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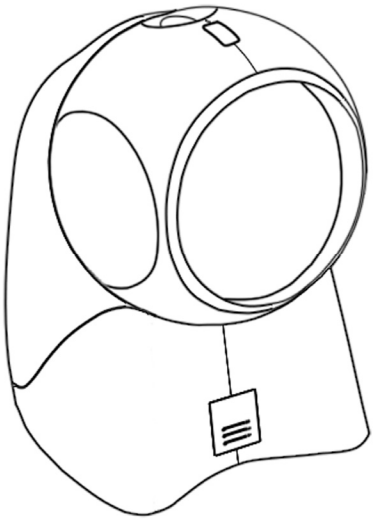
METROLOGIC INSTRUMENTS, INC.

MS7180 Orbit*CG*®
Presentation Laser Scanner
Installation and User's Guide



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INTRODUCTION

Orbit*CG*® 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*CG*'s small size makes it ideal for applications where counter space is limited. Its 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
- Secondary Single-Line Scan Mode
- CodeGate® Data Transmission Technology
- Adjustable Scan Head
- User-Replaceable Single Cable Interface To Host (PowerLink Compatible)
- Integrated EAS Antenna
- 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*CG* MODEL NUMBER	INTERFACE
MS7180-38	RS232 Low Speed USB, Keyboard Emulation Mode or Serial Emulation Mode*
MS7180-41	RS232/Light Pen Emulation
MS7180-47	Keyboard Wedge, Stand-Alone Keyboard and RS232 Transmit/Receive
MS7180-106	RS485▲, Full Speed USB and RS232 Transmit/Receive
MS7180-120	Full Speed USB with EAS

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

▲ *Applicable for IBM® Host applications.*

Scanner and Accessories

BASIC KIT COMPONENTS	
Part No.	Description
MS7180	Orbit*CG* Presentation Laser Bar Code Scanner
00-02284x	MS7180 Orbit*CG* Presentation Laser Bar Code Scanner Installation and User's Guide
00-02407x	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	120V United States, Canada and Japan
46-00526	220V-240V Continental European
46-00527	220V-240V United Kingdom
46-00528	220V-240V Australia
46-00529	220V-240V China
46-00530	220V-240V India
59-59000x -3	RS232 PowerLink Cable with Built in Power Jack straight cord
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.	

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.*

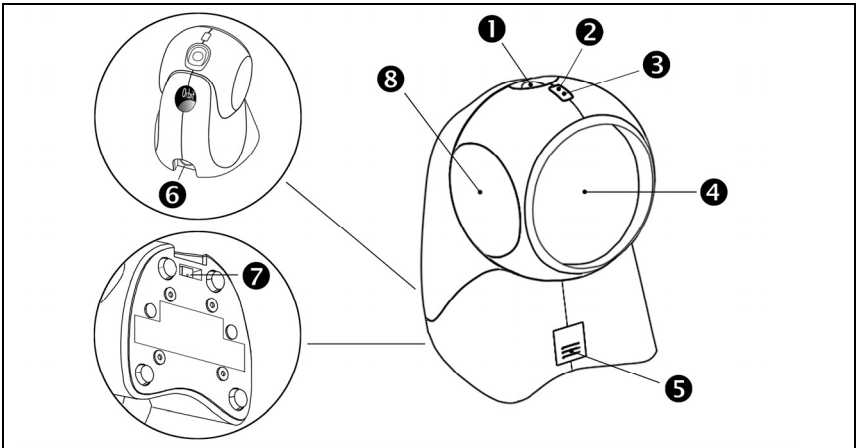
Scanner and Accessories

OPTIONAL ACCESSORIES	
Part No.	Description
59-59002*x*-3	Keyboard Wedge PowerLink Cable straight cord
59-59020*x*-3	Stand Alone Keyboard PowerLink Cable straight cord
54-54213*x*-N-3	USB Full Speed Cable, Locking Plus-Power™ Type A straight cord
54-54214*x*-N-3	USB Full Speed Cable, Locking Plus-Power™ Type A straight cord  This cable is for use with full speed USB (-106) interface only.
59-59235*x*-N-3	USB Low Speed Communication Cable, Type A straight cord
55-55000*x*-E-3	RS232 PowerLink Cable with Built in Power Jack and EAS Connection Wire, straight cable, black
55-55809*x*-N-E-3	USB, Keyed, Type A, EAS Connection Wire, straight cable, black
59-59002*x*-E-3	Keyboard Wedge PowerLink Cable with Built in Power Jack and EAS Connection Wire, straight cable, black
59-59006*x*-E-3	RS485▲ PowerLink Cable with Built in Power Jack and EAS Connection Wire, straight, black
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



ITEM NO	DESCRIPTION
1	Mode Select Button/CodeGate Button *(see page 14)*
2	White LED *(see page 17)*
3	Blue LED *(see page 17)*
4	Red Output Window (Laser Aperture)
5	Speaker *(see page 17)*
6	10-Pin RJ45, Female Socket *(see page 39)*
7	Pin Hole for Cable Release
8	Adjustable Scan Head

Figure 1. Scanner Components

Cable Removal

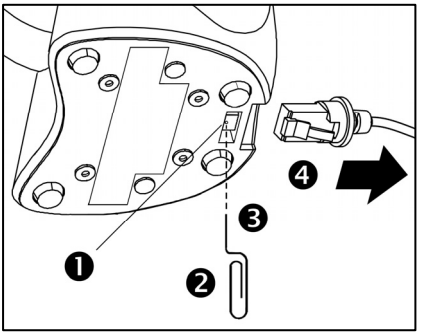


Figure 2. Cable Release

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

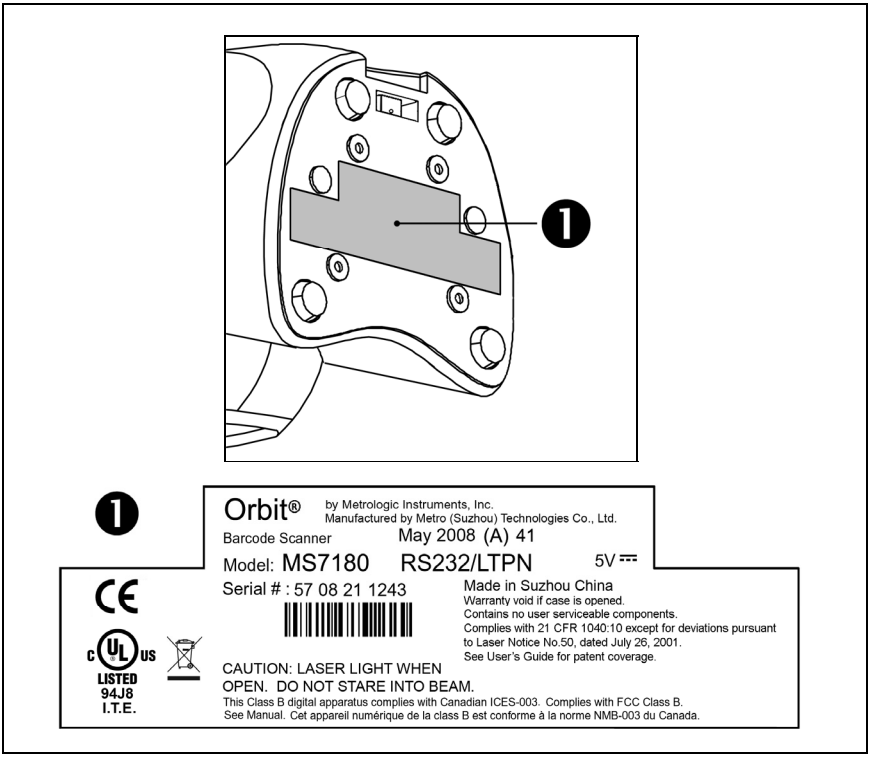


Figure 3. Label Location on the Bottom of the Scanner with Example

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, MLPN 45-45619

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

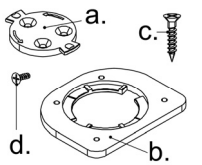


Figure 4. Kit Components

1. **Drill three #39 pilot holes.**
   Note the position Orbit*CG* 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.

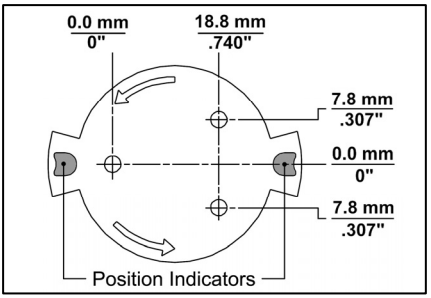


Figure 5.

2. **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)*.

3. **Attach the base plate to the Orbit*CG*.**
   Secure the base cover to the bottom of Orbit*CG* using the four M3 x 8 mm screws provided *(see Figure 7).*

4. **Mount Orbit*CG* to the locking plate.**
   Hold Orbit*CG* 90° clockwise from the desired position then lower it over the locking plate until it sits flush to the countertop. Twist Orbit*CG* counter clockwise 90° to lock the scanner in place *(see Figure 8).*

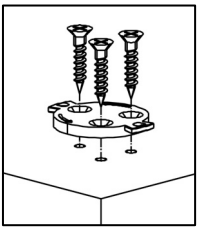


Figure 6.

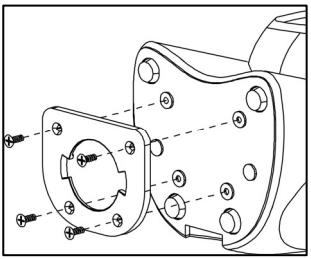


Figure 7.

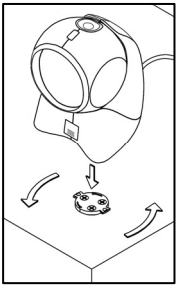


Figure 8.

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 MS7180.
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.

> STOP 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.

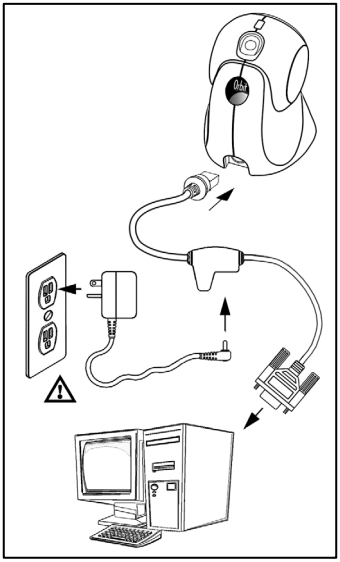


Figure 9.

> 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 may be required for proper communication to occur.

> Powering the MS7180 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. For this reason, Metrologic recommends using an external power supply. For additional information contact a Metrologic customer service representative.

> See page 5.

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 MS7180.
3. Connect the other end of the MVC cable to the host device.
4. Turn on the host device.

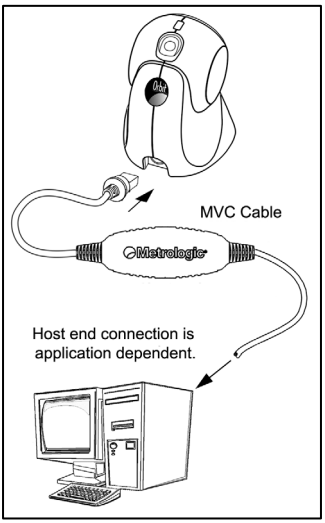


Figure 10.

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 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.*

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 MS7180.
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.

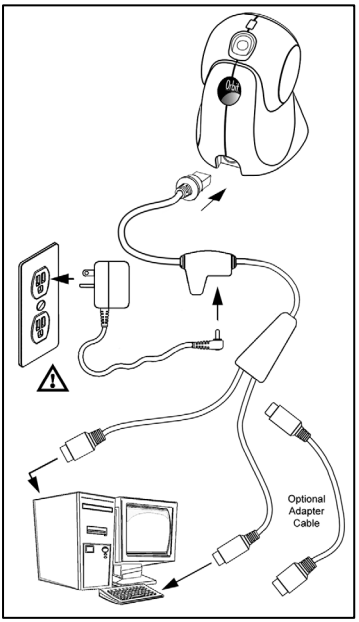


Figure 11.

> 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.

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 MS7180 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 MS7180.
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.

> STOP 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.

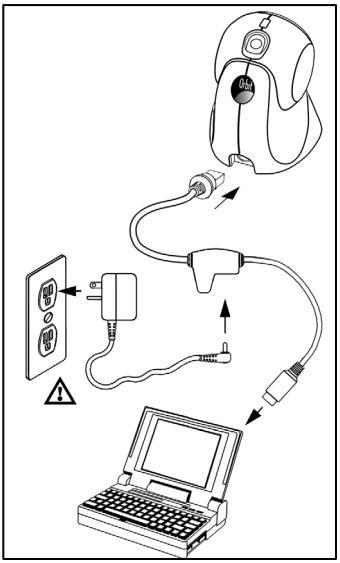


Figure 12.

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

> Powering the MS7180 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.

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 MS7180.
3. Plug the other end of the USB interface cable into the host device's USB port.
4. Turn on the host device.

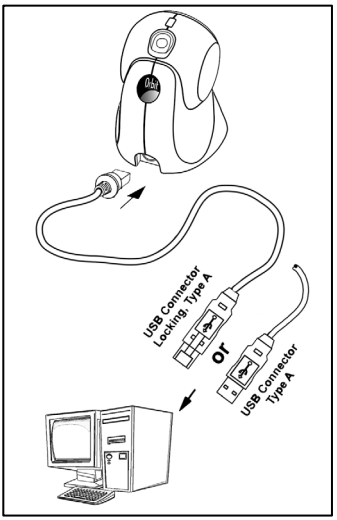


Figure 13.

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

As a default, the MS7180-**38** leaves the factory with USB Keyboard Emulation Mode enabled. Scan the following bar code to configure the MS7180-38 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 MS7120 Orbit* with an MX009:

The following bar code must be scanned in order for the new integrated USB MS7180 Orbit*CG* to function with the same serial emulation driver as the old external USB MS7120.

* Orbit models before the MS7120 rev L.

EAS Deactivation

SW1 and SW2 are the switch banks inside the Checkpoint Device that set the deactivation range. The following is a list of Checkpoint recommended switch bank settings.

Checkpoint Recommended Switch Bank Settings			
SW1		**SW2**	
RS232, Keyboard Wedge, & RS485▲			
Switch 5	ON	Switch 5	ON
Switch 1, 2, 3, 4 & 6	OFF	Switch 1, 2, 3, 4 & 6	OFF
USB			
Switch 2 & 3	ON	Switch 2 & 3	ON
Switch 1, 4, 5 & 6	OFF	Switch 1, 4, 5 & 6	OFF

All Orbit*CG* models are equipped with EAS capabilities. Orbit*CG*'s *optional* EAS cable is equipped with additional wires for connection to a Checkpoint Device.

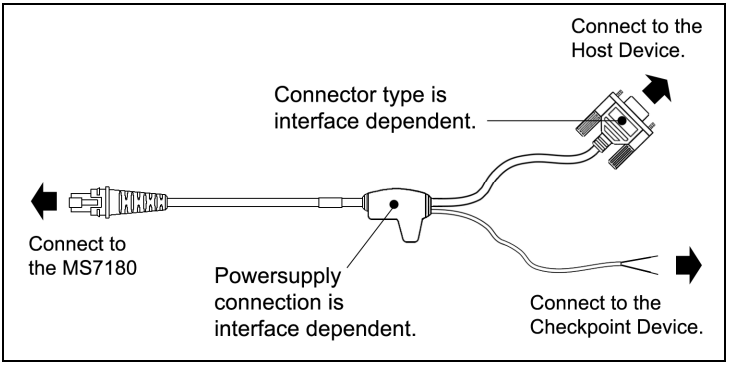


Figure 14. EAS Cable

Figure 15 shows the location of the EAS deactivation area for Orbit*CG*.

It is important to pass the entire tag through this area to deactivate the security tag.

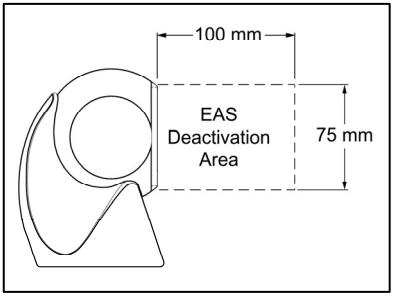


Figure 15. EAS Deactivation Area

▲ *Applicable for IBM® Host applications.*

POWER SAVE MODES

The Orbit*CG* has five configurable power save modes. Refer to the *MetroSelect Configuration Guide (MLPN 00-02407X)* for additional information on Power Save Modes.

1. The **Blink Power Save Mode** blinks the laser OFF & ON after a configured period of non-use.

   When the scanner recognizes a bar code, the scanner will exit the blink power save mode.

2. The **Laser Off Power Save Mode** turns the laser OFF after a configured period of non-use. The motor continues to spin allowing for a faster "wake" up time.

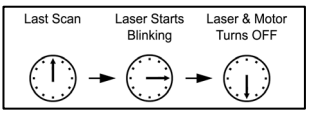
   If the button is pressed, the scanner will "wake" from the power save mode.

3. The **Laser & Motor Off Power Save Mode** turns the laser and motor OFF after a configured period of non-use.

   If the button is pressed, the scanner will "wake" from the power save mode. This mode's "wake" time is slightly longer due to the motor's need to restart.

4. The **Dual Action Power Save Mode #1** (default mode) "blinks" the laser OFF & ON after a configured period of non-use. The laser and motor will then turn OFF at the next thirty-minute interval.

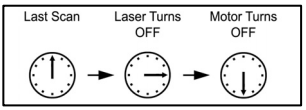
   Example:
   If the power save timeout is set to 15 minutes.



   If the button is pressed the scanner will "wake" from the power save mode.

5. The **Dual Action Power Save Mode #2** turns the laser OFF after a configured period of non-use. The motor will then turn OFF at the next thirty-minute interval.

   Example:
   If the power save timeout is set to 15 minutes.



   If the button is pressed the scanner will "wake" from the power save mode.

Primary and Secondary Scan Pattern Modes

There are two scan pattern modes available with the MS7180.

- The **primary** scan pattern mode is the default scan pattern active when the scanner starts.

- The **secondary** scan pattern mode is activated by pressing the button located on the top of the scanner. This mode is also referred to as the button mode. For additional information on Orbit*CG*'s button modes and an example of each, please refer to *Button Functions* below.

The scanner returns to the primary (omni) scan pattern mode after a double click of the button or if the unit has not scanned a bar code for the duration of a pre-configured time limit.

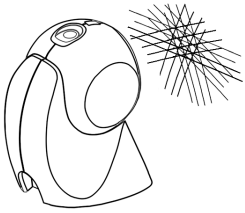
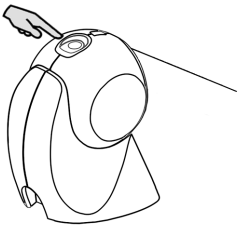
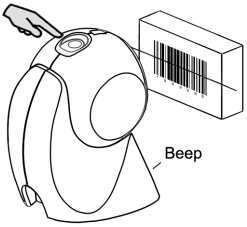
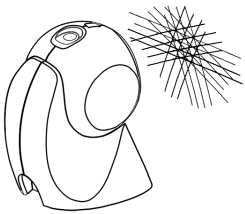
Button Functions

The button on the top of the MS7180 can be configured to function in one of two modes.

- Button *Click* Mode, with CodeGate Enabled (Default)
- Button *Click* Mode, with CodeGate Disabled

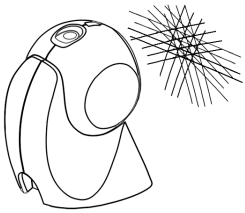
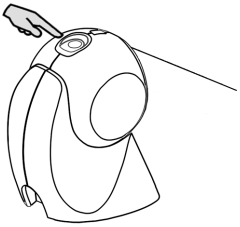
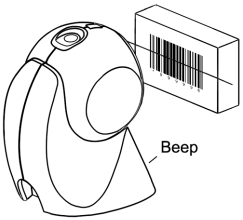
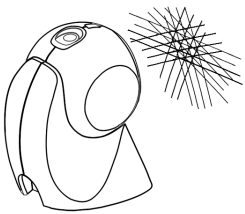
The following pages include examples of how the button will function when the unit has been configured to operate in each of the four button modes.

Configurable Button Functions

SECONDARY SCAN PATTERN BUTTON CLICK MODE WITH CODEGATE ENABLED	
	1. The primary (omni) scan pattern is active when the scanner starts.
	2. To activate the secondary (single-line) scan pattern, **press** and **release** the button.
	3. To decode and transmit the bar code, **press** and **release*** the button. The scanner will beep once.
	4. To reactivate the primary (omni) scan pattern, **double click** the button or after 5-seconds of no-scanning the unit will automatically reactivate the primary (omni) pattern.

* *The unit will continued to decode and transmit bar codes placed in the scanner's scan field if the button is held down.*

Configurable Button Functions

SECONDARY SCAN PATTERN BUTTON CLICK MODE WITH CODEGATE DISABLED	
	1. The primary (omni) scan pattern is active when the scanner starts.
	2. To activate the secondary (single-line) scan pattern, **press** and **release** the button.
	3. The unit will beep once as it decodes and transmits the bar code.
	4. To reactivate the primary (omni) scan pattern, **double click** the button or after 5-seconds of no-scanning the unit will automatically reactivate the primary (omni) pattern.

Audible Indicators

When the MS7180 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

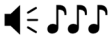
When the scanner *first* receives power the blue and white LED will toggle on and off. The scanner will beep once, then the LEDs will stop toggling and the blue LED will remain on to indicate the scanner is ready to scan.

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 19.

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



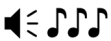
Three Beeps - During Operation

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 19.

* *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 MS7180 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.

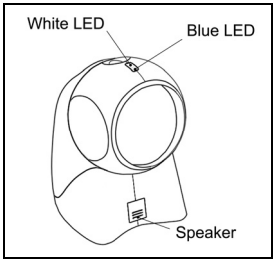


Figure 16. LED Location

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.

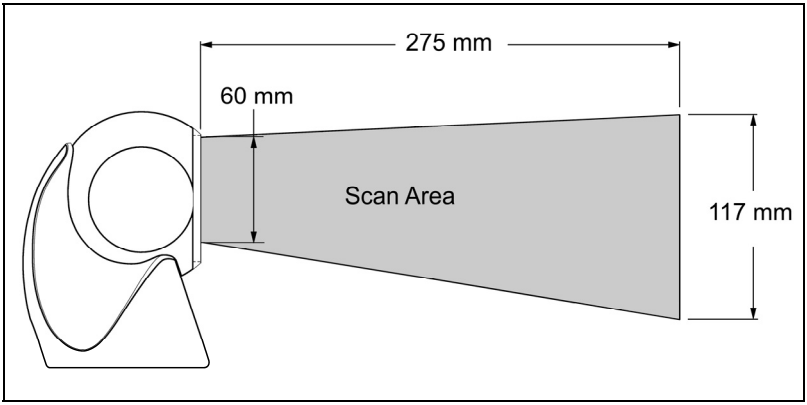


Figure 17. MS7180 Normal Depth of Field

Reduced Scan Zone

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

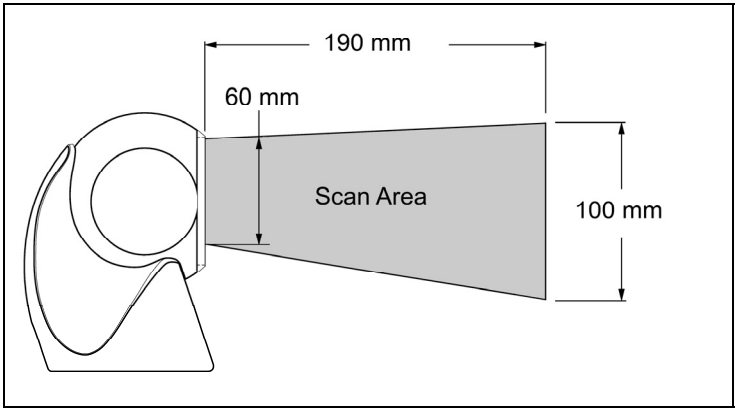
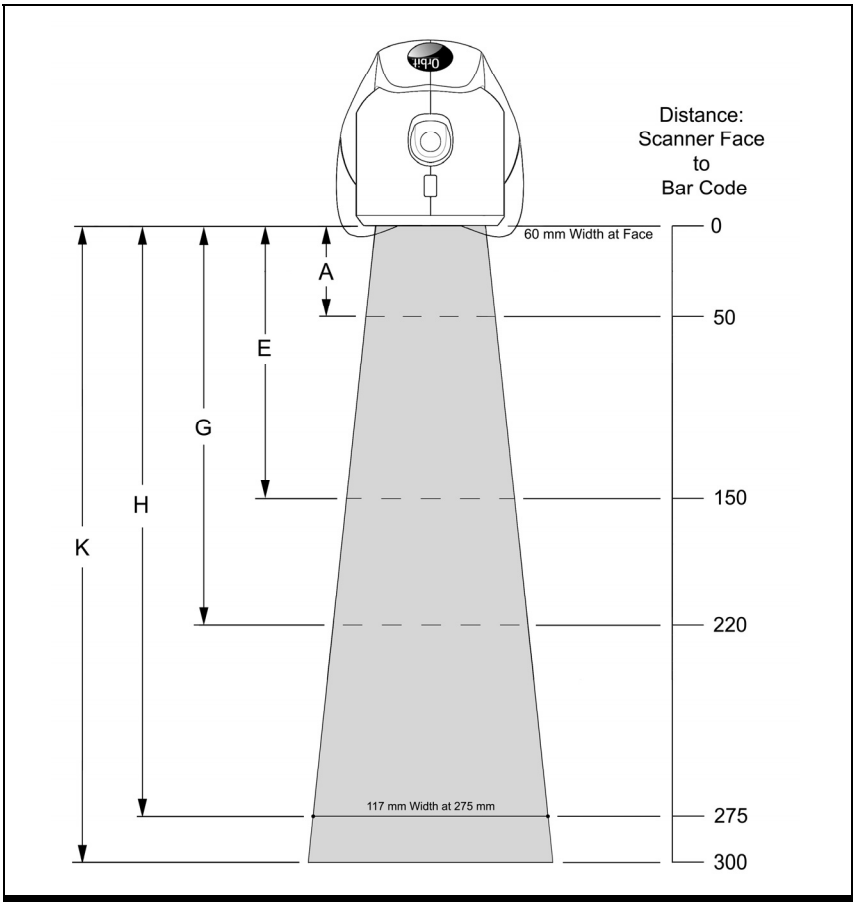


Figure 18. MS7180 Reduced Depth of Field

** All specifications are subject to change without notice.*

Depth of Field by Bar Code Element Width*

Normal Scan Zone



MINIMUM BAR CODE ELEMENT WIDTH

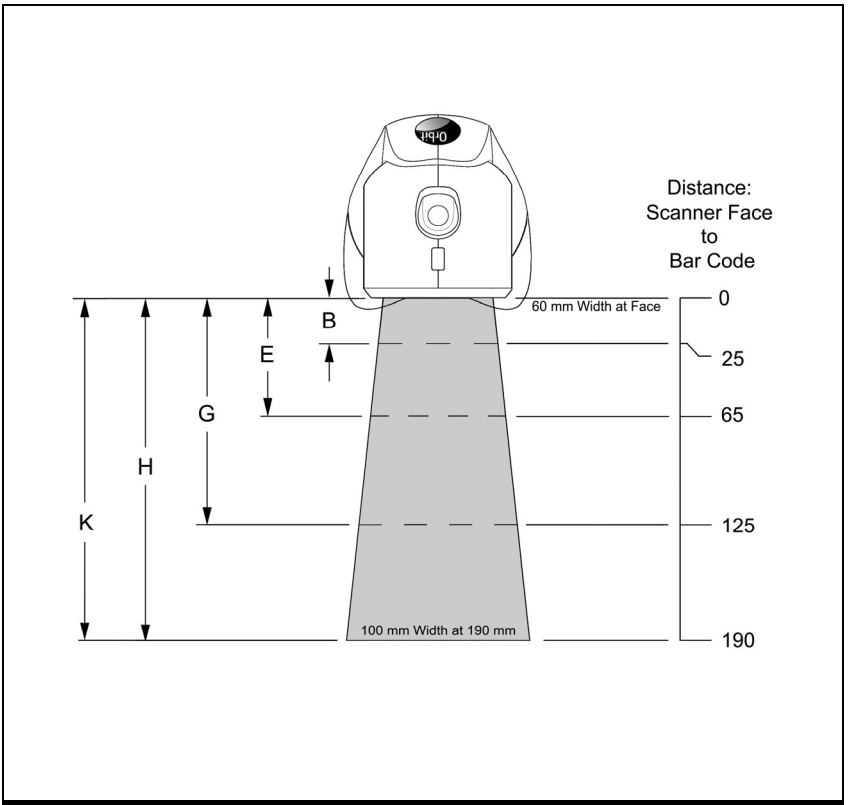
	A	B	C	D	E	F	G	H	J	K
mm	.13	-	-	-	.19	-	.25	.33	-	.66
mils	5.2	-	-	-	7.5	-	10	13	-	26

Figure 19. 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



MINIMUM BAR CODE ELEMENT WIDTH

	A	B	C	D	E	F	G	H	J	K
mm	-	.15	-	-	.19	-	.25	.33	-	.66
mils	-	5.7	-	-	7.5	-	10	13	-	26

Figure 20. 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 44.

Symptoms	Possible Cause(s)	Solution
All Interfaces		
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.	
During power up the unit razzes twice and both LEDs flash in unison.	There is a scanner motor failure.	
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 may be in power save mode.	Push the button to “wake” the unit.
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*CG*. Use the power supply included with the scanner.
	The unit may be in power save mode.	Push the button to “wake” the unit.
The unit powers up but does not beep.	The beeper is disabled.	Enable the beeper.
	No tone is selected.	Select a tone.

Symptoms	Possible Cause(s)	Solution
All Interfaces		
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. *Typical of Non-UPC/EAN codes. The scanner defaults to a minimum of 4 character bar code.*
The unit scans a bar code, but locks up after the first scan (*the white LED stays on*).	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.

Symptoms	Possible Cause(s)	Solution
All Interfaces		
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.
RS232 Only		
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.	

Symptoms	Possible Cause(s)	Solution
RS232 Only		
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 and speed.
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).
Keyboard Wedge Only		
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 (i.e. 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 *caps lock detect* 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 *Alt Mode*.

DESIGN SPECIFICATIONS

	MS7180	
Operational		
Light Source:	**V**isible **L**aser **D**iode (VLD) @ 650 nm	
Laser Power:	Less than 1 mW average	
Normal Depth of Field:	0 mm - 275 mm (0" – 10.8")	0.33 mm (13 mil) bar code
Reduced Depth of Field:	0 mm - 190 mm (0" – 7.5")	
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 are subject to change without notice.

▲ *Applicable for IBM® Host applications.*

	MS7180	
Electrical		
Voltage Supply:	5VDC ± 0.25V	
Operating Power:	0.9 W	
Standby Power:	0.85 W	
	Blink Power Save Mode	0.85 W
	Laser & Motor Off Power Save Mode	0.50 W
Operating Current:	180 mA typical at 5VDC	
Standby Current:	170 mA typical at 5VDC	
DC Transformers:	Class II; 5.2VDC @ 1 A	
For regulatory compliance information, see pages 41 - 43.		
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 are subject to change without notice.

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

SCANNER	VERSION IDENTIFIER	COMMUNICATION PROTOCOL(S)
MS7180	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▲, Full Speed USB and RS232 Transmit/Receive
	120	Full Speed USB with EAS

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The MS7180 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 Cryillic
- 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 30 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 “]e0”	*	✓	✓	✓	✓	✓
RSS14 App ID “01”	*	✓	✓	✓	✓	✓
RSS14 Check Digit	*	✓	✓	✓	✓	✓
RSS Expanded Enable		✓	✓	✓	✓	✓

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DEFAULT SETTINGS - COMMUNICATION PARAMETERS

PARAMETER	DEFAULT	RS232	LIGHT PEN	RS485▲	KBW	USB
Expanded ID "]e0"	*	✓	✓	✓	✓	✓
RSS Limited Enable		✓	✓	✓	✓	✓
RSS Limited ID "]e0"	*	✓	✓	✓	✓	✓
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	✓	✓	✓	✓	✓

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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		✓			✓	✓

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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		✓	✓	✓	✓	✓

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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 100 msec 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		✓			
CodeGate Enabled	*	✓	✓	✓	✓	✓
Scan Pattern Timeout	5 sec.	✓	✓	✓	✓	✓
Normal Depth of Field	*	✓	✓	✓	✓	✓
Reduced Depth of Field		✓	✓	✓	✓	✓

▲ *Applicable for IBM® Host applications.*

CONFIGURATION MODES

The MS7180 Series scanner has three modes of configuration.

- **Bar Codes**
  The MS7180 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).

- **MetroSet*2***
  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).

UPGRADING THE FIRMWARE

The MS7180 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 MetroSet*2* 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 MS7180:

1. Plug the scanner into a serial communication port on the host system.
2. Start the MetroSet*2* software.
3. Click on the plus sign (+) next to *POS Scanners* to expand the supported scanner list.
4. Choose the MS7180 Orbit*CG* from the list.
5. Click on the *Configure OrbitCG/7180 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.

◆◆ MetroSet*2* is available for download, at no additional cost, from http://www.metrologic.com/corporate/download.

▲ *Applicable for IBM® Host applications.*

Scanner Pinout Connections

The MS7180 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.

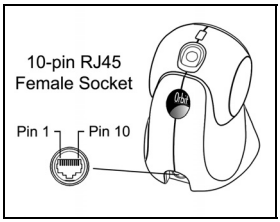


Figure 21.

MS7180-**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

MS7180-**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

MS7180-**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

MS7180-**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.*

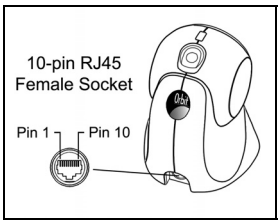
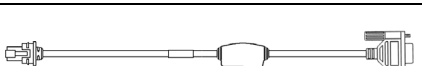


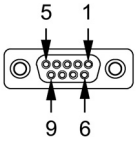
Figure 22.

MS7180-**120** Full Speed USB with EAS	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	EAS -
5	EAS +
6	USB D+
7	USB +V
8	USB D-
9	+5VDC
10	Shield Ground

Cable Connector Configurations (Host End)

"Standard" PowerLink Cable MLPN 59-59000*x*-3 *straight*	
Pin	**Function**
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

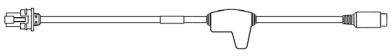


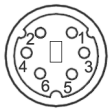


9-Pin D-Type Connector

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

Stand Alone Keyboard PowerLink Cable MLPN *59-59020x-3*	
Pin	**Function**
1	PC Data
2	No Connect
3	Power Ground
4	+5VDC PC Power to KB
5	PC Clock
6	No Connect



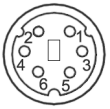


6-Pin Male Mini-DIN Connector

Cable Connector Configurations (Host End)

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

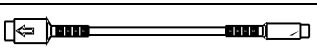
5-Pin DIN, Female

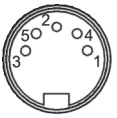


6-Pin DIN, Male

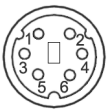
Metrologic will supply an adapter cable with a 5-pin DIN male connector on one end and a 6-pin mini DIN female connector on the other. According to the termination required, connect the appropriate end of the adapter cable to the PowerLink cable, leaving the necessary termination exposed for connecting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

Keyboard Wedge Adapter Cable	
Pin	**Function**
1	PC Clock
2	PC Data
3	No Connect
4	Power Ground
5	+5 Volts DC
Pin	**Function**
1	Keyboard Data
2	No Connect
3	Power Ground
4	+5 Volts DC
5	Keyboard Clock
6	No Connect





5-Pin DIN, Male



6-pin Mini DIN, Female

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 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..

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 métres (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 cables de scanner ne dépassant pas 3 métres (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 MS7180 Orbit*CG*® scanners are manufactured by Metrologic at its Suzhou, China facility. The MS7180 Orbit*CG* scanners have a three (3) year limited warranty from the date of manufacture. Metrologic warrants and represents that all MS7180 Orbit*CG* 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.

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PATENTS

Patent Information

This METROLOGIC product may be covered by, but 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; 6,283,375; 6,286,760; 6,299,067; 6,347,743; 6,412,696; 6,460,767; 6,572,018; 6,604,684; 6,607,133; 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

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Other worldwide patents pending.

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