

# **MS5100**

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Eclipse Series

## **User's Guide**

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# Introduction

## Product Overview

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

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

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

Many standard features are included such as: user configurable Flash ROM, PowerLink user-replaceable cables, MetroSet™2 and MetroSelect™ configuration, and data editing (parsing).

Model Number	Interface
MS5145 – 00	Laser Emulation
MS5145 – 11	RS485 <sup>◇</sup> , RS232-TXD, RXD, RTS, CTS
MS5145 – 14	RS232 - TXD, RXD, RTS, CTS, DTR, DSR
MS5145 – 38	TTL RS232 Low Speed USB, Keyboard Emulation or Serial Emulation*
MS5145 – 40	Full Speed USB
MS5145 – 41	RS232/Light Pen Emulation
MS5145 – 47	Keyboard Wedge, Stand Alone Keyboard and TTL RS232 Transmit/Receive

\* Configurable for Keyboard Emulation Mode or Serial Emulation Mode. The default setting is Keyboard Emulation Mode.

◇ Applicable for IBM® Host applications.

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## **Basic Kit Components**

<b>Part #</b>	<b>Description</b>
MS5145	Eclipse Scanner
00-02544	MetroSelect Single-Line Configuration Guide*
70-79016	MS5100 Eclipse Series User's Guide*

\* Manuals are available for download from [www.honeywellaidc.com](http://www.honeywellaidc.com).

## **Optional Accessories**

<b>Part #</b>	<b>Description</b>
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

*Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor, or customer service. See page 43 for contact information.*

Part #	Description
55-55000.x-3	RS232 PowerLink Cable with Built-in Power Jack straight cord, long strain relief, black
55-55002.x-3	Keyboard Wedge PowerLink Cable with Adapter straight cord, long strain relief, black
55-55020.x-3	Stand Alone Keyboard PowerLink Cable, straight cord, long strain relief, black
55-55235.x-N-3	USB Low Speed Communication Cable, Type A straight cord, long strain relief, black
55-55200.x-N-3	USB Full Speed Cable, Locking Plus-Power™ Type A straight cord, long strain relief, black  <i>Note:</i> This cable is for use with full speed USB (-40) interface only.
MVC**	RS485 Applications, MVC Cable, ±12VDC to +5.2VDC
** <i>Contact a customer service representative for additional information on the MVC cable series and the host connections available.</i>	
46-46633	Countertop Stand

*Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor, or customer service. See page 43 for contact information.*

## MS5145 Components

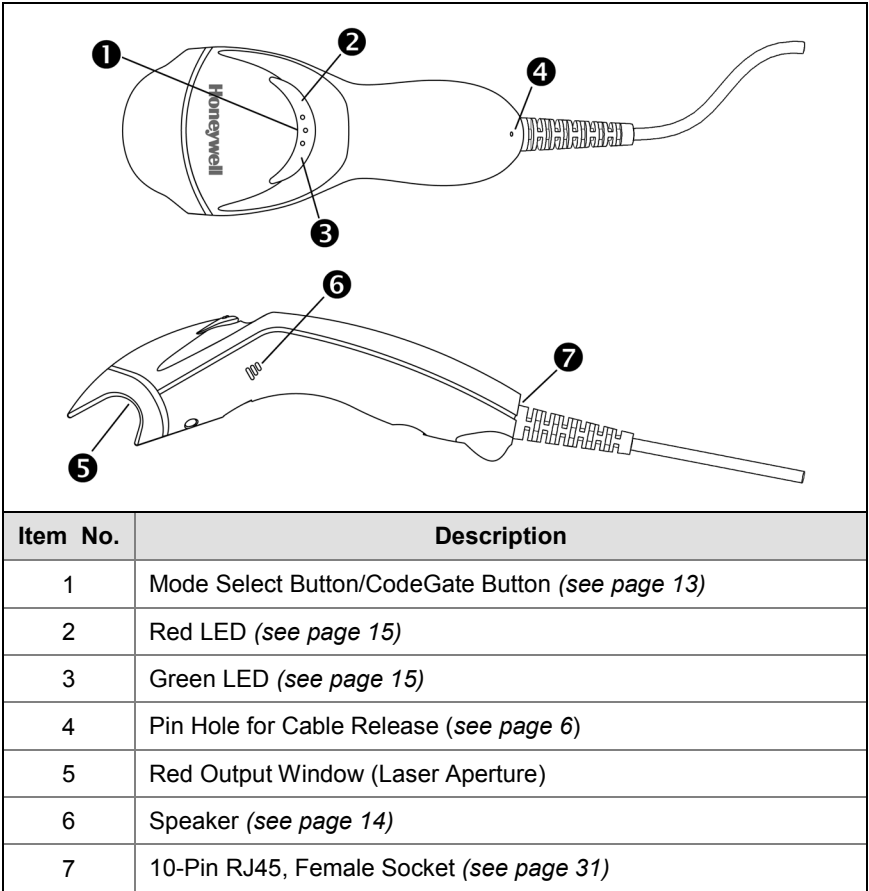


Figure 1. Scanner Components

## 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.



## Caution and Serial Number Labels

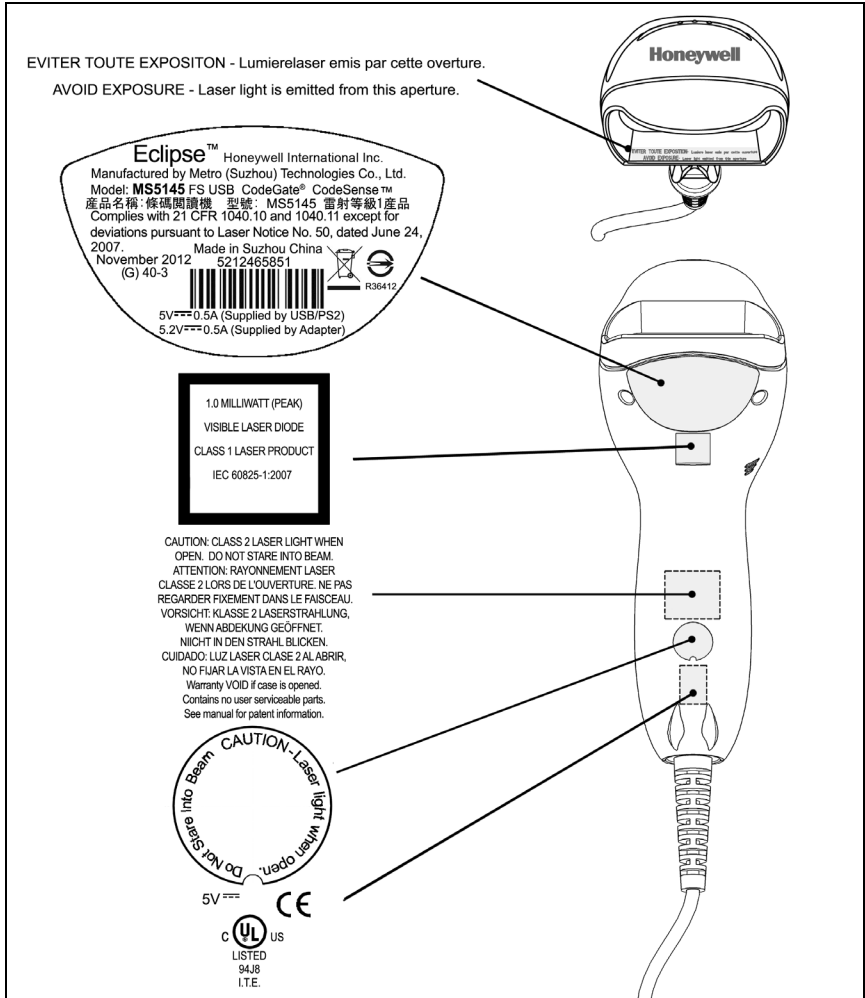


Figure 2. Label Location on the Bottom of the Scanner with Example

**Caution:** To maintain compliance with applicable standards, all circuits connected to the imager 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.

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## Cable Installation and Removal

### Installation

1. Insert the cable's modular connector into the socket on the scanner.
2. Pull gently on the cable strain relief to ensure the cable is installed.

*Note: If the PowerLink cable is not fully latched, the unit can power intermittently.*

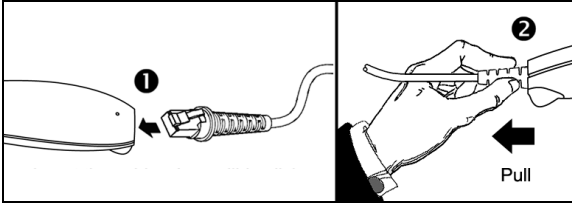


Figure 3.

### Removal

Disconnect the power supply from the PowerLink cable and turn off power to the host system before removing the cable from the scanner.

1. Locate the small 'pin-hole' on the front side of the scanner near the end of the handle.
2. Bend an ordinary paperclip into the shape shown.
3. Insert the paperclip (or other small metallic pin) into the small 'pin-hole'. There will be a faint 'click' when the connector's lock releases.
4. Pull gently on the cable's strain-relief to remove the cable.

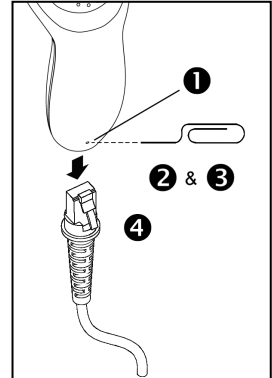


Figure 4.

# Installation

## RS232, Light Pen or Laser Emulation

1. Turn off the host system.
2. Plug the male, 10-pin RJ45 end of the PowerLink cable into the 10-pin socket on the MS5145.
3. Connect the 9-pin female end of the PowerLink cable to the appropriate communication port on the host device.
4. Plug the external power supply into the power jack on the PowerLink cable.
5. Check the AC input requirements of the power supply to make sure eth voltage matches the AC outlet. The outlet must be located near the equipment.
6. Connect AC power to the transformer.
7. Turn on the host system.

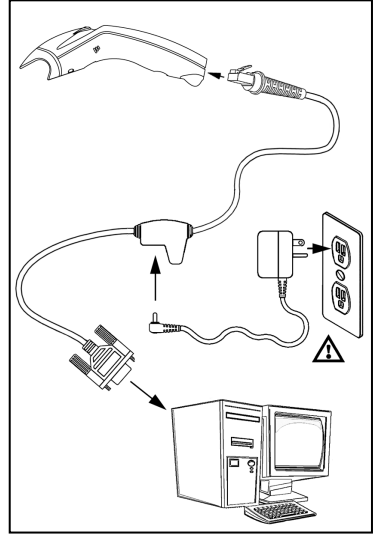


Figure 5. RS232, Light Pen, or Laser Emulation

### Installation Notes

- 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 settings are also required for proper communications to occur.
- Powering the MS5145 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, using an external power supply is recommended. For additional information, contact a customer service representative.
- All MS5145-00 scanners leave the factory with the Laser Emulation Mode enabled. If recall defaults is scanned while re-configuring the scanner the Laser Emulation Mode will no longer be enabled. Refer to the MS5145-00 Laser Emulation Mode section of the MetroSelect Single-Line Configuration Guide for information on enabling the Laser Emulation Mode.



See caution on page 5.

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## RS485

1. Turn off the host system.
2. Plug the male 10-pin RJ45 end of the MVC cable into the 10-pin socket on the MS5145.
3. Connect the other end of the MVC cable to Port 9 of the host device.
4. Turn on the host device

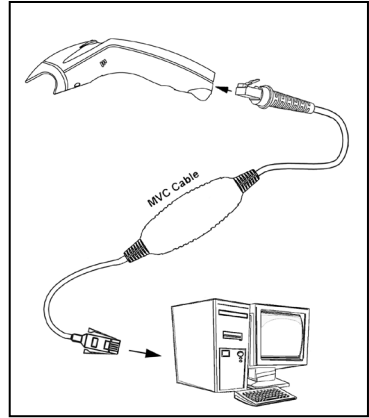


Figure 6. RS485



See caution on page 5.

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## Keyboard Wedge

1. Turn off the host system.
2. Plug the male, 10-pin RJ45 end of the PowerLink cable into the 10-pin socket on the MS5145.
3. Disconnect the keyboard from the host/PC.
4. Connect the Y ends of the PowerLink cable to the keyboard and the host's keyboard port. If necessary, use the supplied adapter cable to make the connections.
5. Plug the external power supply into the power jack on the PowerLink cable.
6. 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
7. Connect AC power to the transformer.
8. Turn on the host system.

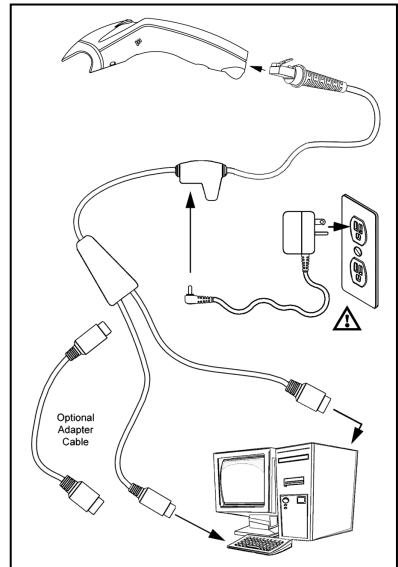


Figure 7. Keyboard Wedge

### Installation Note

Powering the MS5145-47 directly from the computer can sometimes cause interference with the operation of the scanner or the computer. Not all computers supply the same current through the keyboard port, explaining why a scanner may work on one computer and not another. Contact a customer service representative if an external power supply is required.



See caution on page 5.

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## Stand-Alone Keyboard

1. Turn off the host system.
2. Connect the 10-pin RJ45 male connector into the jack on the Eclipse. There will be a 'click' when the connection is made.
3. Connect the L-shaped plug of the power supply into the power jack on the PowerLink cable.
4. Make sure the AC input requirements of the power supply match the AC outlet. Connect the power supply into an AC outlet. The outlet should be near the equipment and easily accessible.
5. Connect the PowerLink cable to the keyboard port on the host system.
6. Turn on the host system.

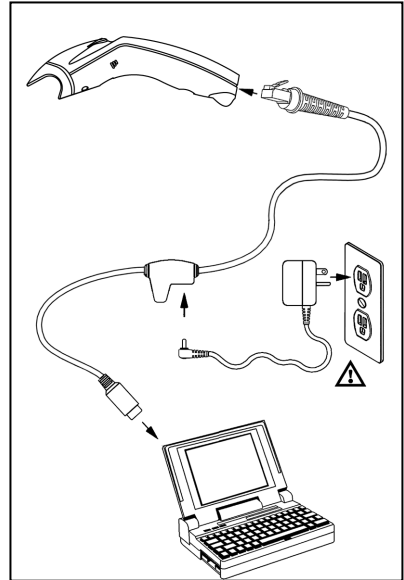


Figure 8. Stand-Alone Keyboard

### Installation Note

*Powering the MS5145-47 directly from the computer can sometimes cause interference with the operation of the scanner or the computer. Not all computers supply the same current through the keyboard port, explaining why a scanner may work on one computer and not another. Contact a customer service representative if an external power supply is required.*



See caution on page 5.

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## **USB: Low Speed USB (-38) Full Speed USB (-40)**

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

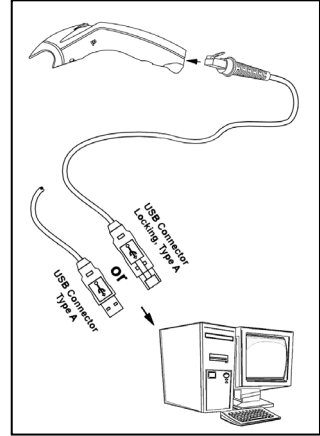


Figure 9. USB

### **Installation Notes**

- As a default, the MS5145-38 leaves the factory with USB Keyboard Emulation Mode enabled.
- For information on configuring the MS5145-38 for USB Serial Emulation Mode, please refer to the USB section of the MetroSelect Single-Line Configuration Guide..
- Plugging the scanner into a port on the host system does not guarantee that scanned information will be communicated properly to the host system. All Eclipse's are shipped already configured with a set of factory defaults. Please refer to the MetroSelect Single-Line Configuration Guide or MetroSet2's help files for instructions on changing the scanner's factory default configuration. The scanner and host system must use the same communication protocols.



See caution on page 5.





# Scanner Operation

## Modes of Operation

### CodeGate<sup>®</sup>, Out-of-Stand

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

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

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

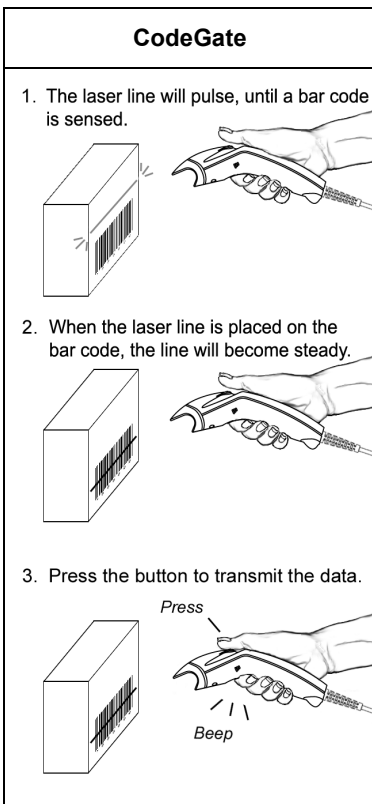


Figure 10. CodeGate Enabled

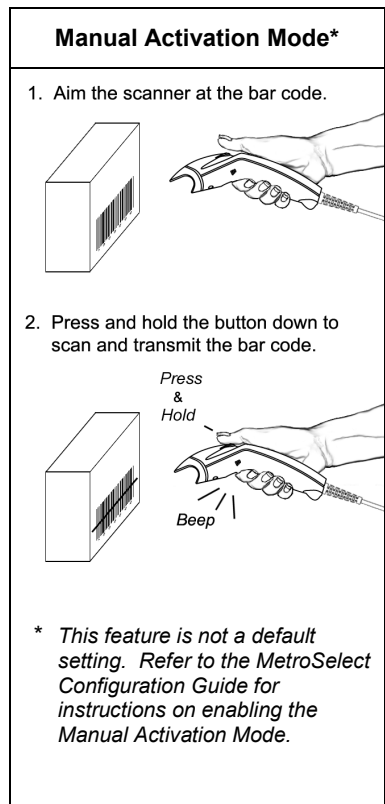


Figure 11. Manual Activation Mode

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## ***Audible Indicators***

When the MS5145 scanner is operational, the scanner provides audible feedback to indicate the status of the scanner and the last scan. 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 Single-Line MetroSelect Configuration Guide.

### ***One Beep – On Power Up***

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

### ***One Beep – During Operation***

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

### ***Three Beeps – During Operation***

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

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

### ***Three Beeps – On Power Up***

This is a failure indicator. Refer to the Failure Modes section of this guide on page 16.

### ***Razzberry Tone***

This is a failure indicator or an invalid code read during configuration mode. Refer to the Failure Modes section of this guide on page 16.

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## Visual Indicators

The MS5145 is equipped with a red LED and green LED, which indicate the scanner's state and the status of the current scan when the unit is in operation.

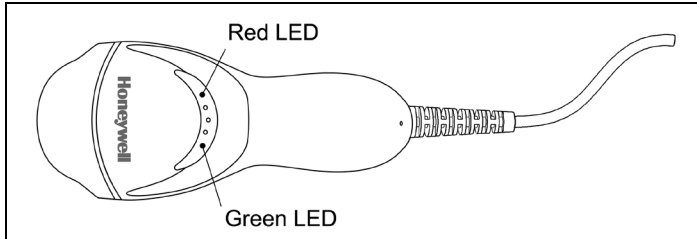


Figure 12. LED Color and Location

### ***Green and Red LEDs Are Off***

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

### ***Steady Green***

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

### ***Flashing Green***

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

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

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

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

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

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

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

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## ***Failure Modes***

### ***One Razzberry Tone – On Power Up***

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

### ***Continuous Razzberry Tone with no LEDs***

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

### ***Three Beeps – On Power Up***

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

# Depth of Field by Bar Code Element Width

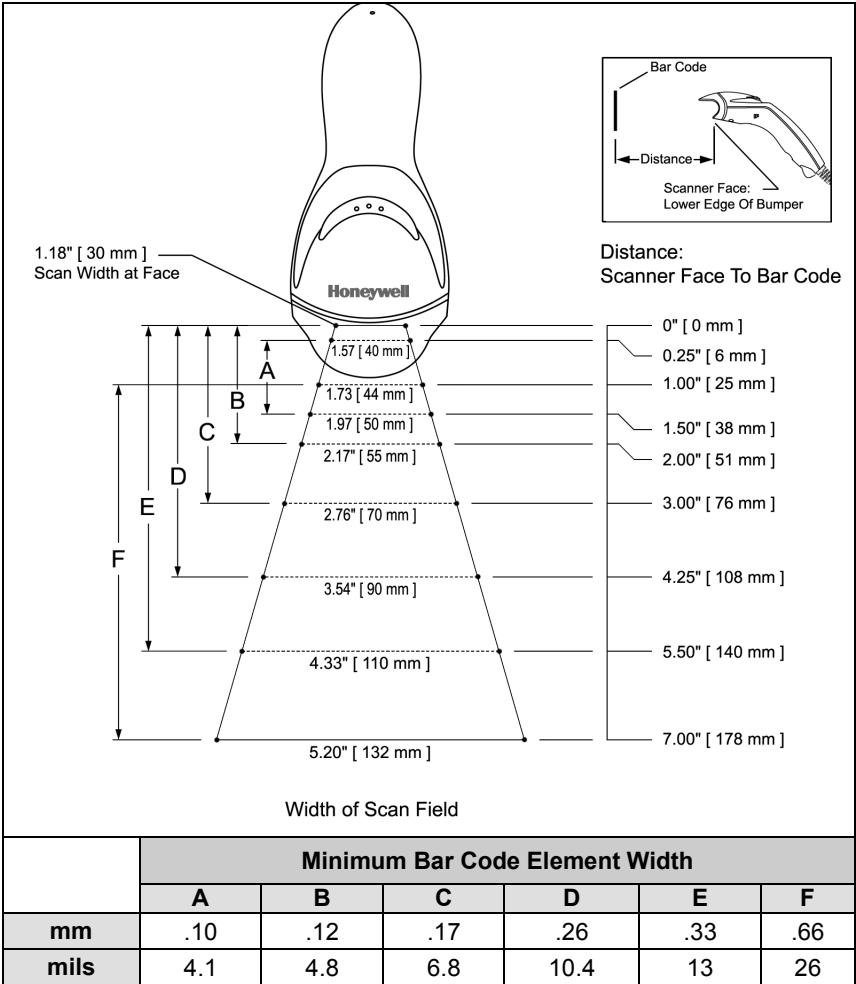


Figure 13. Depth of Field by Bar Code Element Width



# Troubleshooting Guide

The following guide is for reference purposes only. Contact a customer service representative (see page 43) to preserve the limited warranty terms.

Symptoms	Possible Causes	Solution
<i>All Interfaces</i>		
The unit has no LEDs, beep or laser.	No power is being supplied to the unit.	Check the transformer, the outlet and power strip. Make sure the cable is plugged into the unit.
	No power is being supplied to the unit from host.	Some host systems cannot supply enough current to power the Eclipse. A power supply may be needed.
At power up the unit beeps two times and alternately flashes the LEDs.	There is a ROM failure.	A flash ROM upgrade is required.
At power up the unit beeps three times.	There is a non-volatile RAM failure.	Contact a customer service representative.
At power up there is a continuous razz tone.	There has been a diagnostic failure.	
At power up there is a razz tone and the green LED flashes.	There is a VLD failure.	
At power up there is a razz tone and both LEDs flash.	There is a scanning mechanism failure.	
The unit scans, communicates and beeps twice.	The same symbol timeout is set too short.	Adjust the same symbol timeout for a longer time.
The unit powers up, but does not beep.	The beeper may be disabled or no tone has been selected.	Enable beeper and select a tone.

Symptoms	Possible Causes	Solution
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 the type of bar code being read has been selected.
The unit powers up, but does not scan and/or beep.	The bar code being scanned does not satisfy the configured criteria for character length lock or minimum length.	Verify the bar code being scanned falls into the configured criteria.  <i>The scanner defaults to a minimum of three-character bar code.</i>
<b>TTL RS232 &amp; Serial Emulation USB Interfaces</b>		
The unit scans a bar code, but locks up after the first scan and the red LED stays on.	The unit is configured to support some form of host handshaking but is not receiving the signal.	If the unit is setup to support ACK/NAK, RTS/CTS, XON/XOFF or D/E, verify that the host cable and host are supporting the handshaking properly.
The unit scans, but the data transmitted to the host is incorrect.	The unit's data format does not match the host system's requirements.	Verify the unit's data format matches that required by the host. Make sure that the unit is connected to the proper host port.
The unit beeps at some bar codes but NOT for others of the same bar code symbology.	The bar code may have been printed incorrectly.	Check if it is a check digit/character/or border problem.
	The unit is not configured correctly for the type of bar code being scanned.	
	The minimum symbol length setting does not work with the bar code.	Check if the correct minimum symbol length is set.
<b>Keyboard Wedge Interface</b>		
The unit scans the bar code but there is no data.	The unit's configuration is not correct.	Make sure the scanner is configured for the appropriate mode.



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



# Design Specifications

## Operational

Light Source:	<u>V</u> isible <u>L</u> aser <u>D</u> iode (VLD) @ 650 nm	
Laser Power:	Less than 1.0 mW average	
Embedded Laser:	Max Power:	10 mW
	Wavelength:	650 nm
Depth of Scan Field:	0 mm – 140 mm (0" – 5.5")	0.33 mm (13 mil) Bar Code
Scan Speed:	72 ± 2 scan lines per second	
Scan Pattern:	Single scan line	
Minimum Bar Width:	0.089 mm (3.5 mil)	
Decode Capability:	Autodiscriminates all standard bar codes. For other code types, call a customer service representative.	
System Interfaces:	RS232, Keyboard Wedge, USB, Light Pen Emulation, RS485, Stand Alone Keyboard	
Print Contrast:	35% minimum reflectance difference	
No. Characters Read:	Up to 80 data characters. The maximum number will vary based on symbology and density.	
Roll, Pitch, Yaw:	38°, 67°, 52°	
Beeper Operation:	7 tones or no beep	
Indicators (LED):	Red = good read	
	Green = laser on, ready to scan	

## Mechanical

	Length:	170 mm (6.7")
Width	Head:	63 mm (2.5")
	Handle:	39 mm (1.5")
Height	Head:	35 mm (1.4")
	Handle:	31 mm (1.2")
	Weight:	100.8 g (3.56 oz)

*Specifications subject to change without notice.*

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## **Electrical**

Input Voltage:	5VDC $\pm$ 0.25V	
Power:	Operating:	675 mW
Current:	Operating:	135 mA average @ 5VDC
DC Transformers:	Class II; 5.2VDC @ 1A	
<i>For regulatory compliance information, see pages 37 – 39.</i>		

## **Environmental**

Temperature:	Operating:	0°C to 40°C (32°F to 104°F)
	Storage:	-40°C to 60°C (-40°F to 140°F)
Humidity:	5% to 95% relative humidity, non-condensing	
Light Levels:	Up to 4842 Lux (450 footcandles)	
Shock:	Designed to withstand 1.5 m (5 ft.) drops	
Contaminants:	Sealed to resist airborne particulate contaminants	
Ventilation:	None required	

*Specifications subject to change without notice.*

# Applications and Protocols

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

Scanner	Version Identifier	Communication Protocol(s)
MS5145	00	Laser Emulation
	11	RS485, RS232 - TXD, RXD, RTS, CTS
	38	Low Speed USB, Serial Emulation or Keyboard Emulation
	40	Full Speed USB
	41	RS232/Light Pen Emulation
	47	Keyboard Wedge
	48	Keyboard Wedge, Stand-Alone Keyboard

The MS5145 Keyboard Wedge Series (-47) is designed for keyboard emulation only. Many RS232 configurable functions available in other Honeywell scanners are also available as keyboard wedge functions.

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

## Keyboard Type

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

## Keyboard Country Type

- \*\*USA
- Belgian
- French
- German
- Hungarian
- Italian
- Japanese
- Russian Cyrillic
- Slovenian
- Spanish
- Swiss
- Swedish/Finnish
- Turkish
- United Kingdom

\*\* Indicates a default setting. For information on how to change the default settings, refer to the help files in MetroSet2, the MetroSelect Single-Line Configuration Guide or the Area-Imaging Supplemental Configuration Guide.



# Configuration and Upgrades

## Configuration Modes

The MS5145 Eclipse has three modes of configuration.

- **Bar Codes**

The Eclipse can be configured by scanning the bar codes located in the MetroSelect® Single-Line Configuration Guide. This manual is available for download at [www.honeywellaidc.com](http://www.honeywellaidc.com).

- **MetroSet®2**

This user-friendly Windows®-based configuration program allows you to simply 'point-and-click' at the desired scanner options. MetroSet2 is available for download at [www.honeywellaidc.com](http://www.honeywellaidc.com).

- **Serial Programming**

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

### *How does Serial Configuration work?*

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

**EXAMPLE #1:**

Command for Disabling Codabar

Command = [stx]100104[etx]

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

(All values are hexadecimal).

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

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

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

**EXAMPLE #2:**

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

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

The scanner will beep three times!

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

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



---

### EXAMPLE #3:

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

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

The scanner will beep three times!

This example illustrates two important points.

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

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

ABBREVIATED ASCII TABLE

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

---

## Upgrading the Firmware

The MS5145 is part of Honeywell'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 Honeywell'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.

*Note:* PowerLink cable #54-54014 is required when using RS232 for the upgrade process. To order this cable contact a customer service representative. 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 MS5145:

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 MS5145 Eclipse from the list.
5. Click on the *Configure Eclipse/5145 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.
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.

♦ See *Contact Information* on page 43.

♦♦ *MetroSet2 is available for download, at no additional cost, from [www.honeywellaidc.com](http://www.honeywellaidc.com).*

# Scanner and Cable Terminations

## Scanner Pinout Connections

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

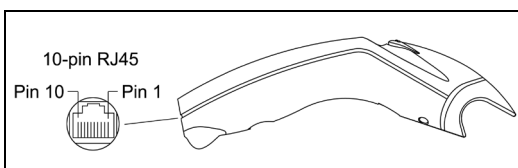


Figure 14.

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

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

MS5145-11 RS485	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input
7	IBM B-Transmit
8	IBM A+ Receive
9	+5VDC
10	Shield Ground

## Scanner Pinout Connections

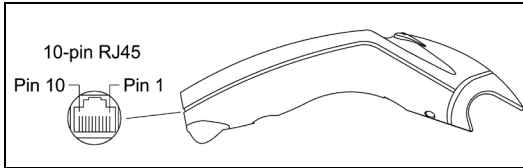

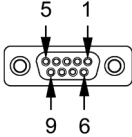


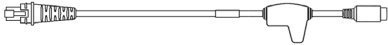
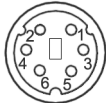
Figure 15.

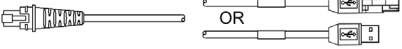


MS5145-00 Laser Emulation	
Pin	Function
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	Flip Sense/Start of Scan Output
5	Proximity Detect/ Trigger Emulation Output
6	Scan/Laser Enable Input
7	Reserved
8	Data Out
9	+5VDC
10	Shield Ground

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




## Cable Connector Configurations

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



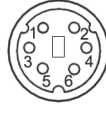
Stand Alone Keyboard PowerLink Cable, 55-55020x-3		
Pin	Function	 <p>6-Pin Male Mini-DIN Connector</p>
1	PC Data	
2	NC	
3	Power Ground	
4	+5VDC PC Power to KB	
6	NC	

USB Communication 55-55235.x-N-3 or 55-55200.x-N-3		
Pin	Function	 <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>Locking, Type A mlpn 54-54213.x-N-3 or mlpn 54-54214.x-N-3</p>

## Cable Connector Configuration

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

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

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



## **Limited Warranty**

Honeywell International Inc. ("HII") warrants its products and optional accessories to be free from defects in materials and workmanship and to conform to HII's published specifications applicable to the products purchased at the time of shipment. This warranty does not cover any HII product which is (i) improperly installed or used; (ii) damaged by accident or negligence, including failure to follow the proper maintenance, service, and cleaning schedule; or (iii) damaged as a result of (A) modification or alteration by the purchaser or other party, (B) excessive voltage or current supplied to or drawn from the interface connections, (C) static electricity or electro-static discharge, (D) operation under conditions beyond the specified operating parameters, or (E) repair or service of the product by anyone other than HII or its authorized representatives.

This warranty shall extend from the time of shipment for the duration published by HII for the product at the time of purchase ("Warranty Period"). Any defective product must be returned (at purchaser's expense) during the Warranty Period to HII factory or authorized service center for inspection. No product will be accepted by HII without a Return Materials Authorization, which may be obtained by contacting HII. In the event that the product is returned to HII or its authorized service center within the Warranty Period and HII determines to its satisfaction that the product is defective due to defects in materials or workmanship, HII, at its sole option, will either repair or replace the product without charge, except for return shipping to HII.

EXCEPT AS MAY BE OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER COVENANTS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, ORAL OR WRITTEN, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

HII'S RESPONSIBILITY AND PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT WITH NEW OR REFURBISHED PARTS. IN NO EVENT SHALL HII BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND, IN NO EVENT, SHALL ANY LIABILITY OF HII ARISING IN CONNECTION WITH ANY PRODUCT SOLD HEREUNDER (WHETHER SUCH LIABILITY ARISES FROM A CLAIM BASED ON CONTRACT, WARRANTY, TORT, OR OTHERWISE) EXCEED THE ACTUAL AMOUNT PAID TO HII FOR THE PRODUCT. THESE LIMITATIONS ON LIABILITY SHALL REMAIN IN FULL FORCE AND EFFECT EVEN WHEN HII MAY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH INJURIES, LOSSES, OR DAMAGES. SOME STATES, PROVINCES, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

---

All provisions of this Limited Warranty are separate and severable, which means that if any provision is held invalid and unenforceable, such determination shall not affect the validity of enforceability of the other provisions hereof. Use of any peripherals not provided by the manufacturer may result in damage not covered by this warranty. This includes but is not limited to: cables, power supplies, cradles, and docking stations. HII extends these warranties only to the first end-users of the products. These warranties are non-transferable.

The duration of the limited warranty for the MS5145 is three (3) year(s). The accessories have a 90 day limited warranty from the date of manufacture.



# Regulatory Compliance

## Safety

### ITE Equipment

IEC 60950-1 Second Edition  
EN 60950-1 Second Edition



### Laser

Laser Class 1: IEC 60825-1: Second Edition, 2007,  
EN 60825-1: Second Edition, 2007

### LED

IEC 62471: Exempt Risk Group

#### ⚠ 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..

## **EMC**

### *Emissions*

FCC Part 15, ICES-003, CISPR 22, EN 55022

### *Immunity*

CISPR 24, EN 55024

*Note:* Immunity performance is not guaranteed for scanner cables greater than 3 meters in length when fully extended.

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.

**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.

**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.

**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.

---

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.

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# *Customer Support*

## *Technical Assistance*

If you need assistance installing or troubleshooting your device, please contact us by using one of the methods below:

**Knowledge Base:** [www.hsmknowledgebase.com](http://www.hsmknowledgebase.com)

Our Knowledge Base provides thousands of immediate solutions. If the Knowledge Base cannot help, our Technical Support Portal (see below) provides an easy way to report your problem or ask your question.

**Technical Support Portal:** [www.hsmsupportportal.com](http://www.hsmsupportportal.com)

The Technical Support Portal not only allows you to report your problem, but it also provides immediate solutions to your technical issues by searching our Knowledge Base. With the Portal, you can submit and track your questions online and send and receive attachments.

**Web form:** [www.hsmcontactsupport.com](http://www.hsmcontactsupport.com)

You can contact our technical support team directly by filling out our online support form. Enter your contact details and the description of the question/problem.

**Telephone:** [www.honeywellaidc.com/locations](http://www.honeywellaidc.com/locations)

For our latest contact information, please check our website at the link above.

## *Product Service and Repair*

Honeywell International Inc. provides service for all of its products through service centers throughout the world. To obtain warranty or non-warranty service, please visit [www.honeywellaidc.com](http://www.honeywellaidc.com) and select **Support > Contact Service and Repair** to see your region's instructions on how to obtain a Return Material Authorization number (RMA #). You should do this prior to returning the product

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[www.honeywellaidc.com](http://www.honeywellaidc.com)



70-79016 Rev G  
12/12