
3. Connect the other end of the PowerLink cable to the keyboard port on the host device.
4. Plug the external power supply into the power jack on the PowerLink cable.



Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet must be located near the equipment and be easily accessible.

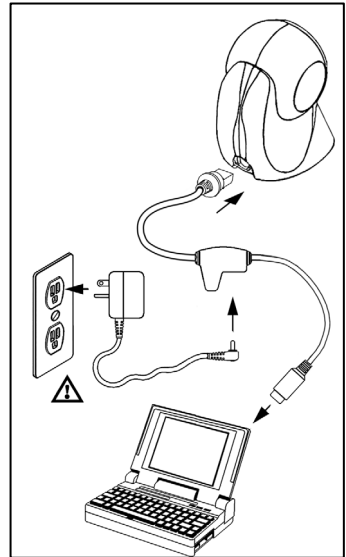


Figure 12.

5. Connect AC power to the transformer.
6. Turn on the host device.



When the scanner first receives power, the blue and white LED will toggle on and off then the scanner will beep once.



Powering the MS7120 directly from the host device can sometimes cause interference with the operation of the scanner or the computer. Not all computers supply the same current through the keyboard port. For this reason, Metrologic recommends using an external power supply. For additional information contact a Metrologic customer service representative.



See page 5.

INSTALLATION

Full Speed or Low Speed USB

1. Turn off the host device.
2. Plug the male 10-pin RJ45 end of the USB cable into the 10-pin socket on the MS7120.
3. Plug the other end of the USB interface cable into the host device's USB port.
4. Turn on the host device.



When the scanner first receives power, the blue and white LED will toggle on and off then the scanner will beep once.

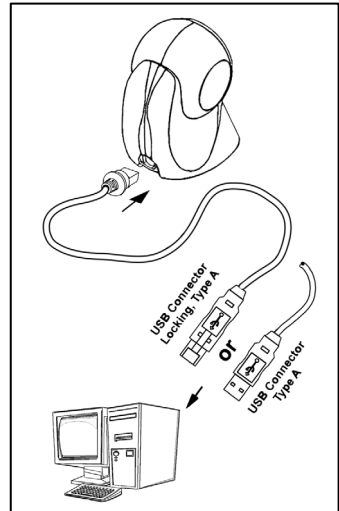


Figure 13.



As a default, the MS7120-38 leaves the factory with *USB Keyboard Emulation Mode* enabled. Scan the following bar code to configure the MS7120-38 for *USB Serial Emulation Mode*.



Plugging the scanner into the USB port of the PC does not guarantee that scanned information will appear at the PC. A software driver and the correct configuration settings are also required for proper communication to occur.

For Previous User's of the MX009

In order for the new integrated USB Orbit* to function with the same serial emulation driver as the old external USB Orbit, scan the following bar code.



* Rev L Orbits or above.

Audible Indicators

When the MS7120 is in operation, it provides audible feedback to indicate the status of the scanner. Eight settings are available for the tone of the beep (normal, six alternate tones and no tone). For instructions on how to change the tone of the beeper, refer to the MetroSelect Configuration Guide (00-02407).



One Beep

When the scanner *first* receives power the blue and white LED will toggle on and off. The scanner will beep once, then the LEDs will stop toggling and the blue LED will remain on to indicate the scanner is ready to scan.

When the scanner *successfully* reads a bar code, the white LED will flash and the scanner will emit a beep*. If the scanner does not beep once and the white light does not flash, then the bar code has *not* been successfully read.



Razzberry Tone

This is a failure indicator. Refer to *Failure Mode Indicators* on page 14.

When in *configuration mode*, a razzberry tone indicates that an invalid bar code has been scanned.



Three Beeps - During Operation

When *entering configuration mode*[†] the scanner will beep three times and the white and blue LED will start to toggle on and off. The blue LED and the white LED will toggle on and off until the scanner exits the configuration mode.

Upon *exiting configuration mode*[†], the white LED will flash three times and the scanner will beep three times. The blue LED will then stay on indicating the scanner is ready to scan.

When using *one-code-configuring*, the scanner will emit a unique beep three times after scanning. This indicates that the *single* configuration bar code has *successfully* configured the scanner.

Three beeps* can also indicate a communications timeout during normal scanning mode.



Three Beeps - On Power Up

This is a failure indicator. Refer to *Failure Mode Indicators* on page 14.

* This feature is configuration dependent. Refer to the MetroSelect Configuration Guide to enable this feature.

† Refer to the Multi-Code Configuration Method in the MetroSelect Configuration Guide.

Visual Indicators

The MS7120 is equipped with a blue and a white LED that indicates the scanner's state and the status of the current scan when the unit is in operation.

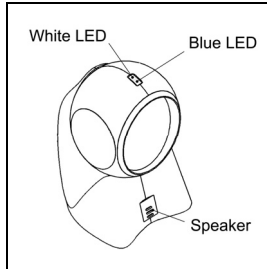


Figure 14. LED Location

No LEDs

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

Steady Blue

When the laser is active, the blue LED is illuminated. The blue LED will remain on until the laser is deactivated.

During the power save mode, the laser will turn on and off. During this period, the blue LED will remain on.

Steady Blue and Single White Flash

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

Steady White and Blue

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 white LED will remain on until the data can be transmitted.

Alternating (Toggling) Blue and White

This indicates the scanner is in configuration mode. A razzberry tone indicates that an invalid bar code has been scanned in this mode.

Failure Mode Indicators

Flashing Blue with One Razzberry Tone

This indicates that the scanner has experienced a laser subsystem failure. Return the unit to an authorized service center for repair.

Synchronized Flashing of Blue and White with Two Razzberry Tones

This indicates that the scanner has experienced a motor failure. Return the unit to an authorized service center for repair.

Three Beeps - On Power Up

If the scanner beeps three times on power up, then the nonvolatile memory that holds the scanner configuration may have failed. First, check the scanner's settings. Then, try to re-configure the scanner. If the problem persists return the unit to an authorized service center for repair.

Depth of Field Specifications*

Normal Scan Zone

Specifications are based on a 0.33 mm (13 mil) bar code.

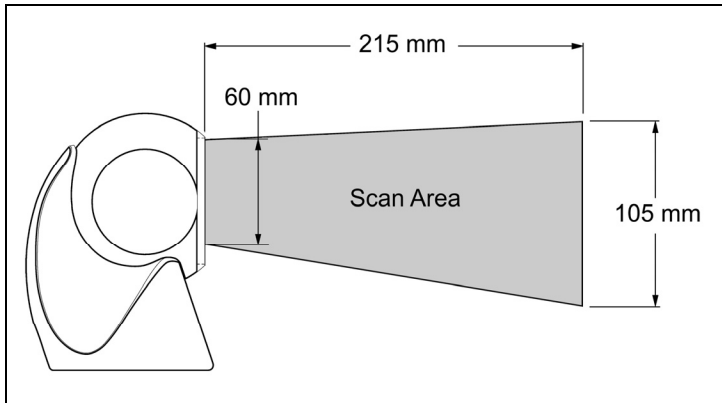


Figure 15. MS7120 Normal Depth of Field

Reduced Scan Zone

Specifications are based on a 0.33 mm (13 mil) bar code.

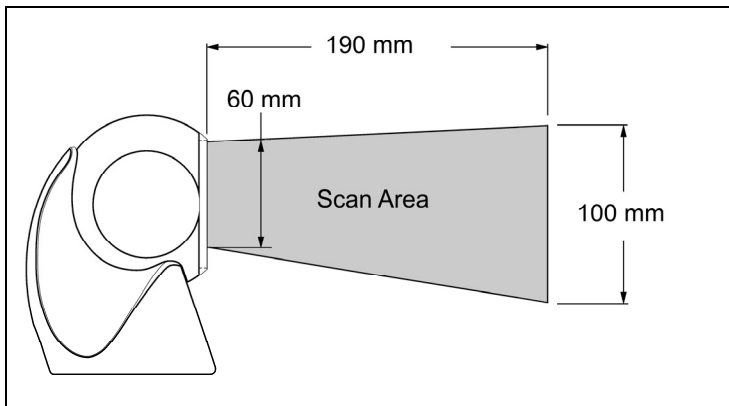


Figure 16. MS7120 Reduced Depth of Field

* All specifications are subject to change without notice.

Depth of Field by Bar Code Element Width*

Normal Scan Zone

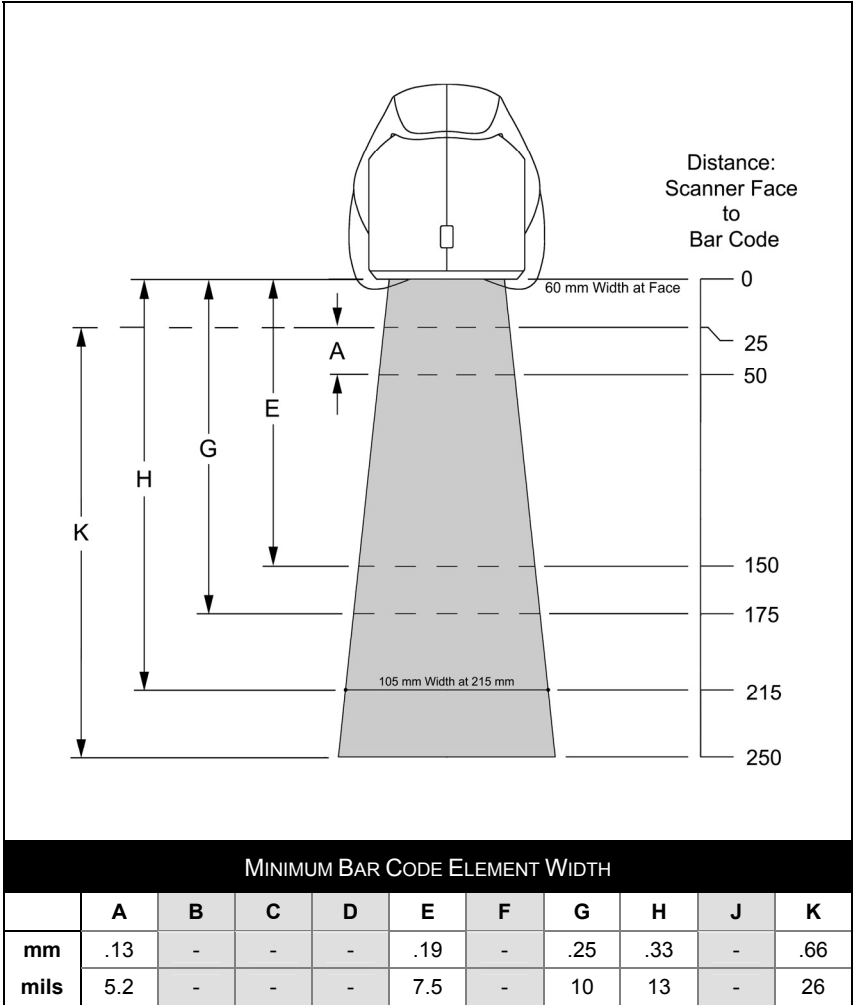


Figure 17. Normal Scan Zone by Bar Code Element Width

* All specifications are subject to change without notice.

Depth of Field by Bar Code Element Width*

Reduced Scan Zone

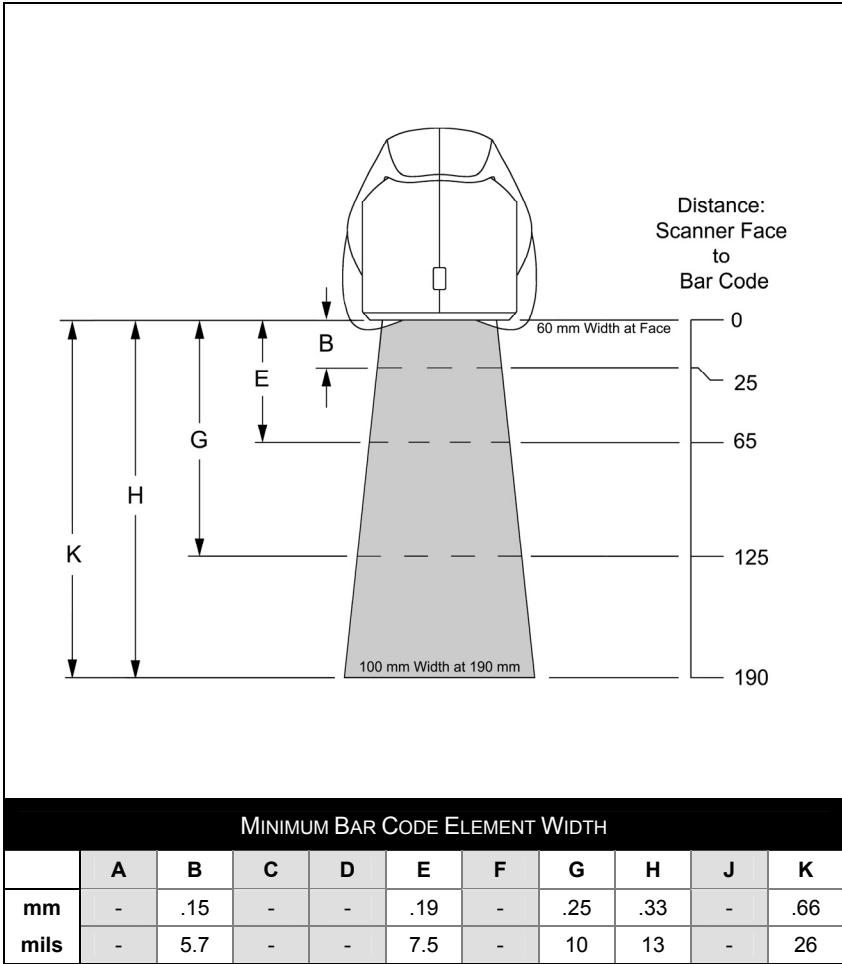


Figure 18. Reduced Scan Zone by Bar Code Element Width

* All specifications are subject to change without notice.

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 on page 38.

Symptoms	Possible Cause(s)	Solution
<i>All Interfaces</i>		
During power up the unit beeps three times.	There is a non-volatile RAM failure.	Contact a Metrologic service representative.
During power up the unit razzes once and the blue LED flashes.	There is a VLD failure.	Contact a Metrologic service representative.
During power up the unit razzes twice and both LEDs flash in unison.	There is a scanner motor failure.	Contact a Metrologic service representative.
The unit has no LEDs, beeper or motor spin.	No power is being supplied to the scanner.	Check the transformer, outlet and power strip. Make sure the cable is plugged into the scanner.
The unit has no LEDs and / or beeper.	No power is being supplied to the scanner from host.	Some host systems cannot supply enough current to power the Orbit. Use the power supply included with the scanner.
The unit powers up but does not beep.	The beeper is disabled.	Enable the beeper.
	No tone is selected.	Select a tone.

TROUBLESHOOTING GUIDE

Symptoms	Possible Cause(s)	Solution
<i>All Interfaces</i>		
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
	The scanner has been configured for a character length lock, or a minimum length and bar code being scanned does not satisfy the configured criteria.	Verify that the bar code that is being scanned falls into the criteria. <i>Typical of Non-UPC/EAN codes. The scanner defaults to a minimum of four character bar code.</i>
The unit scans a bar code, but locks up after the first scan (<i>the white LED stays on</i>).	The scanner is configured to support some form of host handshaking but is not receiving the signal.	If the scanner 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 scanner's data format does not match the host system requirements.	Verify that the scanner's data format matches the format required by the host. Make sure that the scanner is connected to the proper host port.
There are multiple scans upon presentation of code.	The same symbol timeout is set too short.	Adjust the same symbol timeout for a longer time increment.

TROUBLESHOOTING GUIDE

Symptoms	Possible Cause(s)	Solution
<i>All Interfaces</i>		
Scanner beeps at some bar codes and NOT for others of the same bar code symbology.	The bar code may have been printed incorrectly.	Check if it is a check digit, character or border problem.
	The scanner is not configured correctly for the type of bar code.	Check if check digits are set properly.
	The minimum symbol length setting does not work with the bar code.	Check if the correct minimum symbol length is set.
<i>RS232 Only</i>		
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 is 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.	
	The com port is not operating properly.	

TROUBLESHOOTING GUIDE

Symptoms	Possible Cause(s)	Solution
<i>RS232 Only</i>		
The host is receiving data but the data does not look correct.	The scanner and host may not be configured for the same interface.	Check that the scanner and the host are configured for the same interface.
Characters are being dropped.	The inter character delay needs to be added to the transmitted output.	Add some inter-character delay to the transmitted output by using the MetroSelect Configuration Guide (MLPN 00-02407).
<i>Keyboard Wedge Only</i>		
The unit scans the bar code but there is no data.	The unit may not be configured correctly.	Make sure the scanner is configured for the appropriate mode.
The unit scans but the data is not correct.	The unit may not be configured correctly.	Make sure that the proper PC type (ie. AT or PS2) is selected.
		Verify correct country code and data formatting are selected.
		Adjust the inter-scan delay.
The unit is not transmitting each character.	The unit may not be configured correctly.	Increase the inter-scan code delay setting. Adjust whether the F0 break is transmitted. It may be necessary to try both settings.
Alpha characters show as lower case.	The computer is in caps lock mode.	Enable <i>caps lock detect</i> setting 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 the current country's key, look up table.	Try operating the scanner in <i>Alt Mode</i> .

DESIGN SPECIFICATIONS

		MS7120	
Operational			
Light Source:	Visible Laser Diode (VLD) @ 650 nm		
Laser Power:	Less than 1 mW average		
Normal Depth of Field:	0 mm – 215 mm	0.33 mm (13 mil) bar code	
Reduced Depth of Field:	0 mm – 190 mm		
Scan Speed:	1120 scan lines per second		
No. of Scan Lines:	20		
Motor Speed:	3360 RPM		
Min Bar Width:	0.13 mm (5.0 mil)		
Decode Capability:	All standard 1-D bar codes including RSS-14, RSS-Expanded, and RSS-14 Limited		
System Interfaces:	RS232, Keyboard Wedge, Stand-Alone Keyboard, Light Pen Emulation, RS485 [▲] , USB (low speed and full speed)		
Print Contrast:	35% minimum reflectance difference		
No. Characters Read:	Up to 80 data characters Maximum number will vary based on symbology and density.		
Beeper Operation:	7 tones or no beep		
Indicators (LED):	Blue = laser on, ready to scan		
	White = good read, decoding		
Mechanical			
Width:	Base - 102 mm (4.0")	Orb - 80 mm (3.1")	
Depth :	105 mm (4.1")		
Height:	150 mm (5.9")		
Weight:	14.5 oz (410 g)		
Orb Tilt:	30° Vertical		

Specifications subject to change without notice.

[▲] *Applicable for IBM® Host applications.*

DESIGN SPECIFICATIONS

MS7120	
Electrical	
Voltage Supply:	5VDC \pm 0.25V
Operating Power:	0.9 W
Standby Power:	0.85 W
Operating Current:	180 mA typical at 5VDC
Standby Current:	170 mA typical at 5VDC
DC Transformers:	Class II; 5.2VDC @ 1A
<i>For regulatory compliance information, see pages 35 - 37.</i>	
Environmental	
Operating Temperature:	-20°C to 40°C (-4°F to 104°F)
Storage Temperature:	-40°C to 60°C (-40°F to 140°F)
Humidity:	5% to 95% relative humidity, non-condensing
Contaminants:	Sealed to resist airborne particulate contaminants
Ventilation:	None required

Specifications subject to change without notice.

APPLICATIONS AND PROTOCOLS

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

SCANNER	VERSION IDENTIFIER	COMMUNICATION PROTOCOL(S)
MS7120	38	RS232 Low Speed USB, Keyboard Emulation or Serial Emulation
	41	Full RS232C/Light Pen Emulation
	47	Keyboard Wedge, Stand-Alone Keyboard and RS232 Transmit/Receive
	106	RS485 [▲] and Full Speed USB

[▲] Applicable for IBM[®] Host applications.

The MS7120 scanner with built-in PC Keyboard Wedge Interface is designed to be used for keyboard emulation only. Many RS232 configurable functions (e.g. formatting) available in other Metrologic scanners are also available as keyboard wedge functions.

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

Keyboard Type

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

Keyboard Country Type

- USA **
- Belgium
- French
- German
- Hungarian
- Italian
- Japanese
- Russian Cyrillic
- Slovenian
- Spanish
- Swiss
- Sweden/Finland
- Turkish
- United Kingdom

** Default setting. For a complete list of default settings, see the *Default Settings - Communication Parameters* table starting on page 25 of this guide. Refer to the MetroSelect[®] Configuration Guide (MLPN 00-02407) or MetroSet2's help files for information on how to change the default settings.

DEFAULT SETTINGS - COMMUNICATION PARAMETERS

Many functions of the scanner can be "configured" - that is enabled or disabled. The scanner is shipped from the factory configured to a set of default conditions. The default parameter of the scanner has an asterisk (*) in the charts on the following pages. If an asterisk is not in the default column then the default setting is Off or Disabled. Every interface does not support every parameter. If the interface supports a parameter listed in the charts on the following pages, a check mark (✓) will appear.

PARAMETER	DEFAULT	RS232	LIGHT PEN	RS485 [▲]	KBW	USB
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		✓	✓	✓	✓	✓
MOD 43 Check on Code 39		✓	✓	✓	✓	✓
MSI-Plessey		✓	✓	✓	✓	✓
MSI-Plessey 10/10 Check Digit		✓	✓	✓	✓	✓
MSI-Plessey MOD 10 Check Digit	*	✓	✓	✓	✓	✓
Paraf Support		✓	✓	✓	✓	✓
ITF Symbol Lengths	Variable	✓	✓	✓	✓	✓
Minimum Symbol Length	4	✓	✓	✓	✓	✓
Symbol Length Lock	None	✓	✓	✓	✓	✓
RSS14 Enable		✓	✓	✓	✓	✓
RSS14 ID "Je0"	*	✓	✓	✓	✓	✓
RSS14 App ID "01"	*	✓	✓	✓	✓	✓
RSS14 Check Digit	*	✓	✓	✓	✓	✓
RSS Expanded Enable		✓	✓	✓	✓	✓

[▲] Applicable for IBM[®] Host applications.

DEFAULT SETTINGS - COMMUNICATION PARAMETERS

PARAMETER	DEFAULT	RS232	LIGHT PEN	RS485 [▲]	KBW	USB
Expanded ID "je0"	*	✓	✓	✓	✓	✓
RSS Limited Enable		✓	✓	✓	✓	✓
RSS Limited ID "je0"	*	✓	✓	✓	✓	✓
RSS Limited App ID "01"	*	✓	✓	✓	✓	✓
RSS Limited Check Digit	*	✓	✓	✓	✓	✓
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		✓	✓	✓	✓	✓
No Beeps on Timeout	*	✓	✓	✓	✓	✓
Enter Power Save Mode	5 mins.	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 500 msecs Configurable in 50 msec steps (MAX 6.35 seconds)	*	✓	✓	✓	✓	✓
Intercharacter Delay Configurable in 1 msec steps (MAX 255 msecs)	1 msecs 10 msecs in KBW	✓		✓	✓	✓
Number of Scan Buffers	1	✓	✓	✓	✓	✓

[▲] Applicable for IBM[®] Host applications.

DEFAULT SETTINGS - COMMUNICATION PARAMETERS

PARAMETER	DEFAULT	RS232	LIGHT PEN	RS485 [▲]	KBW	USB
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		✓	✓	✓	✓	✓
Convert EAN-8 to EAN-13		✓		✓	✓	✓
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		✓		✓	✓	✓
Transmit Code 39 Stop/Start Characters		✓		✓	✓	✓
Transmit Mod 10/ITF		✓		✓	✓	✓
Transmit MSI-Plessey Check Characters		✓		✓	✓	✓
Parity	Space	✓				
Baud Rate	9600	✓				
8 Data Bits		✓				
7 Data Bits	*	✓				
Stop Bits	2	✓				
Transmit Sanyo ID Characters		✓			✓	✓

[▲] Applicable for IBM[®] Host applications.

DEFAULT SETTINGS - COMMUNICATION PARAMETERS

PARAMETER	DEFAULT	RS232	LIGHT PEN	RS485 [▲]	KBW	USB
Nixdorf ID		✓			✓	✓
LRC Enabled		✓			✓	✓
UPC Prefix		✓			✓	✓
UPC Suffix		✓			✓	✓
Transmit AIM ID Characters		✓			✓	✓
STX Prefix		✓			✓	✓
ETX Suffix		✓			✓	✓
Carriage Return	*	✓			✓	✓
Line Feed - disabled by default in KBW	*	✓			✓	✓
Tab Prefix		✓			✓	✓
Tab Suffix		✓			✓	✓
“DE” Disable Command		✓				Serial Emulation Mode Only
“FL” Laser Enable Command		✓				Serial Emulation Mode Only
DTR Handshaking Support		✓				
RTS/CTS Handshaking		✓				
Character RTS/CTS	*	✓				
Message RTS/CTS		✓				
XON/XOFF Handshaking		✓				Serial Emulation Mode Only
ACK/NAK		✓				Serial Emulation Mode Only
Two Digit Supplements		✓	as code 39	✓	✓	✓
Five Digit Supplements		✓	as code 39	✓	✓	✓
Bookland		✓	as code 39	✓	✓	✓
977 (2 digit) Supplemental Requirement		✓	✓	✓	✓	✓

[▲] Applicable for IBM[®] Host applications.

DEFAULT SETTINGS - COMMUNICATION PARAMETERS

PARAMETER	DEFAULT	RS232	LIGHT PEN	RS485 [▲]	KBW	USB
Supplements are not Required	*	✓	✓	✓	✓	✓
Two Digit Redundancy	*	✓	✓	✓	✓	✓
Five Digit Redundancy		✓	✓	✓	✓	✓
100 msec to Find Supplement Configurable in 100msec steps (MAX 800 msec)	*	✓	✓	✓	✓	✓
Coupon Code 128		✓	as code 39	✓	✓	✓
Configurable Code Lengths	7 avail.	✓	✓	✓	✓	✓
Configurable Prefix Characters	10 avail.	✓			✓	✓
Configurable Suffix Characters	10 avail.	✓			✓	✓
Prefixes for individual Code Types		✓			✓	✓
Editing		✓	✓	✓	✓	✓
Inter Scan-Code Delay Configurable (100 µsec steps)	800 µsec				✓	
Function/Control Key Support					✓	Keyboard Emulation Mode Only
Configurable in 5.6 µsec steps	1 msec		✓			
Normal Depth of Field	*	✓	✓	✓	✓	✓
Reduced Depth of Field		✓	✓	✓	✓	✓

[▲] Applicable for IBM[®] Host applications.

CONFIGURATION MODES

The MS7120* Series scanner has three modes of configuration.

- **Bar Codes**

The MS7120 can be configured by scanning the bar codes included in the MetroSelect Configuration Guide (MLPN 00-02407). These manuals can be downloaded FREE of charge from Metrologic's website (www.metrologic.com).

- **MetroSet2**

This user-friendly Windows-based configuration program allows the end-user to simply 'point-and-click' at the desired scanner options. This program can be downloaded FREE of charge from Metrologic's website (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 Configuration Guide (MLPN 00-02407).

* *Revision L or later.*

UPGRADING THE FIRMWARE

The MS7120 is part of Metrologic's line of scanners with flash upgradeable firmware. The upgrade process requires, a new firmware file supplied to the customer by a customer service representative♦ and Metrologic's MetroSet2 software♦♦. A personal computer running Windows 95 or greater with an available RS232 serial or USB port is required to complete the upgrade.



PowerLink Cable #54-54014 is required when using RS232 for the upgrade process. This cable can be ordered from Metrologic at 1-800-ID-METRO. **Do not** use the standard cable supplied with keyboard wedge or RS485▲ scanner interface kits. If using USB for the upgrade process, the standard USB cable provided with the scanner can be used.

To upgrade the firmware in the MS7120:

1. Plug the scanner into a serial communication port on the host system.
2. Start the MetroSet2 software.
3. Click on the plus sign (+) next to *POS Scanners* to expand the supported scanner list.
4. Choose the MS7120 Orbit or Orbit(L+)* from the list.
5. Click on the Configure Orbit/7120 (L+)* Scanner button.
6. Choose *Flash Utility* from the options list located on the left side of the screen.
7. Click on the *Open File* button in the Flash Utility window.
8. Locate and open the flash upgrade file supplied by Metrologic.
9. Select the COM port that the scanner is connected to on the host system.
10. Verify the settings listed in the Flash Utility window.
11. Click on the *Flash Scanner* button to begin the flash upgrade.
12. A message will appear on the screen when the upgrade is complete.

♦ Metrologic's customer service department can be reached at 1-800-ID-METRO or 1-800-436-3876.

♦♦ MetroSet2 is available for download, at no additional cost, from <http://www.metrologic.com/corporate/download>.

* Revision L or later.

▲ Applicable for IBM® Host applications.

Scanner Pinout Connections

The MS7120 scanner interfaces terminate to a 10-pin modular socket. The serial number label indicates the interface enabled when the scanner is shipped from the factory.

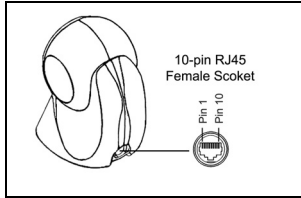


Figure 19.

MS7120-47 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

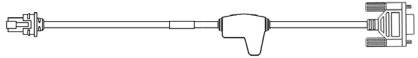
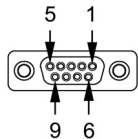
MS7120-41 RS232C and Light Pen Emulation	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input/LTPN Source
7	Reserved
8	LTPN Data
9	+5VDC
10	Shield Ground

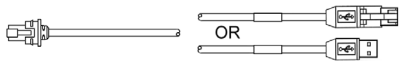


MS7120-106 RS485 [▲] and Full Speed USB	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	IBM A+
5	IBM B-
6	USB D+
7	USB +V
8	USB D-
9	+5VDC
10	Shield Ground

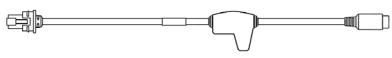

MS7120-38 RS232 Low Speed USB	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	D+
7	V USB
8	D-
9	+5VDC
10	Shield Ground

[▲] Applicable for IBM[®] Host applications.



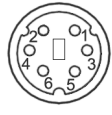
Cable Connector Configurations (Host End)

<p>“Standard” PowerLink Cable MLPN 59-59000.x-3 <i>straight</i></p>		
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	
7	CTS Input	
8	RTS Output	
9	+5VDC	

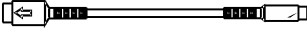
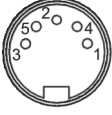
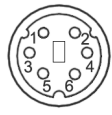
<p>USB Power/Communication Cable MLPN 54-54213.x-N-3, 54-54214.x-N-3 or 59-59235.x-N-3</p>			
Pin	Function	 <p>Locking, Type A MLPN 54-54213.x-N-3 or MLPN 54-54214.x-N-3</p>	 <p>Non-Locking, Type A MLPN 54-54214.x-N-3</p>
1	PC +5V/V_USB		
2	D-		
3	D+		
4	Ground		
Shield	Shield		

<p>Stand Alone Keyboard PowerLink Cable MLPN 59-59020.x-3</p>		
Pin	Function	 <p>6-Pin Male Mini-DIN Connector</p>
1	PC Data	
2	No Connect	
3	Power Ground	
4	+5VDC PC Power to KB	
5	PC Clock	
6	No Connect	

Cable Connector Configurations (Host End)

Keyboard Wedge PowerLink Cable 59-59002x-3		
Pin	Function	 <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>
Pin	Function	
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	 <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>
Pin	Function	
1	Keyboard Data	
2	No Connect	
3	Power Ground	
4	+5 Volts DC	
5	Keyboard Clock	
6	No Connect	

Safety

ITE Equipment

IEC 60950-1, EN 60950-1

Laser

Laser Class 1: IEC 60825-1:1993+A1+A2,
EN 60825-1:1994+A1+A2



⚠ 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..

REGULATORY COMPLIANCE

EMC

Emissions: FCC Part 15, ICES-003, CISPR 22, EN 55022
Immunity: CISPR 24, EN 55024

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

Class A Devices

The following is applicable when the scanner cable is greater in length than 3 meters (9.8 feet) when fully extended:

Les instructions ci-dessous s'appliquent aux cables de scanner dépassant 3 mètres (9.8 pieds) de long en extension maximale:

Folgendes trifft zu, wenn das Scannerkabel länger als 3 Meter ist:

This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense. Any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice

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

Remarque

Cet appareil numérique de classe A est conforme à la norme canadienne NMB-003.

European Standard

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Funkstöreigenschaften nach EN55022:1998

Warnung!

Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen. In diesem Fall kann vom Betreiber verlangt werden, angemessene Massnahmen durchzuführen.

Standard Europeo

Attenzione

Questo e' un prodotto di classe A. Se usato in vicinanza di residenze private potrebbe causare interferenze radio che potrebbero richiedere all'utilizzatore opportune misure.

Attention

Ce produit est de classe "A". Dans un environnement domestique, ce produit peut être la cause d'interférences radio. Dans ce cas l'utiliseteur peut être amené à predre les mesures adéquates.

EMC

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

Class B Devices

The following is applicable when the scanner cable is less than 3 meters (9.8 feet) in length when fully extended:

Les instructions ci-dessous s'appliquent aux câbles de scanner ne dépassant pas 3 mètres (9.8 pieds) de long en extension maximale:

Folgendes trifft zu, wenn das Scannerkabel kürzer als 3 Meter ist:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference 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

Notice

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

Remarque

Cet appareil numérique de classe B est conforme à la norme canadienne NMB-003.

LIMITED WARRANTY

The MS7120 Orbit® scanners are manufactured by Metrologic at its Suzhou, China facility. The MS7120 Orbit scanners have a three (3) year limited warranty from the date of manufacture. Metrologic warrants and represents that all MS7120 Orbit 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: (i) the case of the Product is opened by anyone other than Metrologic's repair department or authorized repair centers; or (ii) any software is installed on the Product other than a software program approved by Metrologic.

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.

CORPORATE HEADQUARTERS, NORTH AMERICA

Metrologic Instruments, Inc.
90 Coles Rd.
Blackwood, NJ 08012-4683
Customer Service Department
Tel: 1-800-ID-METRO
Fax: 856-228-6673
Email: info@metrologic.com

METROLOGIC EUROPEAN REPAIR CENTER (MERC)

Metrologic Eria Ibérica, SL
C/Alfonso Gomez, 38-40, 1D
28037 Madrid
Tel: +34 913 751 249
Fax: +34 913 270 437

MTLG AUTO ID INSTRUMENTS (SHANGHAI) Co., LTD

Suzhou Sales Office
BLK A, Room# 03/03-04
No.5 Xinghan Street, Xinsu Industrial Square
China-Singapore Suahou Industrial Park, Suzhou, PRC
Tel: 86-512-67622550
Fax: 86-512-67622560
Email: info@cn.metrologic.com

PATENTS

Patent Information

This METROLOGIC product may be covered by, but is not limited to, one or more of the following U.S. Patents:

U.S. Patent No.:

4,960,985; 5,081,342; 5,216,232; 5,260,553; 5,340,971; 5,340,973;
5,424,525; 5,468,951; 5,484,992; 5,525,789; 5,528,024; 5,557,093;
5,591,953; 5,616,908; 5,627,359; 5,637,852; 5,661,292; 5,777,315;
5,789,730; 5,789,731; 5,811,780; 5,828,048; 5,844,227; 5,925,870;
6,029,894; 6,098,885; 6,209,789; 6,257,492; 6,286,760; 6,299,067;
6,347,743; 6,412,696; 6,460,767; 6,572,018; 6,604,684; 6,619,549;
6,637,655; 6,651,890; 6,860,427; 6,863,217; 6,975,456; 7,044,383;
7,097,105; D408,806

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.

INDEX

A

AC *see power*
accessories 2, 3
adapter 9, 34

B

bar code 30
bar width 22
beep *see indicator*
blue *see indicator*

C

cable
 communication. 2, 3, 4, 7–11, 33–34
 pin assignments 32, 33–34
caution 5, 35
CE *see compliance*
class 37
communication
 parameters 25–29
compliance 5, 35, 36
configuration 30
 default 25–29
current 23
customer service 38, 42

D

DC *see power*
default settings 24, 25–29
depth of field
 normal 15, 16, 22, 29
 reduced 15, 17, 22, 29

E

EMC 36
EMI 36
emissions 36

F

flash 1

H

hole pattern 6

host 18–21

I

immunity 36
indicator
 audible. 4, 12–14, 18–21, 22, 25–29
 failure 14
 visual 4, 12–14, 18–21, 22
interface 22, 24
 Keyboard Wedge. 1, 3, 9, 21, 25–29
 Light Pen 1, 7, 25–29
 OCIA 25–29
 RS232 1, 2, 7, 20, 21, 25–29
 RS485 1, 8, 25–29
 Stand-Alone Keyboard 1, 3, 10
 USB 1, 2, 3, 11, 25–29

K

keyboard
 country 24
 type 24
keyboard emulation mode 11
Keyboard Wedge *see interface*

L

label 5
laser 4, 35
LED *see indicator*
Light Pen *see interface*
light source 22

M

maintenance 5
manual 2
MetroSelect 30
motor speed 22

N

notices 37

O

operation 37

INDEX

P

- patents..... 39
- pin assignments
 - cable 33–34
 - scanner 32
- port 7–11, 18–21
- power 2, 3, 7–11, 22, 23
- PowerLink..... *see cable*
- protocol..... 24

R

- razz *see indicator*
- RMA 38
- RS232 *see interface*
- RS485 *see interface*

S

- safety..... 35, 37
- scan lines 22
- scan pattern..... 22
- scan speed 22
- scan zone *see depth of field*
- serial emulation mode 11
- specification
 - electrical..... 23

- environmental..... 23
- mechanical 23
- operational..... 22
- Stand-Alone Keyboard *see interface*
- storage 23

T

- tone..... 1, 12
- transformer..... *see power*
- troubleshooting 18–21

U

- UL *see compliance*
- USB *see interface*

V

- ventilation..... 23
- voltage 7–11, 23
- volume 12

W

- warranty 38
- weight 22
- white *see indicator*
- window 4, 5

WORLDWIDE HEADQUARTERS

Metrologic Instruments, Inc.

90 Coles Rd. Blackwood, NJ 08012-4683 • Email: info@metrologic.com

CUSTOMER SERVICE TEL: 1-800-ID-METRO • Corporate Tel: 856-228-8100

Fax: 856-228-6673 (Sales) • 856-228-1879 (Marketing) • Fax: 856-228-0653 (Legal/Finance)

METROLOGIC - THE AMERICAS

USA

Metrologic USA - Headquarters

Tel: 1.856.537.6400

Fax: 1.856.537.6474

Email: info@us.metrologic.com

Mexico

Metrologic Mexico, S.A. DE C.V.

Tel: 55.5365.6247

Fax: 55.5362.2544

Email: info@mx.metrologic.com

South America

Metrologic do Brasil Ltda.

Tel: 52.55.11.5182.7273

Fax: 52.55.11.5182.7198

Email: info@sa.metrologic.com

South America

Metrologic South America

Tel: 1.239.642.1958

Fax: 1.239.642.1959

Email: info@sa.metrologic.com

OMNIPLANAR

USA

Tel: 856.374.5550

Fax: 856.374.5576

Email: info@omniplanar.com

NOVODISPLAY

USA

Tel: 856.537.6139

Fax: 856.537.6116

Email: info@NOVODisplay.com

METROLOGIC - EMEA

Central Europe

Metrologic Instruments GmbH Headquarters

Tel: 49-89-89019-0

Fax: 49-89-89019-200

Email: info@de.metrologic.com

France

Metrologic Eria France SA

Tel: +33 (0) 1 48.63.78.78

Fax: +33 (0) 1 48.63.24.94

Email: info@fr.metrologic.com

METROLOGIC - EMEA

Spain

Metrologic Eria Iberica, SL

Tel: +34 913 272 400

Fax: +34 913 273 829

Email: info@es.metrologic.com

Russia

Metrologic Instruments LLC

Tel: +7 (495) 737 7273

Fax: +7 (495) 737 7271

Email: info@ru.metrologic.com

Italy

Metrologic Instruments Italia

Tel: +39 0 57 6511978 or

+39 051 651 1978

Fax: +39 0 51 6521337

Email: info@it.metrologic.com

Poland

Metrologic Instruments Poland

Tel: +48 (22) 545 04 30

Fax: +48 (22) 545 04 31

Email: info@pl.metrologic.com

United Kingdom

Metrologic Instruments UK Limited

Tel: +44 (0) 1256 365900

Fax: +44 (0) 1256 365955

Email: info@uk.metrologic.com

METROLOGIC - APAC

Asia

Metrologic Asia (Pte) Ltd

Headquarters

Tel : (65) 6842-7155

Fax : (65) 6842-7166

Email: info@sg.metrologic.com

China

Suzhou Sales Office

Headquarters

Tel: 86-512-67622550

Fax: 86-512-67622560

Email: info@cn.metrologic.com

China

Beijing Sales Office

Tel/Fax: 86 10 82253472

Email: info@cn.metrologic.com

METROLOGIC - APAC

China

Chengdu Sales Office

Tel/Fax: 86 28 86200109

Email: info@cn.metrologic.com

China

Guangzhou Sales Office

Tel: 86-20-38823476

Fax: 86-20-38823477

Email: info@cn.metrologic.com

India

India Sales Office

Tel: +91 80 41256718

Fax: +91 80 41256719

Email: info@in.metrologic.com

Korea

Korea Sales Office

Tel: 82-2-6205-5379

Fax: 82-2-3444-3980

Email:

Scott.lee@kr.metrologic.com

Japan

Metrologic Japan Co., Ltd.

Tel: 81-3-3839-8511

Fax: 81-3-3839-8519

Email: info@jp.metrologic.com

Thailand

Metrologic Thailand

Tel: +662-610-3787

Fax: +662-610-3601

Email:

tawan.jandang@th.metrologic.com

China

Shanghai

Tel: 86-21-58356616

Fax: 86-21-58358873

Email: info@cn.metrologic.com

Australia

Metrologic Australia

Tel: 61 2 9652 2726

(international)

Tel: 02 9816 6470 (local)

Tel: 1 800 99 88 38 (Australia)

Email:

kmason@au.metrologic.com

May 2008

Printed in the USA



00 - 02282D