Honeywell

Horizon™ 7600

Presentation Laser Imager

Installation and User's Guide

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Patents

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

Table of Contents

Introduction

The Horizon™ 7600 series is Honeywell's next generation in-counter laser bar code scanner. This compact, hands-free scanner is designed with a dense 20-line omnidirectional scan pattern that helps provide fast, efficient throughput with a high first pass read rate.

The 7600 is equipped with a multitude of standard features including:

- Durable die-cast construction
- Available with either a stainless steel (MS7625) or a high-impact plastic (MS7620) top plate
- Firmware updates via Flash ROM
- Field replaceable window
- EAS deactivation antenna is standard
- Supports commonly used interfaces including USB and Keyboard Wedge
- Custom Edit bar code data
- PowerLink, user replaceable cables
- RS232 auxiliary port for adding peripherals
- Programmable depth of field
- OPOS and JPOS system compatible
- Sunrise 2005 Compliant

Scanner		Interface
High Impact Plastic Top	MS7620-**13**	RS232, RS485◈, OCIA, Aux
	MS7620-**37**	RS232, Light Pen, Keyboard Wedge, Stand-Alone Keyboard, USB, Aux
Stainless Steel Top	MS7625-**13**	RS232, RS485◈, OCIA
	MS7625-**37**	RS232, Light Pen, Keyboard Wedge, Stand-Alone Keyboard, USB, Aux

◈ *Applicable for IBM® host applications*

.

Base Kit Components

Part #	Description
MS7600	Horizon Series Scanner
00-02407	MetroSelect™ Programming Guide
00-02870	Horizon 7600 Installation and User's Guide
52-52511A	24" EAS cable

Guides also available for download at www.honeywellaidc.com

Optional Accessories

Part #	Description
46-46640	Point of Sale (POS) USB Plug
54-54xxx*	Straight PowerLink Cable with built in power jack. 2.1 m (7') cord with short strain relief
xxx specifies connection to the host.* *Contact customer service for additional information.*	
54-54002	Keyboard Wedge PowerLink Cable with Adapter Cable
MVC**	Voltage Converter Cable, +12VDC to +5.2VDC or -12VDC to +5.2VDC
** *Contact a customer service representative for additional information on MVC cable series and the host connections available.*	
54-54020	Stand Alone Keyboard Wedge PowerLink Cable
54-54667	RS232 AUX PowerLink Cable

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor, or customer service. See page 51 for contact information.

Replacement Parts

Part #	Description
 Caution	Window types (Sapphire, Everscan, and Standard) are not interchangeable due to laser safety and/or scanner performance differences. To change window type, the scanner must be returned to the manufacturer for additional configuration.
46-46602	Stainless Steel Top with *Sapphire* Window
46-46603	Stainless Steel Top with *Everscan* Window
46-46604	Stainless Steel Top with *Standard* Window
46-46605	High Impact Plastic Top with *Sapphire* Window
46-46606	High Impact Plastic Top with *Everscan* Window
46-46607	High Impact Plastic Top with *Standard* Window

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor, or customer service. See page 51 for contact information.

Scanner Parts

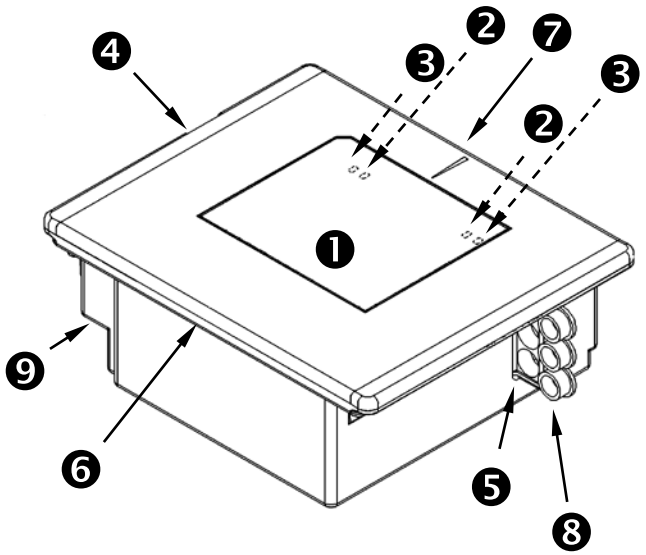


Figure 1: *Scanner Parts*

1. Output Window (Laser Aperture)
2. Amber LED (Located Under Window)
3. Red LED (Located Under Window)
4. Speaker
5. Cable Connection Area
6. Stainless Steel Top (MS7625 units only)
7. Package Flow Indicator Arrow Head
8. Rubber Connector Plug
9. EAS Deactivation Antenna Connector

Maintenance

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

For the 7600 glass window:

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

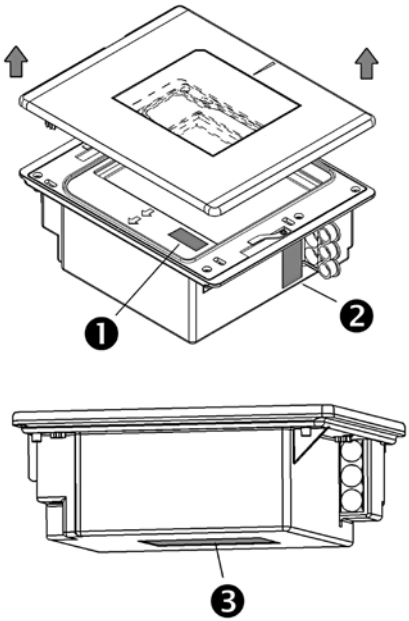
For the 7600 red window:

3. Use mild soap and water with lint free, non-abrasive cleaning cloth.
4. Gently wipe the scanner window.

Scanner Labels

Each scanner has a label on the bottom of the unit. The label contains information such as the model number, date of manufacture, serial number, and caution information. An additional caution label is located under the top plate. The following are examples of these labels.

Figure 2: *Label Locations*



1

CAUTION-CLASS 2 LASER LIGHT WHEN OPEN. DO NOT STARE INTO BEAM. ATTENTION - CLASSE 2 RAYONNEMENT LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU

2

See serial number label for applicable interfaces.

RS232 LIGHT PEN	KB WEDGE USB	AUX
762x-37		
RS232 IBM	OCIA	AUX
762x-13		

3

Honeywell International Inc
Manufactured by Metro (Suzhou) Technologies Co., Ltd.
Manufactured: November 2012
Made in Suzhou China
(G) 37
Horizon ® Barcode Scanner 5V ⎓
Model: MS7620 USB/KBW/LTPN/RS232
58 12 46 0341
This Product is covered by one or more patents. See Users' Guide for complete patent list.
c UL us LISTED 94J8 I.T.E.
IEC 60825-1:2007
CAUTION - CLASS 2 LASER LIGHT WHEN OPEN. DO NOT STARE INTO BEAM. ATTENTION - CLASSE 2 RAYONNEMENT LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU. Contains no user serviceable components.
Complies with 21 CFR 1040.10 and 1040.11 except deviations pursuant to Laser Notice No. 50 dated June 24, 2007.
Patents See Manual.
CLASS 1 LASER PRODUCT
APPAREIL A LASER DE CLASSE 1
LASER KLASSE 1
PRODUKT

MS7625 Series Only (except RS485 Interface)

If the following label is attached to your product, the product meets Korean agency approval for Class A equipment.

 이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며,가정외의 지역에서 사용하는 것을 목적으로 합니다.

Mounting

Before Installing Your 7600

When mounting the 7600 or replacing the Top Plate:

DO NOT Turn
the unit upside down.

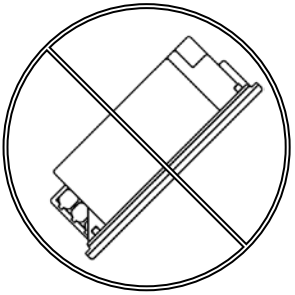


Figure 3

DO NOT Press
on the window.

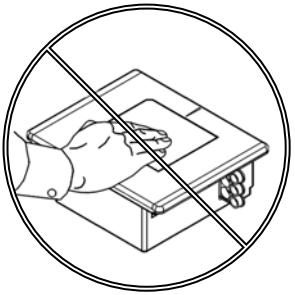


Figure 4

Lift the Top plate straight up to remove.

There is no hardware required to remove or replace the top cover.

See caution on page 3.

There are two installation tabs under the top cover that can be used to place the unit into the counter top mounting hole.

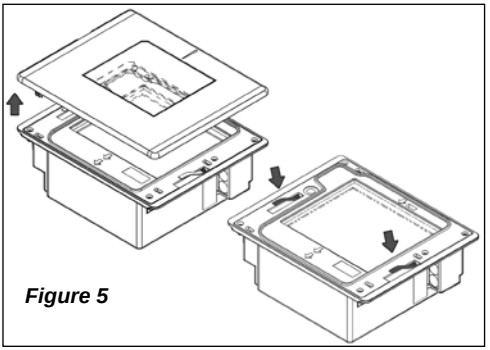


Figure 5

DO NOT PRESS
on the window in the replacement Top plate.

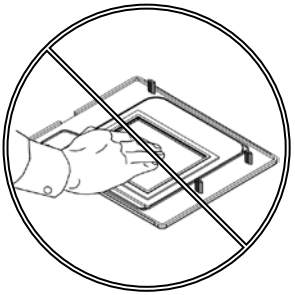


Figure 6

Mounting the 7600 Series

There are three options for mounting your 7600. *Option A* uses a shelf to support the unit. *Option B* lets the unit hang free in the counter top. *Option C* lets the unit hang free in the counter top with the use of a stainless steel trim ring for support. The trim ring (PN 46-46641) is an optional purchase. Contact customer service for details.

Before starting to mount the 7600, determine the direction of package flow for your application. The unit *must* be mounted in the countertop with the small arrowhead on the top of the unit pointing in same direction as the package flow.

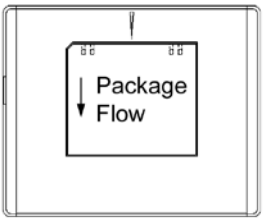


Figure 7: *Package Flow*

Option A: Shelf Support

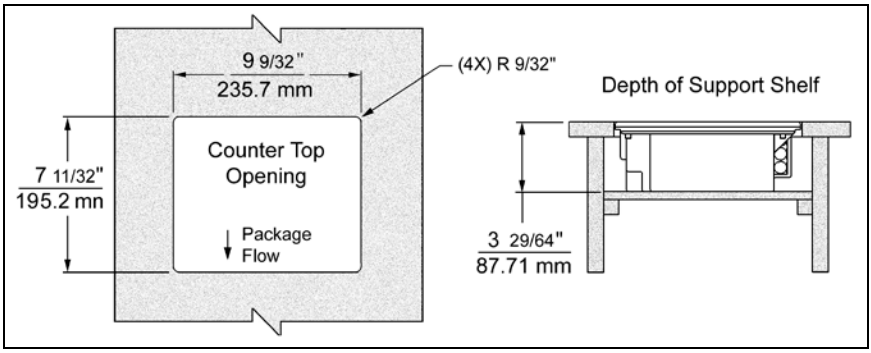


Figure 8: *Specifications for Shelf Support*

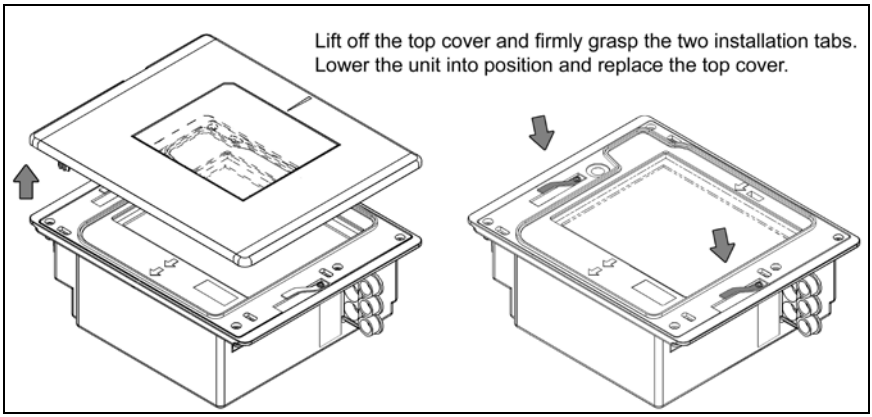


Figure 9: *Installation Tabs*

Option B: Free Hanging Support

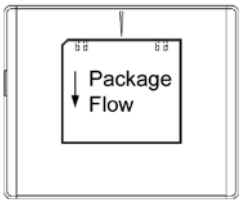


Figure 10: *Package Flow (right)*

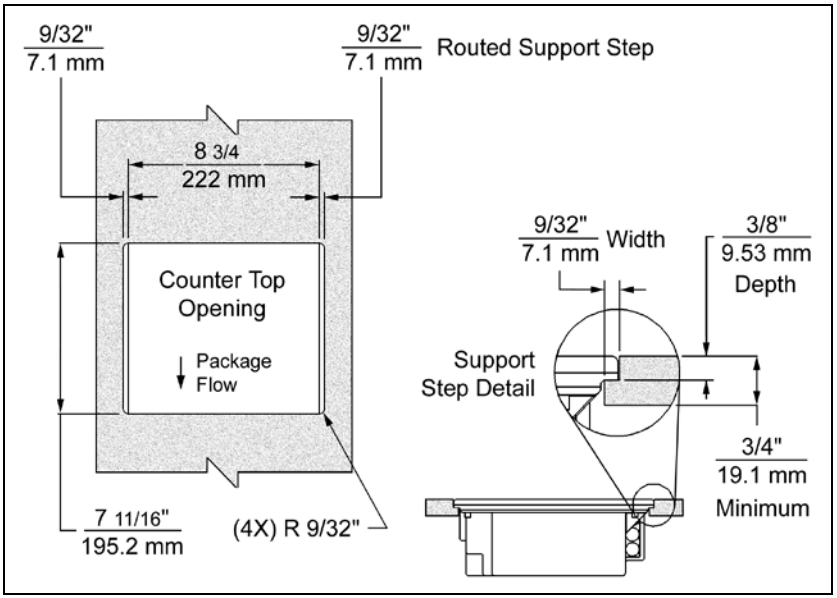


Figure 11: *Specifications for Free Hanging Support*

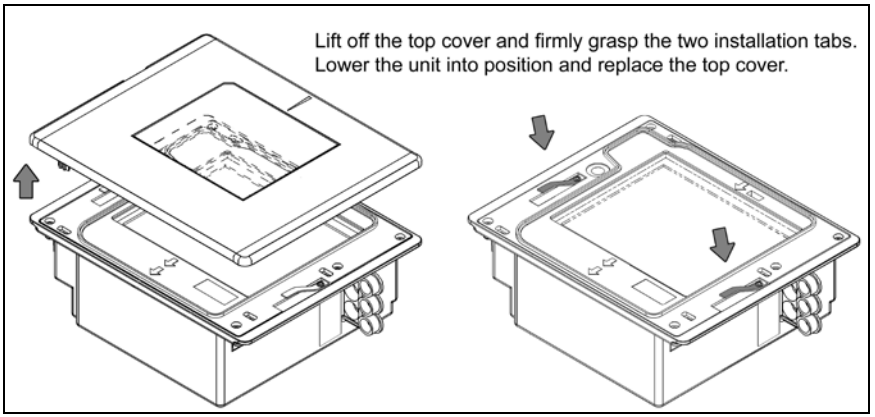


Figure 12: *Installation Tabs*

Option C: Trim Ring

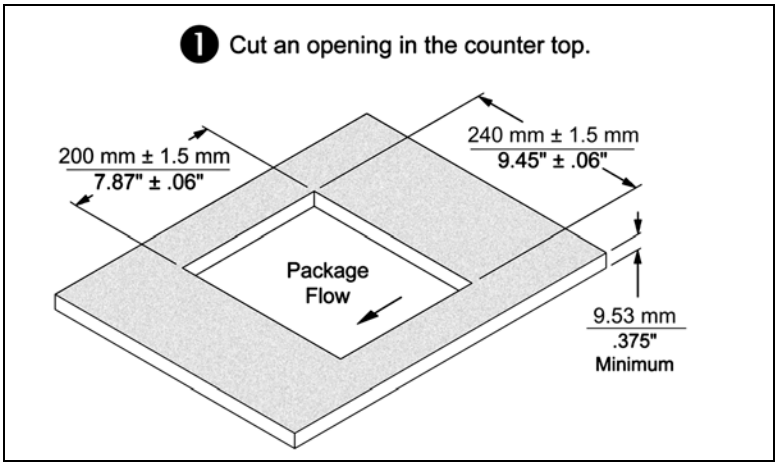


Figure 13: *Counter Top Opening for Trim Ring (PN 46-46641)*

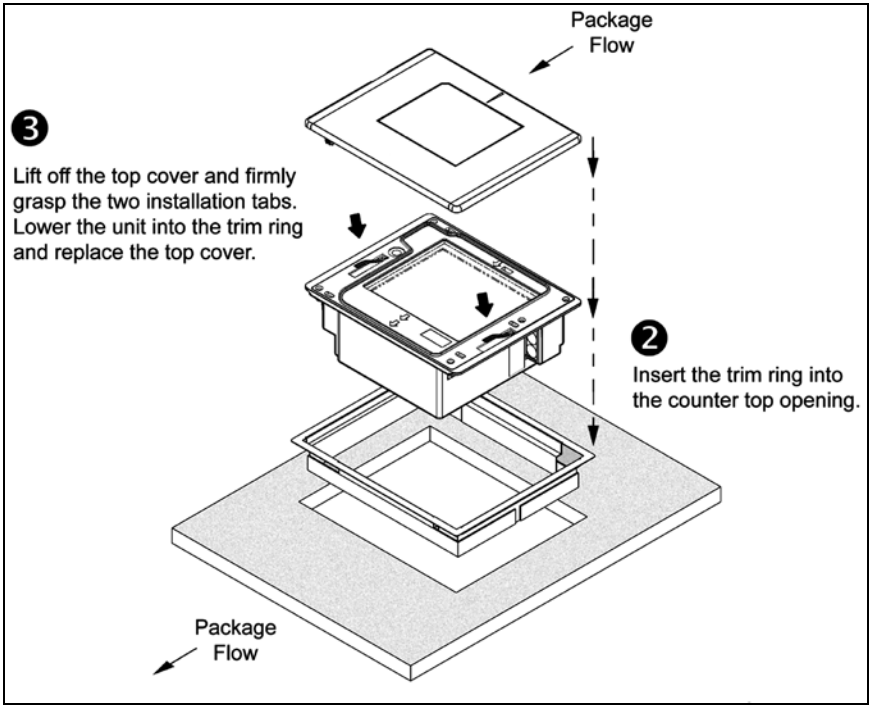


Figure 14: *Trim Ring (PN 46-46641) Installation*

Keyboard Wedge

1. Turn off the host system.
2. Disconnect the keyboard from the host.
3. Connect the PowerLink cable to the 2nd jack from the top of the 7600.
4. Connect the "Y" end of the PowerLink cable to the keyboard and the keyboard port on the host. If necessary use the male/female adapter cable supplied with the scanner for proper connections.

STOP Before continuing verify that the PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

5. Connect the external power supply to 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.
7. Connect AC power to the transformer. The outlet should be near the equipment and easily accessible.
8. Scan the *Load Keyboard Wedge Defaults* bar code to configure the 7600 for Keyboard Wedge communication.
9. Turn on the host system.

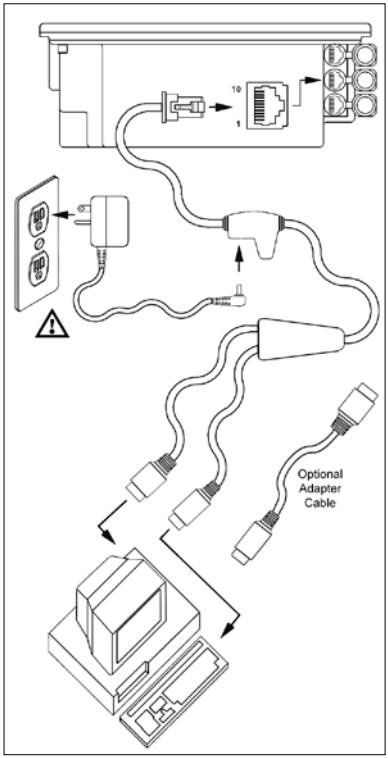


Figure 15: *Keyboard Wedge Interfaces*

Load Keyboard
Wedge Defaults

3 9 9 9 9 9 4

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

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

Stand-Alone Keyboard

1. Turn off the host system.
2. Disconnect the keyboard from the host.
3. Connect the PowerLink cable to the 2nd jack from the top of the 7600.
4. Connect the other end of the PowerLink cable to the keyboard port on the host.

STOP Before continuing verify that the PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

5. Connect the external power supply to 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.
7. Connect AC power to the transformer. The outlet should be near the equipment and easily accessible.
8. Scan the *Load Keyboard Wedge Defaults* bar code then the *Enable Stand Alone Keyboard* bar code to configure the 7600 for Stand-Alone Keyboard communication.

   Note: When scanning the bar codes, cover the code not being scanned to ensure the codes are read in the proper sequence.

9. Turn on the host system.

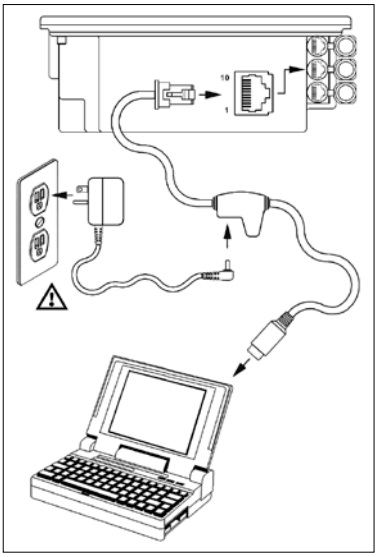


Figure 16: *Stand-Alone Keyboard Interface*

Load Keyboard Wedge Defaults

Scan 1St

3 9 9 9 9 9 4

Enable Stand-Alone Keyboard

Scan 2nd

3 5 1 5 5 1 5 3

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

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

USB

1. Turn off the host system.

2. Determine if your application requires **USB Keyboard** communication protocols or **USB Point of Sale** communication protocols.

3. If you require ***USB Keyboard*** communication protocols, **skip** to step 4.

   If you require **USB Point of Sale** communication protocols:

   - Remove the 7600 top cover.
   - Insert the POS plug (PN 46-46640) into the slot indicated in Figure 17.
   - Replace the top cover.

4. Connect the PowerLink USB cable to the 2nd jack down from the top of the 7600.

5. Connect the other end of the USB cable to the host.

STOP Before continuing verify that the USB PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

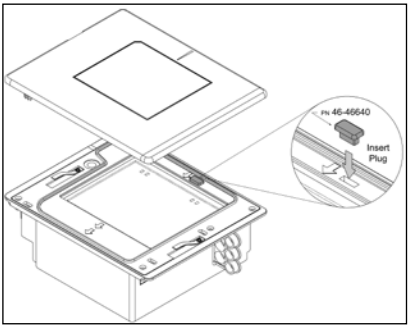


Figure 17: *POS Plug Installation*

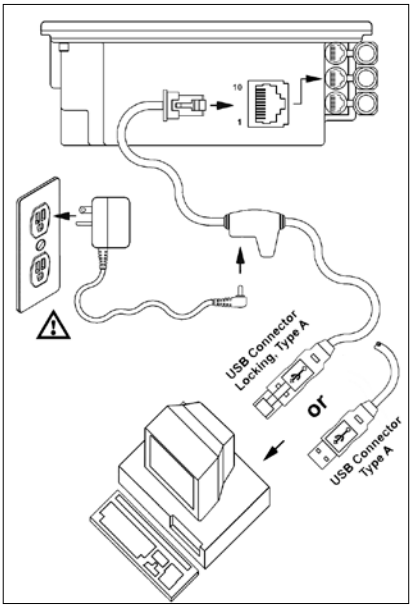


Figure 18: *USB, Interface*

Continued on next page.

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

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

Manufacturers Note:

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 may also be required for proper communication to occur.

6. Scan the *Enable USB Defaults* bar code to configure the 7600 for USB communication.

Enable USB Defaults

7. Turn on the host system.

RS232 or Light Pen

1. Turn off the host system.
2. Connect the PowerLink cable into the 1st jack down from the top of the 7600.
3. Connect the other end of the PowerLink cable to the host.

STOP Before continuing verify that the PowerLink cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

4. Connect the external power supply to the power jack on the Power Link Cable.
5. Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet.
6. Connect AC power to the transformer. The outlet should be near the equipment and easily accessible.
7. Scan the appropriate bar codes on page 17 to configure the 7600 for RS-232 or Light Pen communication.
8. Turn on the host system.

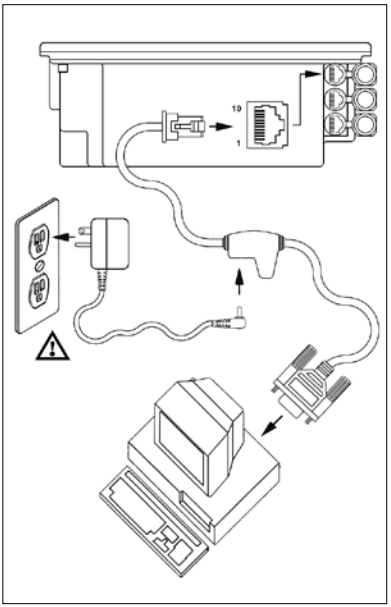


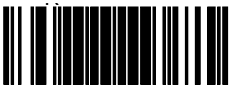
Figure 19: *RS232 or Light Pen Interface*

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

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

For RS232 Communication:

Recall Defaults

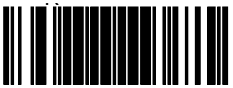
Scan 1st 

Enable RS-232

Scan 2nd 

For Light Pen Communication:

Recall Defaults

Scan 1st 

Enable Light Pen/Wand

Scan 2nd 

RS485

1. Turn off the host system.

2. Connect the MVC cable to the 1st jack down from the top of the 7600.

3. Connect the other end of the MVC cable to the host.

STOP Before continuing verify that the MVC cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

Manufacturers Note:

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.

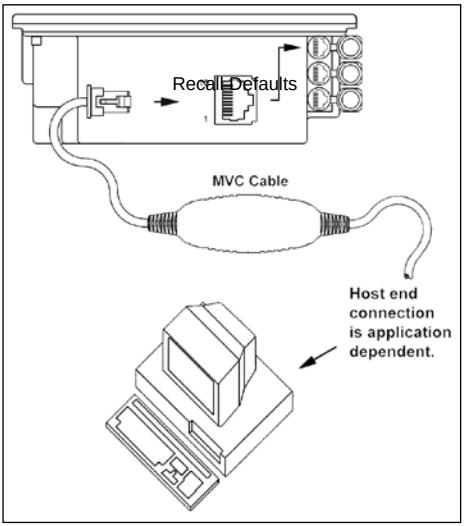


Figure 20: *RS232/RS485, Interface*

4. Turn on the host system.

5. Scan the *Load 46xx IBM Defaults* bar code to configure the 7600 for RS485 communication.

Load 46xx IBM Defaults

3 9 9 9 9 9 5

For additional communication options for RS485 interfaces refer to the MetroSelect Programming Guide (PN 00-02407).

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

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

OCIA

1. Turn off the host system.

2. Connect the MVC cable to the 2nd jack down from the top of the 7600.

3. Connect the other end of the MVC cable to the host.

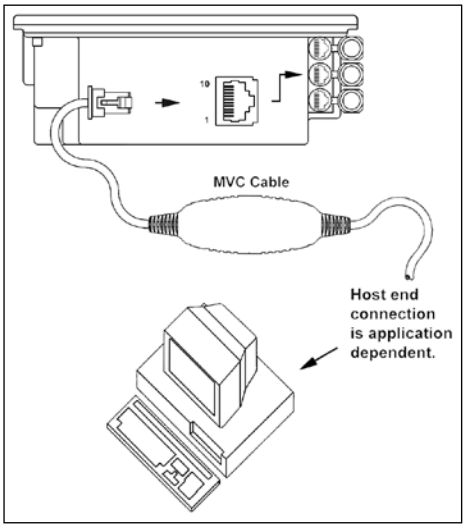


Figure 21: *OCIA, Interface*

STOP Before continuing verify that the MVC cable is connected to the appropriate interface jack on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

Manufacturers Note:

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.

4. Turn on the host system.

5. Scan the *Load OCIA Defaults* bar code to configure the 7600 for OCIA communication.

Load OCIA Defaults

3 9 9 9 9 9 3

For additional communication options for OCIA interfaces refer to the MetroSelect Programming Guide (PN 00-02407).

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

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

Secondary Scanner

1. Turn off the host system.
2. Connect the **round** end of the PowerLink RS232 AUX cable [PN 54-54667A] to the RS232 jack of the **secondary** scanner (*see Figure 23*).
3. Connect the other end of the PowerLink RS232 AUX cable into the **3rd** jack down from the top of the 7600.

   The following Honeywell scanners can be used in the "Aux" input of the MS7600: the MS9520, MS9540, MS7220, MS7120, MS6720, MS6220, MS6520, MS5145 or another 7600.
4. Connect the 7600/Host PowerLink* cable to the appropriate interface jack on the back of the 7600.
5. Connect the other end of the 7600/Host PowerLink cable to the host.
6. Connect the external power supplies for the secondary scanner and the 7600 to the power jacks on the two PowerLink cables.

STOP Before continuing verify that the PowerLink cables are connected to the appropriate interface jacks on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner.

7. Insert the attached rubber plug into the remaining jack *not* being used on the 7600.
8. Check the AC input requirements of both power supplies to make sure the voltage matches the AC outlets.
9. Connect AC power to the transformers. The outlets should be near the equipment and easily accessible.
10. Configure the 7600 for the appropriate interface configuration settings*.

Continued on the next page.

* The 7600/host cable connection is interface dependent. Refer to the installation steps provided for the type of interface *(RS232, RS485, etc.)* required for your application.

Caution:
To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN 60950.

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

11. Scan the following bar code to configure the auxiliary port on the 7600 to accept a Honeywell scanner as the secondary scanner.

The following bar codes **do not apply** when using an MS6720 as a secondary scanner. Contact a customer service representative for additional information on the MS6720. If the secondary scanner is not a Honeywell scanner refer to Section O of the MetroSelect Configuration Guide.

Enable Aux Port

The auxiliary input port's data format must match the main output format of the secondary scanner.

12. Scan the following bar codes, in order, to configure the secondary scanner to match the auxiliary port's data format.

1st
Enable AUX Output

2nd
Secondary Scanner Data Format

3rd
Enable Comm Timeouts

4th (Optional)
Turn OFF Secondary Scanner's Beeper

13. Turn on the host system.

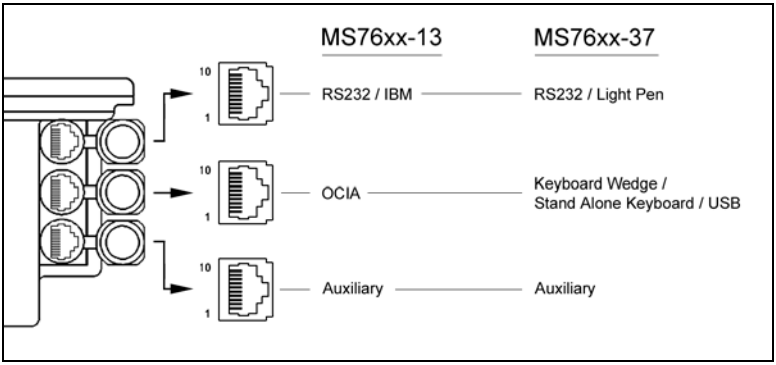


Figure 22: *Connector Orientation*

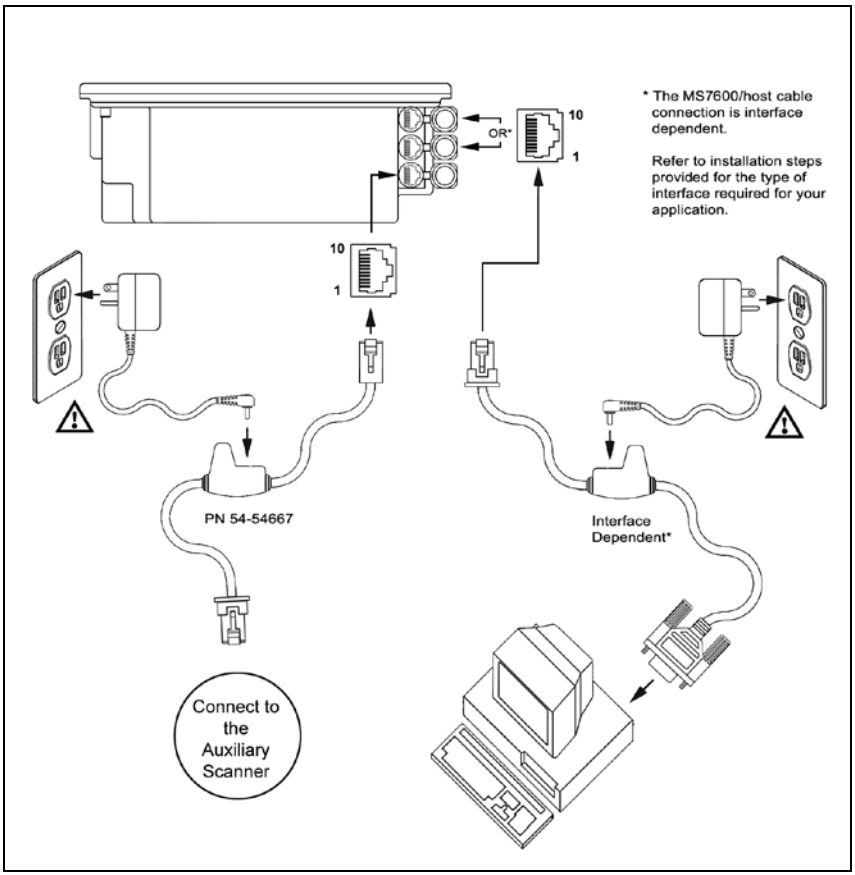


Figure 23: *Secondary Scanner Setup*

EAS Deactivation Antenna

SW1 and SW2 are the switch banks inside the Checkpoint Device that set the deactivation range. Honeywell recommends end users program the 7600 to the Fixed Low-Density depth of field, so that the unit does not scan out beyond the deactivation range.

Unit #	CheckPoint Recommended Switch Bank Settings	7600 Depth of Field Settings
MS7620	1, 2, 3, 4, 5, on SW1 & SW2	Fixed Low Density*
MS7625	1, 2, 3, 4, 5, on SW1 & SW2	Fixed Low Density*
**Note: Minimum element width changes to 6.8 mil when in this mode.*		

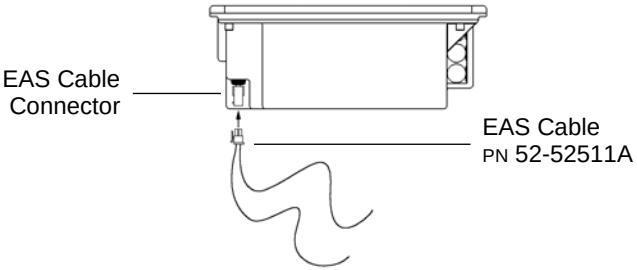


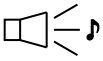
Figure 24: *EAS Cable and Connector*

Contact Checkpoint Systems directly for additional EAS support.

Operation

Audible Indicators

When the 7600 scanner is in operation, it provides audible feedback. These sounds indicate the status of the scanner. Eight settings are available for the tone of the beep (normal, 6 alternate tones and no tone) plus three volume settings. To change the tone or volume, refer to *Changing the Beeper Tone & Volume on page 27*.



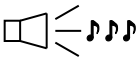
One Beep

When the scanner *first* receives power, the amber LED will turn on, 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.

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.

Razzberry Tone

This is a failure indicator. Refer to failure modes page 26.

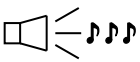


Three Beeps - During Operation

When placing the scanner in program mode, the red LED will flash while the scanner simultaneously beeps three times. The red and amber LEDs will continue to flash until the unit exits program mode. Upon exiting program mode, the scanner will beep three times and the red LED will stop flashing.

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

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



Three Beeps - On Power Up

This is a failure indicator. Refer to failure modes page 26.

Visual Indicators

There is a red LED and amber LED on the front of the 7600. When the scanner is on, the flashing or constant illumination of the LEDs indicates the status of the current scan and the scanner.

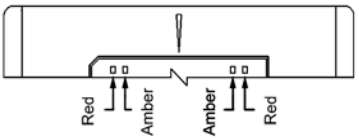


Figure 25: *LEDs*

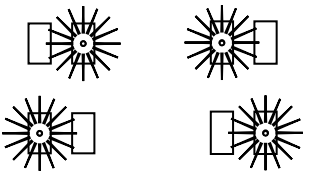
No Red or Amber LED
The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer.

Steady Amber
When the laser is active, the amber LED is illuminated. The amber LED will remain illuminated until the laser is deactivated.

Steady Amber and Single Red Flash
When the scanner successfully reads a bar code, the red LED will flash and the scanner will beep once. If the red LED does not flash or the scanner does not beep once, then the bar code has not been successfully read.

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

Flashing Amber then Flashing Red
This indicates the scanner is in program mode. A razzberry tone indicates that an invalid bar code has been scanned in this mode.
or
If the unit is in sleep mode, each LED will flash once every 15 seconds.



Steady Red, Amber off
This indicates the scanner may be waiting for communication from the host.

Failure Modes

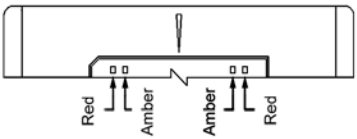
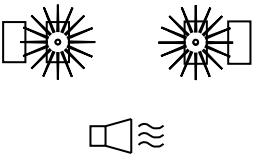


Figure 26: *LEDs*

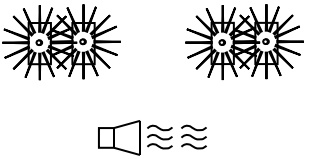
Flashing Amber and One Razzberry Tone

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



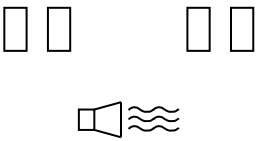
Flashing Red and Amber and Two Razzberry Tones

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



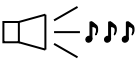
Continuous Razzberry Tone with both LEDs off

If, upon power up, the scanner emits a continuous razzberry tone, then the scanner has an electronic failure. Return the unit for repair at an authorized service center.



Three Beeps - on power up

If the scanner beeps 3 times on power up then, the nonvolatile memory that holds the scanner configuration has failed. Return the unit for repair at an authorized service center.



Changing the Beeper Tone & Volume

Changing the Beeper Tone

Beeper tones may be programmed directly or incrementally using the following bar code. The new tone will be heard followed by a short pause. Two more new tones will be heard signifying the new setting has been stored in memory. The silent (no beep) tone is also selectable.

Next Beep Tone

Changing the Beeper Volume

Volume levels may be programmed directly or incrementally using the following bar code. The new volume will be heard followed by a short pause. Two more tones will be heard signifying the new setting has been saved in memory. The silent (no volume) tone is also selectable.

Next Volume

These volume control and beeper tone bar codes can also be found under the Top plate of the scanner and in the MetroSelect Programming Guide.

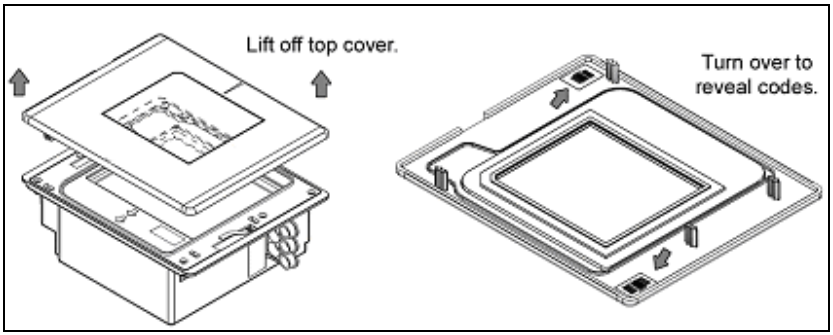


Figure 27: *Additional Beeper Tone and Volume Control Bar Codes*

Power Save Modes and IR Detection

The 7600 has five programmable power save modes. Refer to the *MetroSelect Programming Guide* for additional information on Power Save Modes.

1. **Blink Power Save Mode:**
   Blinks the laser OFF & ON after a programmed period of non-use.

   When the scanner recognizes a bar code it will exit the Blink mode.

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

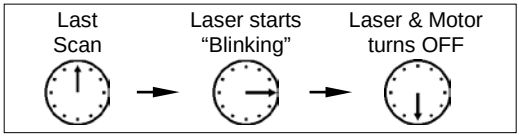
   Any movement detected by the IR will "wake" the scanner from the *Laser Off* power save mode (see Figure 28).

3. **Laser & Motor Off Power Save Mode:**
   Turns the laser and motor OFF after a programmed period of non-use.

   Any movement detected by the IR will "wake" the scanner from the power save mode (see Figure 28). This mode's "wake" time is slightly longer due to the motor's need to restart.

4. **Dual Action Power Save Mode #1:**
   "Blinks" the laser OFF & ON after a programmed period of non-use turns the laser and motor OFF at thirty-minute intervals.

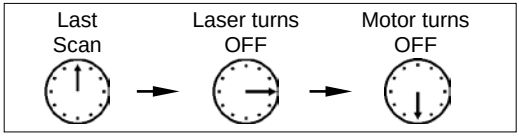
   Example:
   If the power save timeout is set to 15 minutes.



   Any movement detected by the IR will "wake" the scanner from the power save mode (see Figure 28).

5. **Dual Action Power Save Mode #2 (Default):**
   Turns the laser OFF after a programmed period of non-use then turns the motor OFF after thirty-minute intervals.

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



   Any movement detected by the IR will "wake" the scanner from the power save mode (see Figure 28).

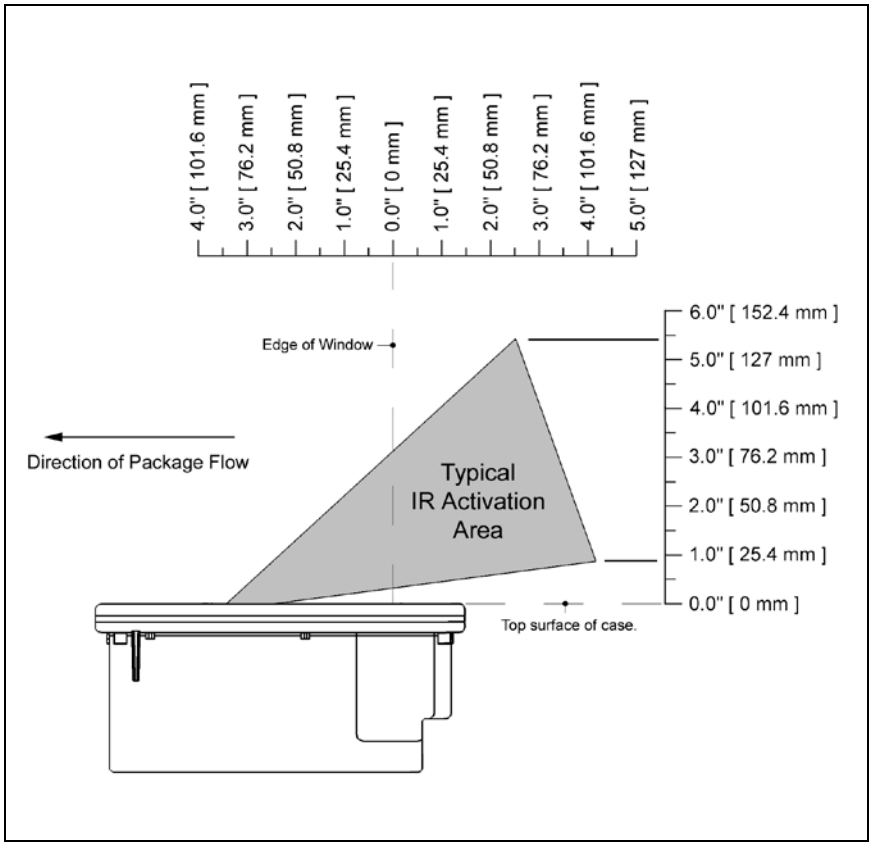


Figure 28: *IR Activation Area Parallel to Package Flow*

Specifications are subject to change without notice.

Scan Volume Specifications

(BASED ON 100% UPC BAR CODES)

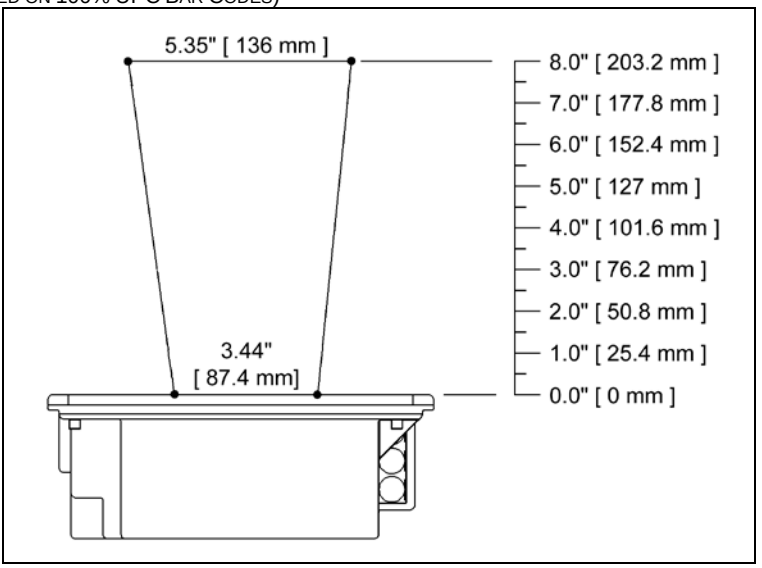


Figure 29: *Scan Volume in Plane Perpendicular to Flow*

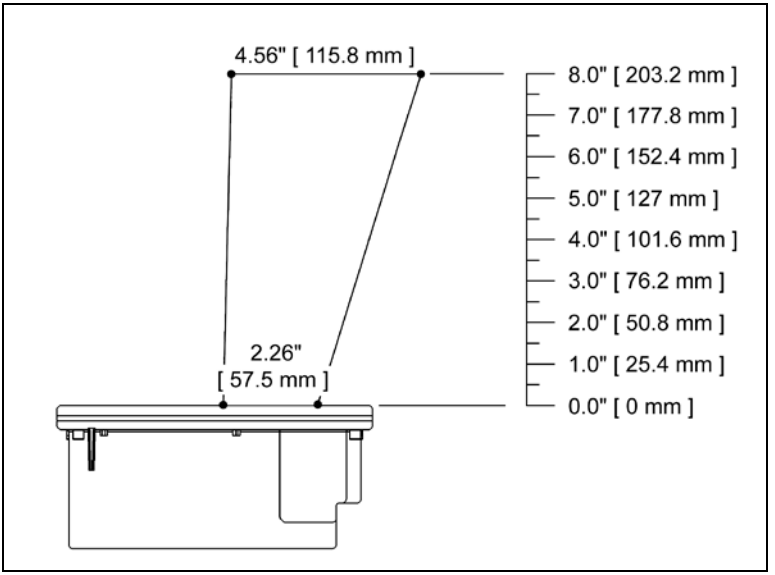


Figure 30: *Scan Volume in Plane Parallel to Flow*

Specifications subject to change without notice.

Depth of Field by Minimum Bar Code Element Width

(BASED ON 100% UPC BAR CODES)

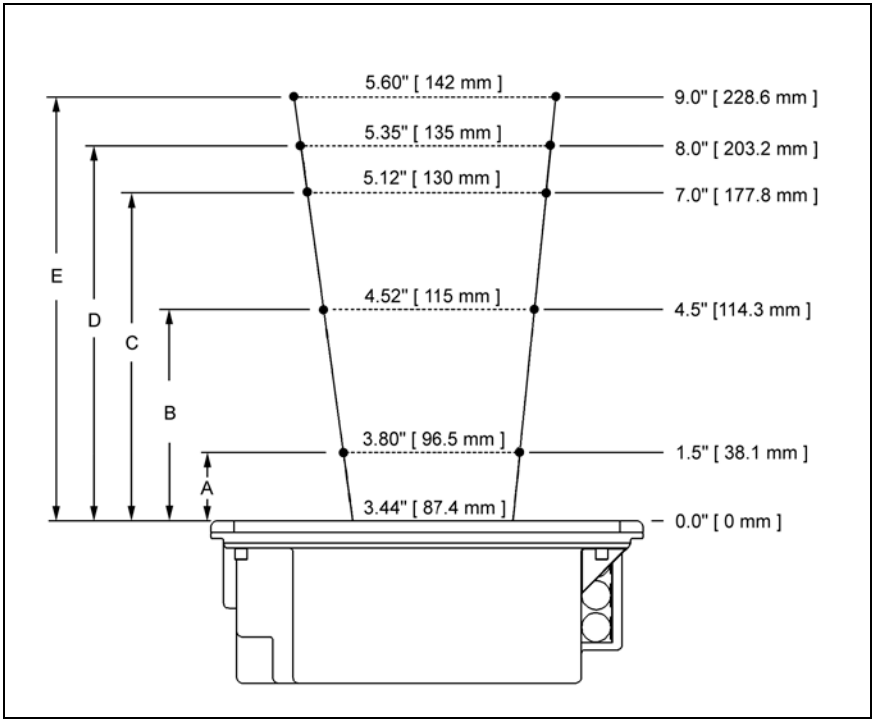


Figure 31: *Depth of Field Perpendicular to Flow*

	Minimum Bar Code Element Width				
	A	**B**	**C**	**D**	**E**
mm	.13	.19	.26	.33	.48
mils	5.2	7.5	10.4	13	19

Specifications subject to change without notice.

Troubleshooting

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

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
All Interfaces		
No LEDs, beep or motor spin.	No power is being supplied to the scanner.	Check transformer, outlet and power strip. Make sure the cable is plugged into the scanner.
No LEDs, beep.	No power is being supplied to the scanner from host.	Some host systems cannot supply enough current to power 7600 series scanner. Use the power supply included with the scanner.
3 beeps on power up.	Non-volatile RAM failure.	Contact a customer service representative, if the unit will not hold the programmed configuration.
Continuous razz tone on power up.	RAM or ROM failure.	Contact a customer service representative, if the unit will not function.
Razz tone and amber LED flash at power up.	VLD failure.	Contact a customer service representative.
Razz tone and both LEDs flash at power up.	Scanner motor failure.	Contact a customer service representative.
Multiple scans upon presentation of code.	Same symbol timeout set too short.	Adjust same symbol timeout for a longer time.
The unit powers up, but does not beep.	Beeper disabled No volume is selected No tone is selected.	Enable beeper Select volume Select tone.

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
The unit powers up, but does not scan and/or beep.	Scanning 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 programmed for a character length lock, or a minimum length and bar code being scanned does not satisfy the programmed 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 (red 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 that 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 print quality of the bar code is suspect.	Check print mode. The type of printer could be the problem. Change print settings. For example change to econo mode or high speed.
	Also check character length lock.	
	The aspect ratio of the bar code is out of tolerance.	

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
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 this 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.
Keyboard Wedge Only		
The unit scans the bar code but there is no data.	Configuration is not correct.	Make sure the scanner is configured for the appropriate mode.
The unit scans but the data is not correct.	Configuration is not correct.	Make sure that the proper PC type AT, PS2 or XT is selected. Verify correct country code and data formatting are selected. Adjust intercharacter delay SYMPTOM.
The unit is transmitting each character.	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.	Computer is in Caps Lock mode.	Enable Caps Lock detect setting of the scanner to detect whether the PC is operating in Caps Lock.

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
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.
RS-232 Only		
The unit is transmitting each character.	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.	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 that country's key look up table.	Try operating the scanner in Alt mode.
Power-up OK and scans OK but does not communicate properly to the host.	Com port at the host is not working or configured properly.	Check to make sure that the baud rate and parity of the scanner and the communication port match and the program is looking for "RS-232" data.
	Cable not connected to the proper com port.	
	Com port not operating properly.	
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.

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
Characters are being dropped.	Intercharacter delay needs to be added to the transmitted output.	Add some intercharacter delay to the transmitted output by using the MetroSelect Programming Guide (PN 00-02407).
Aux port operation with any interface		
Trouble with the Secondary Scanner.		Refer to the user guide provided with the secondary scanner.
Secondary Scanner powers up but data is not relayed to the host.	Cable [PN 54-54667] may not be connected to the proper port.	Ensure Secondary scanner is connected to the 7600 com port marked “Aux” port.
	The “Aux” com port may not be operating properly.	* The 7600 must be programmed to enable the “Aux” port.
		The auxiliary input port’s data format must match the main output format of the secondary scanner.
* Use MetroSet™. For the Auxiliary interface, choose “HoloTrak Decode”. All remaining parameters will be automatically chosen.		
USB Only		
The scanner Powers up ok, scans ok but does not communicate.	The USB Port is not operating correctly.	Check that the scanner is programmed for USB operation.
		Check that the host’s USB port is enabled.
When configured as USB scanner razz tone & 3 LED flashes.	USB port is not operating correctly.	Unplug & plug USB cable at host end.
		Contact a customer service representative if error continues.

Design Specifications

Operational

Light Source:	VLD 650 ± 10 nm	
Laser Power:	1.1 mW maximum	
Embedded Laser:	Max Optical Power:	10 mW
	Wavelength:	650 nm
Depth of Field:	0 mm to 203.2 mm (0"- 8.0") for 0.33 mm (13 mil) bar code	
Width of Scan Field:	87.4 mm (3.4") @ 0 mm (0.0"); 136 mm (5.35") @ 203.2 mm (8.0") *Measurements in plane perpendicular to package flow.*	
Scan Speed:	2000 scans/second	
Scan Pattern:	5 fields of 4 parallel lines (omnidirectional)	
Scan Lines:	20	
Min Bar Width:	0.127 mm (5.0 mil)	
Decode Capability:	Autodiscriminates all standard bar codes; for other symbologies call Honeywell	
System Interfaces:	PC Keyboard Wedge, RS-232, OCIA, Light Pen, Stand Alone PC Keyboard, USB, RS485	
Print Contrast:	35% minimum reflectance difference	
No. Characters Read:	up to 80 data characters(Maximum number will vary based on symbology and density)	
Roll, Pitch, Yaw:	360°, 60°, 60°	
Beeper Operation:	7 tones or no beep	
Indicators (LED):	amber = laser on, ready to scan red = good read, decoding	

Mechanical

Dimensions:	193 mm (7.6") H, 88 mm (3.5") D, 229 mm (9.0") W
Weight:	2.88 Kg (6.35 lbs)
Termination:	Three 10-pin modular RJ45 jacks
Cable:	Standard 2.1m (7') straight; for other cables call Honeywell

Specifications subject to change without notice.

Electrical

Input Voltage:	5.2VDC ± 0.25V
Power:	2.6 W
Operating Current:	500 mA
Standby Current:	Laser Off Power Save Mode = ≤ 350 mA
	Laser/Motor Off Power Save Mode = ≤165 mA
DC Transformers:	Class II; 5.2 V @ 1A
Laser Class:	IEC 60825-1:2007 Class 1
EMC:	FCC, ICES-003 & EN 55022 Class B

Environmental

Operating Temperature:	0°C to 40°C (32°F to 104°F)
Storage Temperature:	-40°C to 60°C (-40°F to 140°F)
Humidity:	5% to 95% relative humidity, non-condensing
Light Levels:	4842 LUX (450 foot candles)
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)
7620 7625	13	RS232, RS485, OCIA, Aux
7620 7625	37	RS232, Light Pen, Keyboard Wedge, Stand-Alone Keyboard, USB, Aux

The 7600 with Built-in PC Keyboard Wedge Interface is designed to be used for keyboard emulation only. Many RS-232 programmable functions 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)
- XT
- 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

** Refer to pages 39-44 for complete information on the factory default settings. Refer to the MetroSelect® Programming Guide (PN 00-02407) or MetroSet 2's help files for information on how to change the default settings.

Default Settings

Many functions of the scanner can be "programmed" - that is, enabled or disabled. The scanner is shipped from the factory programmed 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 communication does not support every parameter. If the communication supports a parameter listed in the charts on the following pages, a check mark will appear.

PARAMETER	DEFAULT	OCIA	RS-232	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		✓	✓	✓	✓	✓	✓
Airline (15 digit) 2 of 5		✓	✓	✓	✓	✓	✓
Airline (13 digit) 2 of 5		✓	✓	✓	✓	✓	✓
Matrix 2 of 5		✓	✓	✓	✓	✓	✓
Telepen		✓	✓	✓	✓	✓	✓
UK Plessey		✓	✓	✓	✓	✓	✓
STD 2 of 5		✓	✓	✓	✓	✓	✓
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	✓	✓	✓	✓	✓	✓
Bars High as Code 39	*			✓			
Spaces High as Code 39				✓			

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	RS485	KBW	USB
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	✓	✓	✓	✓	✓	✓
Beeper Volume	Loudest	✓	✓	✓	✓	✓	✓
Communication Timeout	None	✓	✓	✓	✓	✓	✓
Razzberry Tone on Timeout		✓	✓	✓	✓	✓	✓
Three Beeps on Timeout		✓	✓	✓	✓	✓	✓
No Beeps on Timeout	*	✓	✓	✓	✓	✓	✓
Enter Power Save Mode	10 mins.	✓	✓	✓	✓	✓	✓
Blink Power Save Mode		✓	✓	✓	✓	✓	✓
Laser OFF Power Save Mode		✓	✓	✓	✓	✓	✓
Laser & Motor OFF Power Save Mode		✓	✓	✓	✓	✓	✓
Dual Action Power Save Mode #1		✓	✓	✓	✓	✓	✓
Dual Action Power Save Mode #2	*	✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 200 msecs		✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 500 msecs Programmable in 50 msec steps (MAX 6.35 seconds)	*	✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 1250 msecs		✓	✓	✓	✓	✓	✓
Same Symbol Rescan Timeout: 2000 msecs		✓	✓	✓	✓	✓	✓
Intercharacter Delay Programmable in 1 msec steps (MAX 255 msecs)	1 msecs 10 msecs in KBW	✓	✓		✓	✓	

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	RS485	KBW	USB
Number of Scan Buffers	1	✓	✓	✓	✓	✓	✓
Transmit EAN-8 Check Digit	*	✓	✓		✓	✓	✓
Transmit EAN-13 Check Digit	*	✓	✓		✓	✓	✓
Transmit UPC-A Check Digit	*	✓	✓	✓	✓	✓	✓
Transmit UPC-E Check Digit			✓	✓	✓	✓	✓
Expand UPC-E		✓	✓	✓	✓	✓	✓
Convert UPC-A to EAN-13		✓	✓		✓	✓	✓
UPC GTIN-14 Format		✓	✓		✓	✓	✓
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	*		✓				
Transmit Sanyo ID Characters			✓			✓	✓
Nixdorf ID			✓			✓	✓
LRC Enabled			✓			✓	✓
UPC Prefix			✓			✓	✓

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	RS485	KBW	USB
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			✓				✓
"FL" Laser Enable Command			✓				✓
DTR Handshaking Support			✓				
RTS/CTS Handshaking			✓				
Character RTS/CTS	*		✓				
Message RTS/CTS			✓				
XON/XOFF Handshaking			✓				
ACK/NAK			✓				
Two Digit Supplements		✓	✓	as code 39	✓	✓	✓
Five Digit Supplements		✓	✓	as code 39	✓	✓	✓
Bookland 978		✓	✓	as code 39	✓	✓	✓
Bookland 977 (2 digit) Supplemental Requirement		✓	✓	✓	✓	✓	✓
Supplements are not Required	*	✓	✓	✓	✓	✓	✓
Two Digit Redundancy	*	✓	✓	✓	✓	✓	✓
Five Digit Redundancy		✓	✓	✓	✓	✓	✓
100 msec to Find Supplement Programmable in 100 msec steps (MAX 800 msec)	*	✓	✓	✓	✓	✓	✓

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	RS485	KBW	USB
Coupon Code 128		✓	✓	as code 39	✓	✓	✓
Programmable Code Lengths	7 avail.	✓	✓	✓	✓	✓	✓
Programmable Prefix Characters	10 avail.		✓			✓	✓
Suffix Characters			✓			✓	✓
Prefixes for individual Code Types			✓			✓	✓
Editing		✓	✓	✓	✓	✓	✓
Inter Scan-Code Delay Programmable (100 µsec steps)	800 µsec					✓	✓
Function/Control Key Support						✓	✓
Minimum Element Width Programmable in 5.6 µsec steps	1 msec			✓			
Depth of Field							
Variable Depth of Field	*	✓	✓	✓	✓	✓	✓
Normal Depth of Field	*	✓	✓	✓	✓	✓	✓
Extended Depth of Field		✓	✓	✓	✓	✓	✓
Long Depth of Field	*	✓	✓	✓	✓	✓	✓
Ultra Close Depth of Field		✓	✓	✓	✓	✓	✓

Default settings for "*Aux*" interface

The secondary scanner and the 7600 always communicate via RS232. Data is relayed to the host via various primary interfaces.

PARAMETER	DEFAULT	OCIA	RS-232	LIGHT PEN	RS485	KBW	USB
Aux Baud Rate	38400	✓	✓	✓	✓	✓	✓
Aux parity	space	✓	✓	✓	✓	✓	✓
Aux data bits	7	✓	✓	✓	✓	✓	✓
Aux stop bits	2	✓	✓	✓	✓	✓	✓
Aux character RTS	*	✓	✓	✓	✓	✓	✓
Aux message RTS		✓	✓	✓	✓	✓	✓
Aux Ack/Nak	*	✓	✓	✓	✓	✓	✓
Aux Xon/Xoff	*	✓	✓	✓	✓	✓	✓
Aux D/E commands		✓	✓	✓	✓	✓	✓
Aux M/O commands		✓	✓	✓	✓	✓	✓
Aux F/L commands		✓	✓	✓	✓	✓	✓
Aux Intercharacter Delay	1 msec	✓	✓	✓	✓	✓	✓
Aux Port Data Format	None (Disabled)	✓	✓	✓	✓	✓	✓

Scanner and Cable Terminations

Scanner Pinout Connections

The 7600 scanner interfaces terminate to 10-pin modular jacks located on the back of the unit. The serial # label indicates the model number of the scanner.

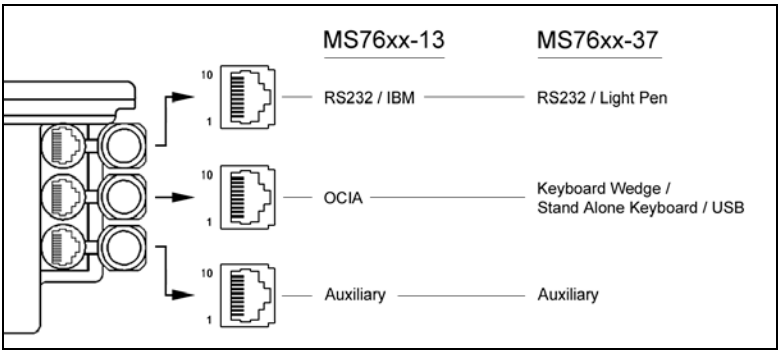


Figure 32: *Scanner Interface Ports*

MS762x-13 OCIA	
Pin	**Function**
1	Ground
2	NC
3	NC
4	RDATA
5	RDATA Return
6	Clock in
7	Clock out
8	Clock in Return/ Clock out Rtrn
9	+5VDC
10	Shield Ground

MS762x-13 RS485	
Pin	**Function**
1	Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6	DTR
7	IBM B- (D-)
8	IBM A+ (D+)
9	+5V IN
10	NC

MS762x-13/-37 Auxilary Port RS232 IN Only	
Pin	**Function**
1	Ground
2	RS-232 Receive Input
3	RS-232 Transmit Output
4	RTS In
5	CTS Out
6-10	NC

Continued on next page

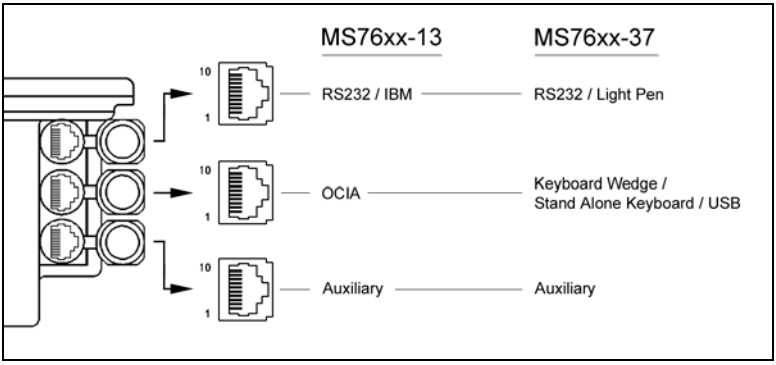


Figure 33: *Scanner Interface Ports*

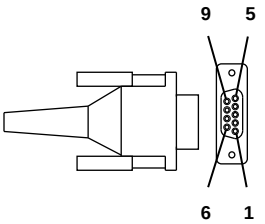
MS762x-37 Keyboard Wedge, Stand-Keyboard or USB	
Pin	**Function**
1	Ground
2	USB D-
3	USB D+
4	PC Data
5	PC Clock
6	KB Clock
7	PC +5V, V-USB
8	KB Data
9	+5VDC
10	Shield Ground

MS762x-37 RS-232 or Light Pen	
Pin	**Function**
1	Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input/LTPN Source
7	N/C
8	LTPN Data
9	+5VDC
10	Shield Ground

Cable Connector Configurations (Host End)

PowerLink Cable PN 54-54xxx*	
Pin	**Function**
1	Shield Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	DTR Input
5	Power/Signal Ground
6	Reserved
7	CTS Input
8	RTS Output
9	+5VDC

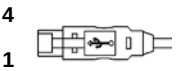
xxx* specifies connection to the host



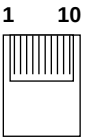
9-Pin D-Type Conn.

USB PowerLink Cable PN 54-54165, Type A	
Pin	**Function**
1	N/C
2	D-
3	D+
4	Ground

USB Type A (Top)
Locking Type A (Bottom)

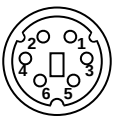


PowerLink, RS232 LSO/AUX Cable PN 54-54667	
Pin	**Function**
1	Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6-10	N/C



10-pin Modular Plug

Stand Alone Keyboard Cable PN 54-54020	
Pin	**Function**
1	PC Data
2	NC
3	Power Ground
4	+5VDC PC Power to KB
5	PC Clock
6	NC

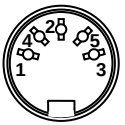


6-Pin Male Mini-DIN Conn.

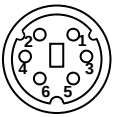
Cable Connector Configuration

The PowerLink cable is terminated with a 5-pin DIN female connector on one end, and a 6-pin mini DIN male on the other.

PowerLink Cable

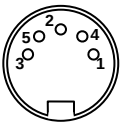


5-Pin DIN, Female

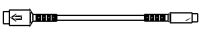


6-Pin DIN, Male

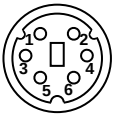
Honeywell will supply an adapter cable with a 5-pin DIN male connector on one end and a 6-pin mini DIN female connector on the other.



5-Pin Din, Male



Adapter Cable



6-pin Mini Din, Female

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. The pin assignments are as follows:

PowerLink Cable	
5-pin Female DIN	
Pin	**Function**
1	Keyboard Clock
2	Keyboard Data
3	No Connect
4	Power Ground
5	+5 Volts DC

Adapter Cable	
5-pin Male DIN	
Pin	**Function**
1	PC Clock
2	PC Data
3	No Connect
4	Power Ground
5	+5 Volts DC

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

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

Index

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