Honeywell

MS3780 Fusion™

Omni/Single Line Scanner

User's Guide

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Patents

For patent information, refer to www.hsmpats.com.

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INTRODUCTION

The MS3780 Fusion™ is a hand-held, omnidirectional bar code scanner with optional single-line scanning capabilities. It utilizes the powerful Honyewell QuantumE scan engine to provide an outstanding scan performance on all standard 1D bar code symbologies, including GS1 DataBar™ (RSS). Designed for retail applications, the Fusion includes additional key product features like:

- Fully Automatic Scanning Operation
- Single-Line Mode for Menu Reading
- Custom Configurable Scan Pattern
- User-Replaceable Single-Cable Interface to Host (PowerLink Compatible)
- User Configurable Depth of Field
- Easy Bar Code Configuration
- Data Editing
- 7 Beeper Tones
- Firmware updates are easily loaded into Flash memory
- OPOS and JPOS System Compatible
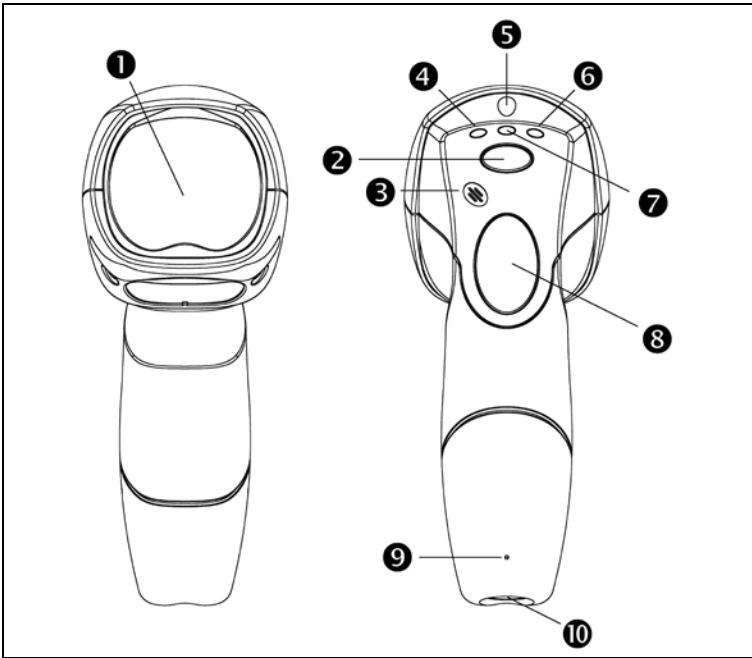- CodeGate™
- Sunrise 2005 Compliant

Scanner Components

Figure 1. Scanner Components

| ITEM NO.	DESCRIPTION
1	Red Output Window, Laser Aperture
2	Mode Select Button *(See page 11)*
3	Beeper *(See page 13)*
4	Blue LED, Single-Line Mode / Menu Reading *(See page 13)*
5	White LED *(See page 13)*
6	Blue LED, All Scan Lines On / Omnidirectional Reading *(See page 13)*
7	Amber LED, CodeGate *(See page 13)*
8	CodeGate Button *(See page 12)*
9	Pin Hole for Cable Release *(See page 4)*
10	10-Pin RJ45, Female Socket *(See page 30)*

Caution and Serial Number Labels
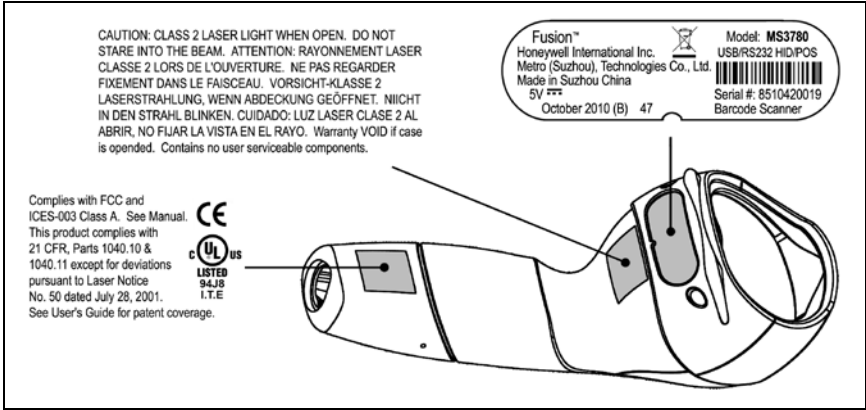
Figure 2. Caution and Serial Labels

⚠ **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.
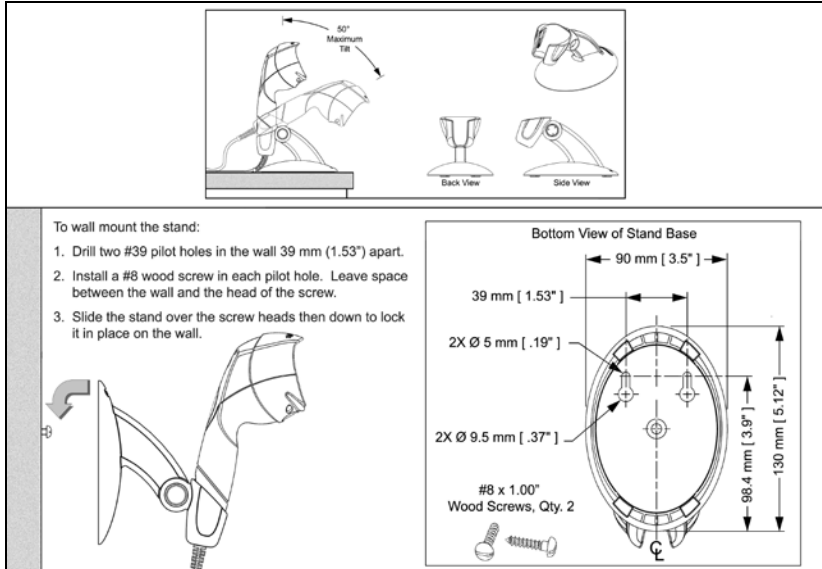
Stand Specifications

Figure 3. Stand Specifications

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.

Cable 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' beneath the Fusion logo on the front side of the scanner near the end of the handle.
2. Bend an ordinary paperclip into the shape shown in figure 4.
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.
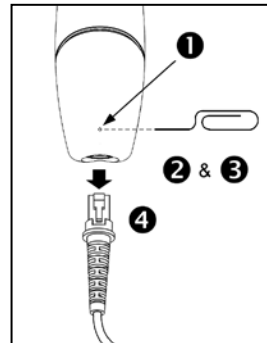
Figure 4.

Cable Connection Warning

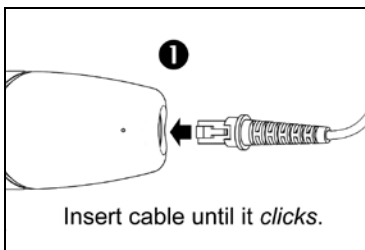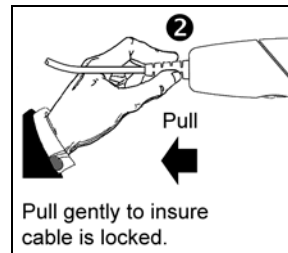Important: If the PowerLink cable is not fully latched the unit can power intermittently.

Insert cable until it *clicks*.

Figure 5.

Pull

Pull gently to insure cable is locked.

Figure 6.

RS232 or Light Pen

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 MS3780.

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.

> **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.
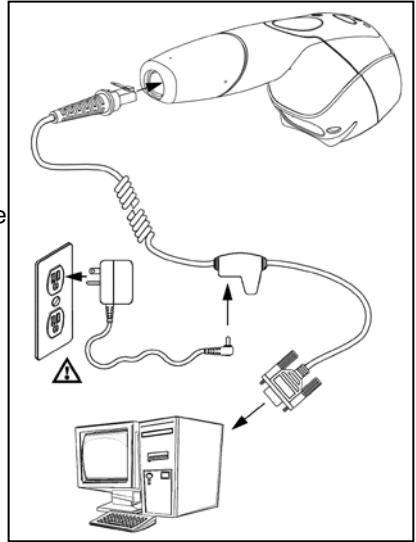
Figure 7.

5. Connect AC power to the transformer.

6. Turn on the host device.

> When the scanner first receives power the white LED will flash, one blue LED will turn on and the scanner will emit one beep.

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

> **⚠** *See Caution statement on page 3.*

RS485▲ or OCIA

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 MS3780.

3. For RS485:
   Connect the other end of the MVC cable to Port 9 of the host device.

   For OCIA:
   Connect the other end of the MVC cable to the appropriate communication port on the host device.

4. Turn on the host device.

Figure 8.   RS485 (above), OCIA (below)

When the scanner first receives power the white LED will flash, one blue LED will turn on and the scanner will emit one beep.

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

See Caution statement on page 3.

▲ *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 MS3780.

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.

> **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.

Figure 9.

6. Connect AC power to the transformer.

7. Turn on the host device.
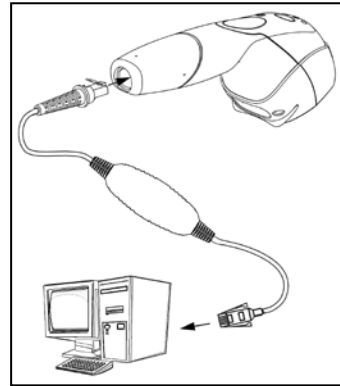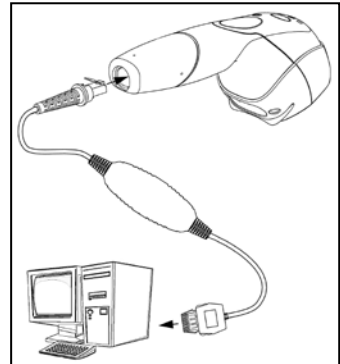
> When the scanner first receives power the white LED will flash, one blue LED will turn on and the scanner will emit one beep.

> **i** Powering the MS3780 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, Honeywell recommends using an external power supply. For additional information contact a customer service representative.

> ⚠ *See Caution statement on page 3.*

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 MS3780.

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.
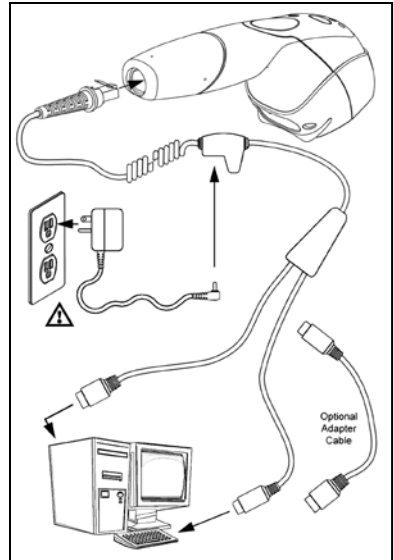
5. Connect AC power to the transformer.

6. Turn on the host device.

Figure 10.

> When the scanner first receives power the white LED will flash, one blue LED will turn on and the scanner will emit one beep.

> **i** Powering the MS3780 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, Honeywell recommends using an external power supply. For additional information contact a customer service representative.

> ⚠ *See Caution statement on page 3.*

Full Speed or Low Speed USB (Integrated)

1. Turn off the host device.

2. Plug the male 10-pin RJ45 end of the USB PowerLink cable into the 10-pin socket on the MS3780.

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

4. Turn on the host device.
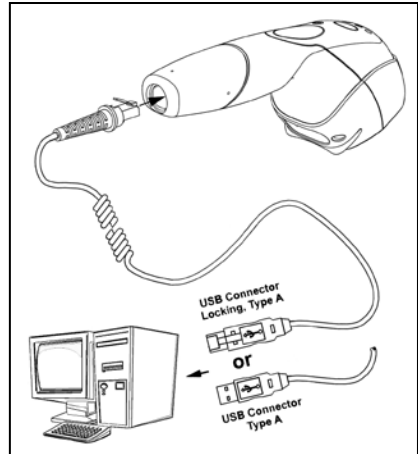
Figure 11.

As a default, the MS3780-38 leaves the factory with USB Keyboard Emulation Mode enabled.

For information on configuring the MS3780-38 for USB Serial Emulation Mode, please refer to the USB: Low Speed section of the MetroSelect Configuration Guide (PN 00-02407).
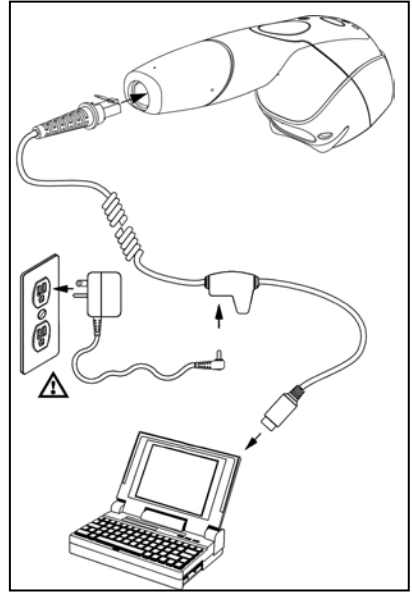
When the scanner first receives power the white LED will flash, one blue LED will turn on and the scanner will emit one beep.

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 correct configuration setting are also required for proper communication to occur.

See Caution statement on page 3.

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 For RS232 and IBM			
SW1		**SW2**	
Switch 1 and 6	ON	Switch 1 and 6	ON
Switch 2, 3, 4, and 5	OFF	Switch 2, 3, 4, and 5	OFF

Checkpoint Recommended Switch Bank Settings For USB			
SW1		**SW2**	
Switch 1	ON	Switch 1	ON
Switch 2, 3, 4, 5, and 6	OFF	Switch 2, 3, 4, 5, and 6	OFF

All Fusion models equipped with EAS capabilities have an EAS designation in their model numbers. The cable supplied with these units will have additional wires for connection to the Checkpoint Device.
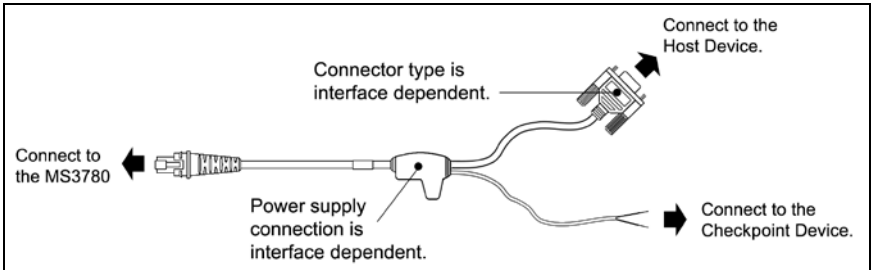

Figure 12. EAS Cable

Figure 13 shows the location of the EAS deactivation area for Fusion.

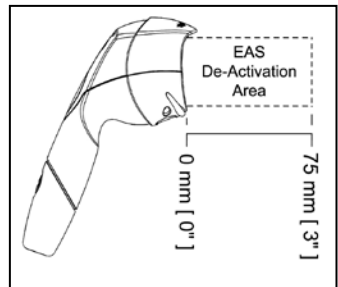It is important to pass the entire tag through this area to deactivate the security tag.

Figure 13. EAS Deactivation Area

The Scan Pattern Mode Select Button

There are two configurable scan pattern modes available with the MS3780.

- The **primary** scan pattern mode is the default scan pattern active when the scanner starts. By default, the primary scan pattern is set to all-scan-lines for omnidirectional reading.

- Pressing the scan pattern mode button (see figure below) activates the **secondary** scan pattern mode. By default, the secondary scan pattern is set to single-line mode for menu reading.

> Please refer to the MetroSelect Configuration Guide for information on changing the default scan pattern settings.

To Change Scan Pattern Modes

1. To activate the secondary scan pattern, **press** and **release** the mode select button.

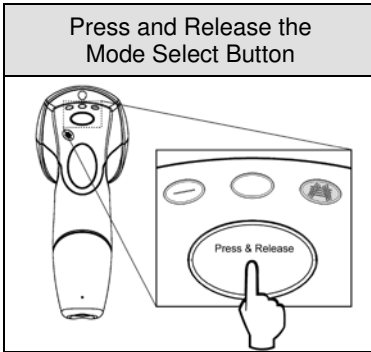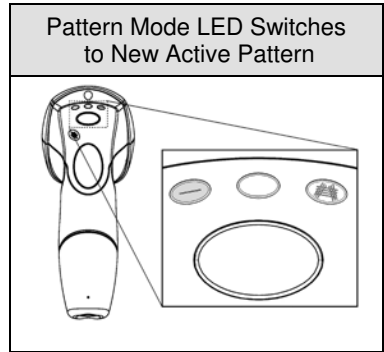| Press and Release the Mode Select Button	Pattern Mode LED Switches to New Active Pattern

Figure 14.   *Figure 15.*

> Activating a pattern mode when the scanner is out of its stand does not change the in-stand pattern mode. When the scanner is returned to the stand it will automatically revert to the most recent scan pattern selected during in-stand operation.

2. To re-activate the primary scan pattern, **press** and **release** the mode select button again.

How to Use CodeGate and the Manual Activation Mode

For illustration purposes the unit's scan pattern has been set to *single-line (menu reading) mode*.

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

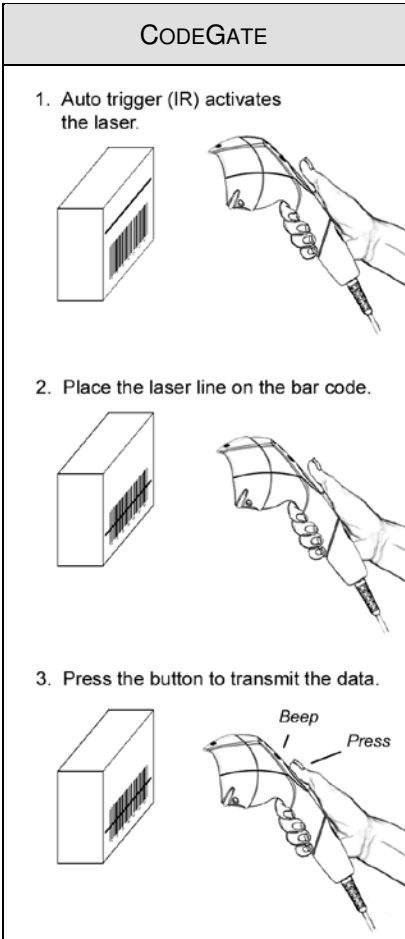<div align="center">

Figure 16.   *Figure 17.*
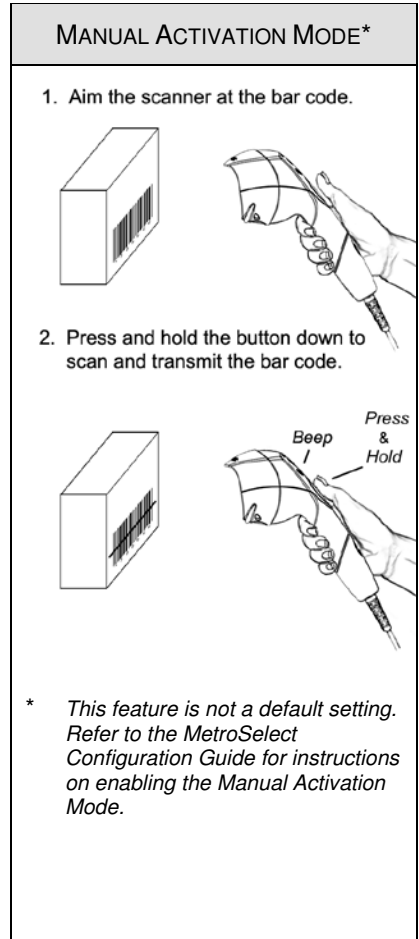
</div>

Factory Defaults: In-Stand, CodeGate is not active (Amber LED is On)
                     Out-of-Stand, CodeGate is active (Amber LED is Off)

For information on how to change the factory defaults, refer to the MetroSelect Configuration Guide (00-02407).

Audible Indicators

When the MS3780 is in operation, it can provide audible feedback. These sounds indicate the status of the scanner. Eight settings are available for the tone of the beep (normal, six alternate tones and no tone). For instruction 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 white LED will flash, one blue LED will turn on and the scanner will emit a beep (*the white LED will remain on for the duration of the beep*). The scanner is now ready to scan.

When the scanner *successfully* reads a bar code, the white LED will flash and the scanner will emit one beep (*if configured to do so*). If the scanner does not emit one beep 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 15.

◀⧸ ♪♪♪

Three Beeps - during operation

When placing the scanner in configuration mode, the white and blue LEDs will flash while the scanner emits three beeps. The white and blue LEDs will continue to flash until the unit exits the configuration mode. Upon exiting the configuration mode, the scanner will emit three beeps and the white LED will stop flashing.

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

When using one-code-programming, the scanner will emit three beeps: the current selected tone, followed by a short pause then a high tone and a low tone. This tells the user that the single code configuration has *successfully* configured the scanner.

◀⧸ ♪♪♪

Three Beeps - on power up

This is a failure indicator. Refer to *Failure Mode Indicators* on page 15.

Visual Indicators

There are four LEDs located on the top of the MS3780. When the scanner is on, the flashing or constant illumination of the LEDs indicates the status of the current scan and the scanner.

Figure 18. LED Indicators

No LEDs

The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer. They are also not illuminated when all lasers are turned off for any reason.

Steady Blue Single-Line LED

Indicates the laser is active and the scanner is in Single-Line Mode.
The blue LED will remain illuminated until the laser is deactivated.

Steady Blue Omni LED

Indicates the laser is active and the scanner is in the Omnidirectionsl Mode.
The blue LED will remain illuminated until the laser is deactivated.

Steady Blue Single-Line or Omni LED and a Single White LED 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, then the bar code has not been successfully read.

Steady White and Blue Single-Line or Omni LED

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.

Alternate Flashing of Both Blue LEDs and the White LED

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

Steady Amber LED

Indicates that CodeGate is not active (in-stand default).

Failure Mode Indicators

Both Blue LEDs Flashing with One Emitted Razzberry Tone

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

Both Blue LEDs and the White LED are Flashing with Two Emitted Razzberry Tones

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

Continuous Razzberry Tone with Both LEDs Off - On Power Up

A continuous razzberry tone upon power up indicates there has been an
electronic failure. Return the unit to a Honeywell authorized service center for
repair.

Three Beeps - On Power Up

This indicates that the nonvolatile memory that holds the scanner configuration
has failed. Return the unit to a Honeywell authorized service center for repair.

Depth of Field Specifications*

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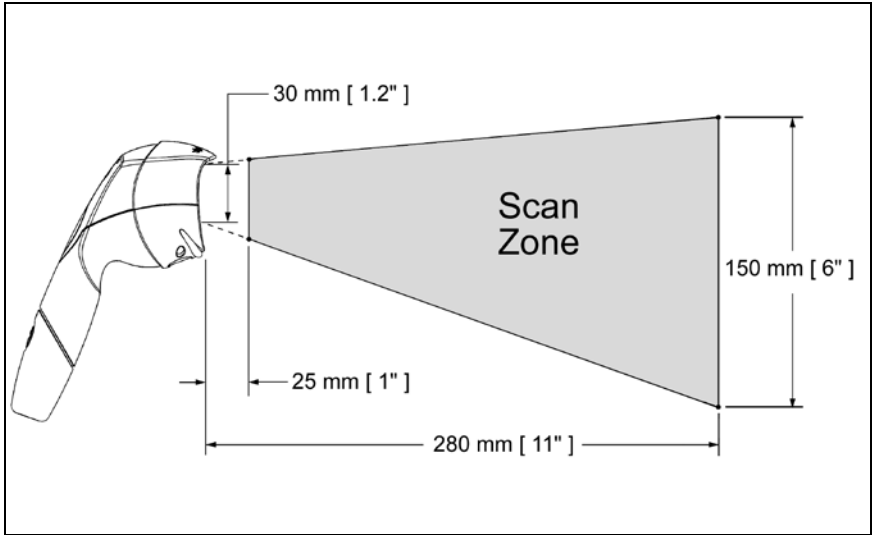
Specifications are based on a 0.33 mm (13 mil) bar code.

Figure 19. Normal Depth of Field

* All specifications are subject to change without notice.

Depth of Field Specifications*

Reduced Scan Zone

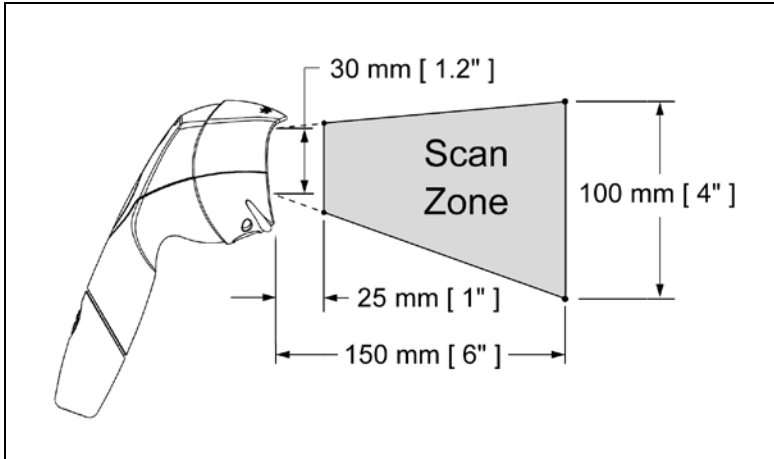*Specifications are based on a 0.33 mm (13 mil) bar code.*

Figure 20. Reduced Depth of Field

* All specifications are subject to change without notice.

Depth of Field by Bar Code Element Width*

Normal Scan Zone

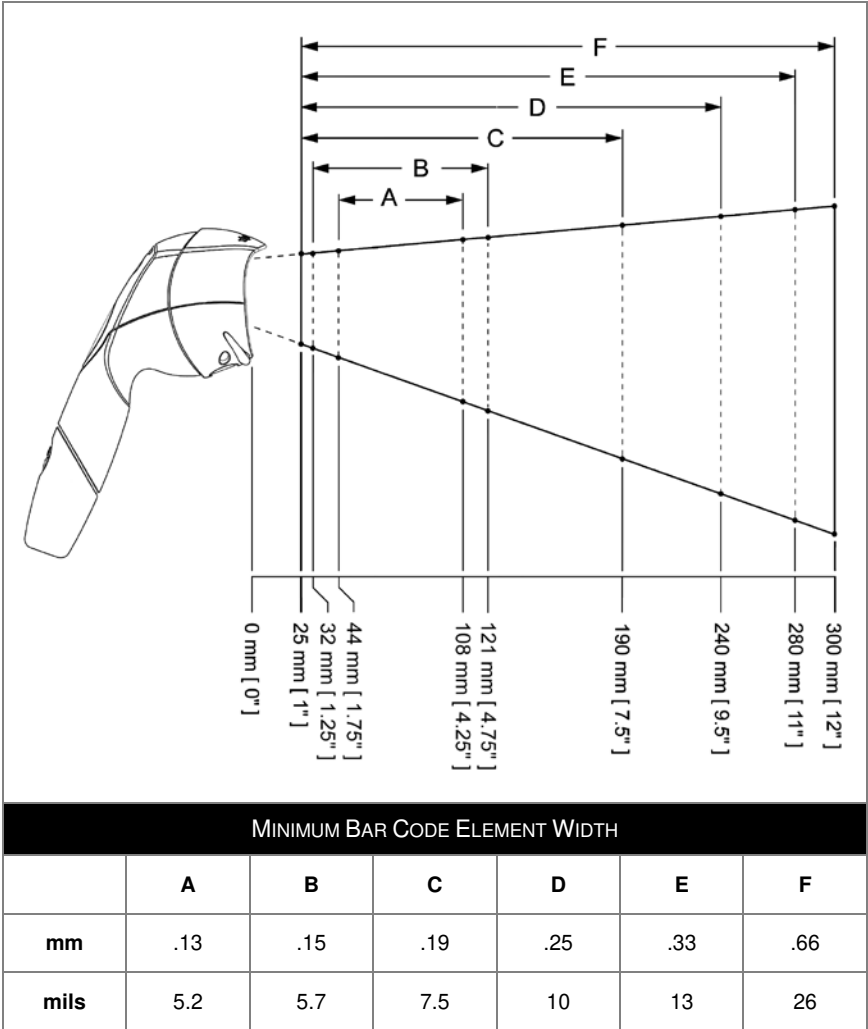| MINIMUM BAR CODE ELEMENT WIDTH						
	A	B	C	D	E	F
mm	.13	.15	.19	.25	.33	.66
mils	5.2	5.7	7.5	10	13	26

Figure 21. 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

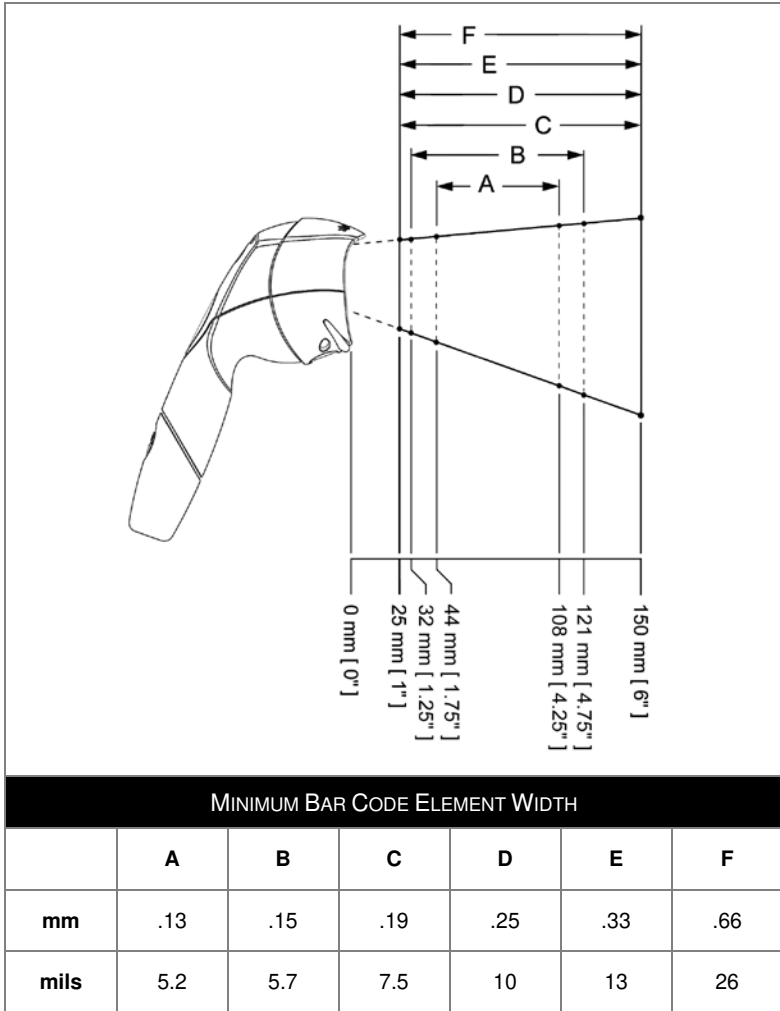| MINIMUM BAR CODE ELEMENT WIDTH						
	A	B	C	D	E	F
mm	.13	.15	.19	.25	.33	.66
mils	5.2	5.7	7.5	10	13	26

Figure 22. Reduced Scan Zone by Bar Code Element Width

* All specifications are subject to change without notice.

IR Activation Range*

Fusion's default power save mode† is *Laser Off then Motor Off Delayed*.
This power save mode turns the laser off after five minutes of non-use.
The motor will turn off after twenty-five minutes of non-use. Any movement detected by the IR in the activation area will cause the scanner to exit power save mode. The laser and motor will automatically turn back on preparing the scanner for bar code recognition, decoding and transmission.
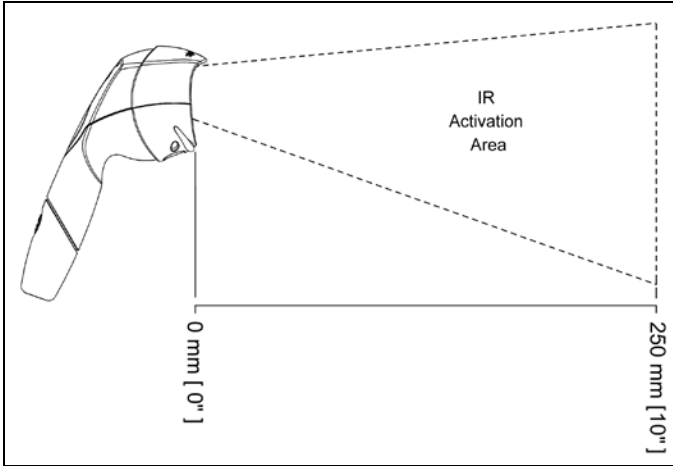

IR
Activation
Area

0 mm [0"]

250 mm [10"]

Figure 23. Normal IR Activation Range

* *All specifications are subject to change without notice.*
† *Refer to the MetroSelect Configuration Guide (PN 00-02407) for additional information on configurable power save modes.*

TROUBLESHOOTING GUIDE

The following guide is for reference purposes only. Contact a Honeywell representative at to preserve the limited warranty terms.

Symptoms	Possible Cause(s)	Solution
All Interfaces		
The unit has no LEDs, beeper or motor spin.	No power is being supplied to the scanner.	Check the transformer, outlet and power strip. Make sure the cable is plugged into the scanner.
The unit has no LEDs and / or beeper.	No power is being supplied to the scanner from host.	Some host systems cannot supply enough current to power the MS3780. Use the power supply included with the scanner.
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.
The unit powers up but does not beep.	The beeper is disabled.	Enable the beeper.
	No tone is selected.	Select a tone.
The unit powers up but does not scan and/or beep.	The unit is trying to scan a particular symbology that is not enabled.	UPC/EAN, Code 39, Interleaved 2 of 5, Code 93, Code 128 and Codabar are enabled by default. Verify that the type of bar code being read has been selected
	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.*

Symptoms	Possible Cause(s)	Solution
All Interfaces		
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.
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.

TROUBLESHOOTING GUIDE

Symptoms	Possible Cause(s)	Solution
All Interfaces		
During power up the unit beeps 3 times.	There is a non-volatile RAM failure.	Contact a service representative.
During power up the unit razzes continuously.	There has been a diagnostic failure.	Contact a service representative.
During power up the unit razzes once and the blue LED flashes.	There is a VLD failure.	Contact a service representative.
During power up the unit razzes twice and both LEDs flash.	There is a scanner motor failure.	Contact a service representative.
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.	

TROUBLESHOOTING GUIDE

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.
Characters are being dropped.	The intercharacter delay needs to be added to the transmitted output.	Add some intercharacter delay to the transmitted output by using the MetroSelect Configuration Guide (PN 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 (ie. AT, PS2 or XT) is selected.
		Verify correct country code and data formatting are selected.
		Adjust the intercharacter delay.
The unit is not transmitting each character.	The unit may not be configured correctly.	Increase the interscan 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

	MS3780	
Operational		
Normal Depth of Field:	25 mm - 280 mm (1"- 11")	0.33 mm (13 mil) bar code
Reduced Depth of Field:	25 mm - 150 mm (1"- 6")	
Omni Scan		
Scan Speed:	1333 scan lines per second	
No. of Scan Lines:	20	
Single-Line		
Scan Speed:	67 scan lines per second	
No. of Scan Lines:	1	
Motor Speed:	4000 RPM	
Min Bar Width:	0.127 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), OCIA	
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	
Termination:	10 position modular RJ45 connector	
Cable:	Application Dependent	
Embedded Laser		
Max Optical Power:	10 mW	
Wavelength:	640 – 660 nm	
Min Bean Divergence:	6°	
Mechanical		
Scanner Length:	189 mm (7.44")	
Scanner Width:	65 mm (2.56")	
Scanner Height:	73 mm (2.88")	
Scanner Weight:	195 g (6.9 oz.)	

Specifications subject to change without notice.

DESIGN SPECIFICATIONS

	MS3780
Electrical	
Voltage Supply:	5VDC ± 0.25V
Operating Power:	1.375 W
Standby Power:	1.0 W
Operating Current:	275 mA typical at 5VDC
Standby Current:	200 mA typical at 5VDC
DC Transformers:	Class II; 5.2VDC @ 1A
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
Shock:	Withstands multiple drops from 1.5 meters

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	Interface
MS3780	9	OCIA and RS232 Transmit/Receive
	11	RS485▲ and Full RS232
	38	RS232 Low Speed USB*, Keyboard Emulation or USB Serial Emulation Mode
	40	Full Speed USB
	41	RS232/Light Pen Emulation
	47	Keyboard Wedge, Stand-Alone Keyboard and RS232 Transmit/Receive
	48	Stand Alone Keyboard and RS232 Transmit/Receive
	120	USB and RS232 Transmit/Receive with EAS

▲ Applicable for IBM® Host applications.

The MS3780 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 Honeywell scanners are also available as keyboard wedge functions.

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

Keyboard Type

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

Keyboard Country Type

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

** Default setting. Refer to the MetroSelect Configuration Guide (PN 00-02407) or MetroSet2's help files for information on how to change the default settings.

CONFIGURATION MODES

The MS3780 Series scanner has three modes of configuration.

- **Bar Codes**
  The MS3780 can be configured by scanning the bar codes included in the Single-Line Configuration Guide or the Supplemental Configuration Guide. The manuals are available for download at www.honeywellaidc.com.

- **MetroSet*2***
  This user-friendly Windows®-based configuration program allows you to simply 'point-and-click' at the desired imager options. MetroSet2 is available for download at 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.

UPGRADING THE FIRMWARE

The MS3780 Fusion 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 also required to complete the upgrade.

> PowerLink Cable #54-54014 is required when using RS232 for the upgrade process. **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 Type A cable provided with the scanner can be used.

To upgrade the firmware in the MS3780:

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 *Fusion* from the list.

5. Click on the *Configure Fusion/3780 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 Honeywell.

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 36.

♦♦ MetroSet2 is available for download, at no additional cost, from www.honeywellaidc.com.

Scanner Pinout Connections

The MS3780 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.
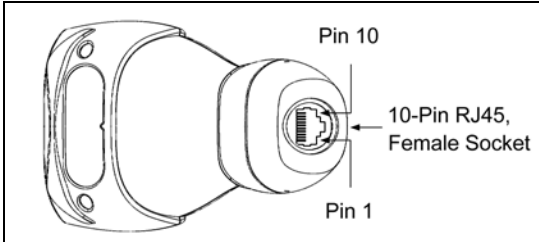
Figure 24.

MS3780-**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

MS3780-**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

MS3780-**40** Full Speed USB	
Pin	**Function**
1	Ground/USB-
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	D+
7	USB +V
8	D-
9	+5VDC
10	Shield Ground

MS3780-**38** RS232 Low Speed USB	
Pin	**Function**
1	Ground/USB-
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6	D+
7	USB +V
8	D-
9	+5VDC
10	Shield Ground

Figure 25.

MS3780-**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
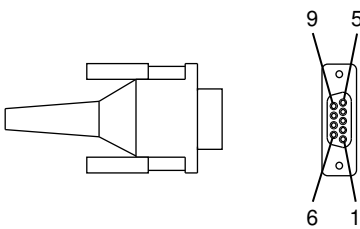
MS3780-**9** OCIA	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RDATA
5	RDATA Return
6	Clock In
7	Clock Out
8	Clock in Return/ Clock out Rtrn
9	+5VDC
10	Shield Ground
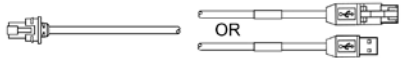
MS3780-**120** USB and RS232 with EAS	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	EAS -
5	EAS +
6	USB D+
7	USB +V
8	USB D-
9	+5VDC
10	Shield Ground
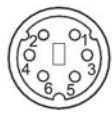
▲ *Applicable for IBM® Host applications.*

Cable Connector Configurations (Host End)
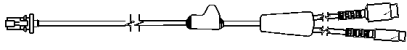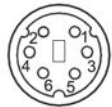
RS232 PowerLink Cable 53-53000x-3	
Pin	**Function**
1	Shield Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	DTR Input/Light Pen Source
5	Power/Signal Ground
6	Light Pen Data
7	CTS Input
8	RTS Output
9	+5VDC

9-Pin D-Type Connector

USB Power/Communication Cable 53-53213x-N-3, 53-530214x-N-3 or 53-53235x-N-3	
Pin	**Function**
1	PC +5V/V_USB
2	D-
3	D+
4	Ground
Shield	Shield

USB Type A Locking with Power

USB Non-Locking

Stand Alone Keyboard PowerLink Cable 53-53020x-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 *53-53002x-3*	

Pin	Function	
1	Keyboard Clock	
2	Keyboard Data	5-Pin DIN, Female
3	No Connect	
4	Power Ground	
5	+5 Volts DC	
Pin	**Function**	
1	PC Data	
2	No Connect	
3	Power Ground	6-Pin DIN, Male
4	+5 Volts DC	
5	PC Clock	
6	No Connect	

Honeywell 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	5-Pin DIN, Male
4	Power Ground	
5	+5 Volts DC	
Pin	**Function**	
1	Keyboard Data	
2	No Connect	
3	Power Ground	
4	+5 Volts DC	6-pin Mini DIN, Female
5	Keyboard Clock	
6	No Connect	

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Technical Assistance

To search our knowledge base for a solution or to log in to the Technical Support portal and report a problem, go to www.hsmcontactsupport.com.
For our latest contact information, see www.honeywellaidc.com/locations.

Product Service and Repair

Honeywell International Inc. provides service for all of its products through service centers throughout the world. To find your service center, go to www.honeywellaidc.com and select **Support**. Contact your service enter to obtain a Return Material Authorization number (RMA #) before you return the product.
To obtain warranty or non-warranty service, return your product to Honeywell (postage paid) with a copy of the dated purchase record. To learn more, go to www.honeywellaidc.com and select **Service & Repair** at the bottom of the page.

Limited Warranty

For warranty information, go to www.honeywellaidc.com and click **Get Resources > Product Warranty.**

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