Honeywell

7820 Solaris

Bar Code Scanner

User's Guide

Disclaimer

Honeywell International Inc. ("HII") reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult HII to determine whether any such changes have been made. The information in this publication does not represent a commitment on the part of HII.

HII shall not be liable for technical or editorial errors or omissions contained herein: nor for incidental or consequential damages resulting from the furnishing, performance, or use of this manual. HII disclaims all responsibility for the selection and use of software and/or hardware to achieve intended results.

Web Address: www.honeywellaidc.com

Trademarks

MetroSelect and MetroSet are trademarks or registered trademarks of Metrologic Instruments, Inc. in the United States and/or other countries.

Microsoft, Windows 95, and Windows are registered trademarks of Microsoft Corporation.

IBM is a trademark of International Business Machines Corporation.

Checkpoint is a registered trademark of Checkpoint Systems, Inc.

Sensormatic is a registered trademark of Sensormatic Electronics Corporation.

Other product names mentioned in this manual may be trademarks or registered trademarks of their respective companies and are the property of their respective owners.

Patents

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

TABLE OF CONTENTS

INTRODUCTION

PRODUCT OVERVIEW

The 7820 Solaris vertical mini-slot scanner increases productivity with an unmatched feature set that aggressively scans high-density codes and fits easily into any existing enclosure found in small item, high-volume retail environments. Every scanner comes standard with an integrated RF EAS antenna, Checkpoint® and Sensormatic interlock and the ability to be remotely configured or Flash upgraded. These features, in combination with multiple on-board interfaces and a diagnostic display, make the 7820 ideal for retailers seeking a lower total cost of ownership on their next scanner investment. Firmware updates are easily loaded into Flash memory.

The 7820 bar code scanner is equipped with a multitude of standard features including:

- Automatic Scanning Operation
- EAS Deactivation Antenna
- Supports Multiple Interfaces (USB, KBW, RS232, RS485)
- Custom Parsing Bar Code Data
- OPOS and JPOS System Compatible
- RS232 Auxiliary Port for Adding Peripherals (Scanners or Scales)
- User Replaceable Cables
- Coplanar Scanner Surface
- Sunrise 2005 Compliant
- Single-Digit Diagnostic Indicator
- Remote Management Capabilities

INTRODUCTION

APPLICATIONS AND PROTOCOLS

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

SCANNER	COMMUNICATION PROTOCOL(S)
7820	RS232, Keyboard Wedge, USB, Auxiliary, RS485

The 7820 bar code scanner with Built-in PC Keyboard Wedge Interface is designed to be used for keyboard emulation only. Many RS232 configurable functions available in other Honeywell scanners are also available as keyboard wedge functions.

The following are the most important selectable options specific to 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

INTRODUCTION

SCANNER AND ACCESSORIES

BASIC KIT COMPONENTS	
Part #	**Description**
MS7820	Bar Code Scanner
00-02407	MetroSelect® Configuration Guide
00-02283	7820 Bar Code Scanner User's Guide
57-57312-3	7820 EAS Cable - Checkpoint (External)
57-57313-3	7820 EAS Cable - Sensormatic (External)
Guides also available for download at www.honeywellaidc.com.	
OPTIONAL ACCESSORIES	
Part #	**Description**
7820 Scanner Interface Cables	
5S-5Sxxx-3*	Straight, VLink Cable with short strain relief
5S-5Sxxx-N-3*	Straight, Direct Cable with short strain relief
5S-5S002-3	Keyboard Wedge VLink Cable with Adapter Cable
5S-5S006-N-3	RS485 (IBM) Direct Cable
5S-5S213-N-3	USB Direct 12V (Type A Plus Power) Cable
5S-5S235-3	USB 12VLink Cable (Type A)
57-57170-3	RS232 Scanner AUX 12VLink Cable
57-57500-N-3	RS232 Scale AUX Cable (Mettler-Toledo Viva)
57-57501-N-3	AUX Cable (MT Viva Scale Handheld Scanner)
xxx* *Specifies connection to the host.*	
Contact a customer service representative for additional information. See page 52 for contact information.	

SCANNER AND ACCESSORIES

OPTIONAL ACCESSORIES	
Part #	**Description**
7800 External Window Option	
46-00867	7800 Replaceable Protective Outer Window

** For 7800 Replacement Protective Outer Window removal / installation instructions see page 39 of this manual.

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor, or customer service. See page 52 for contact information.

SCANNER AND ACCESSORIES

OPTIONAL ACCESSORIES	
Part #	**Description**
46-00868	7820 Flex Stand Kit
Flex Stand, Kit Components	

1. Tall Flex Pole Cover ....Qty. 1
2. Tall Flex Pole..Qty. 1
3. Stand Base..Qty. 1
4. Plastic Stand Base Cover...Qty. 1
5. M4 x 0.7 x 10-10N Flat Head Screw...........................Qty. 2
6. #8 x 1.00" Wood Screw...Qty. 4
7. ¼" Lock Washer ....Qty. 2

SCANNER AND ACCESSORIES

OPTIONAL ACCESSORIES	
Part #	**Description**
46-00869	7820 Wall Mount Stand Kit
Wall Mount Stand, Kit Components	

1. Short Flex Pole...Qty. 1
2. Short Flex Pole Cover ....Qty. 1
3. Plastic Housing ....Qty. 1
4. Plastic Stand Base Cover...Qty. 1
5. Wall Mounting Bracket ....Qty. 1
6. ¼" Lock Washer..Qty. 2
7. M4 x 0.7 x 10-10N Flat Head Screw...Qty. 3
8. #8 x 1.00" Wood Screw ....Qty. 4

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor, or customer service. See page 52 for contact information.

7820 SCANNER DESIGN SPECIFICATIONS

OPERATIONAL		
Light Source:	**V**isible **L**aser **D**iode (VLD) @ 650 nm	
Laser Power:	0.900 mW (peak)	
Embedded Laser:	Max Optical Power:	10 mW
	Wavelength:	650 nm
Depth of Field:	0 mm to 255.0 mm (0"- 10.0") for 0.33 mm (13 mil) bar code	
Width of Scan Field:	38 mm (1.5") @ 15 mm (0.6"); 135 mm (5.3") @ 191 mm (7.5")	
Scan Speed:	1800 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:	Auto-discriminates all standard bar codes; for other symbologies contact a customer service, see page 52.	
System Interfaces:	Keyboard Wedge, RS232, 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):	Blue = laser on, ready to scan, and good read.	
MECHANICAL		
Dimensions:	152 mm (6.0") H, 92 mm (3.6") D, 152 mm (6.0") W	
Footprint of Stand	152 mm (6.0") x 64 mm (2.5")	
Weight:	0.706 Kg (1.56 lbs)	
Termination:	Two: 10-pin modular RJ45 jacks One: 6-pin modular RJ45 jack	
Cable:	Standard 2.1m (7') straight; for other cables contact a customer service representative, see page 52.	

INTRODUCTION

7820 SCANNER DESIGN SPECIFICATIONS

ELECTRICAL	
Input Voltage:	12VDC ± 0.25V
Power:	4.8 W
Operating Current:	320 mA
DC Transformers:	Class II; 12VDC @ 1.25A
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:	Up to 4842 LUX (450 foot candles)
Contaminants:	Sealed to resist airborne particulate contaminants
Ventilation:	None required

BASE MODEL CHARACTERISTICS

7820 SCANNER

Components
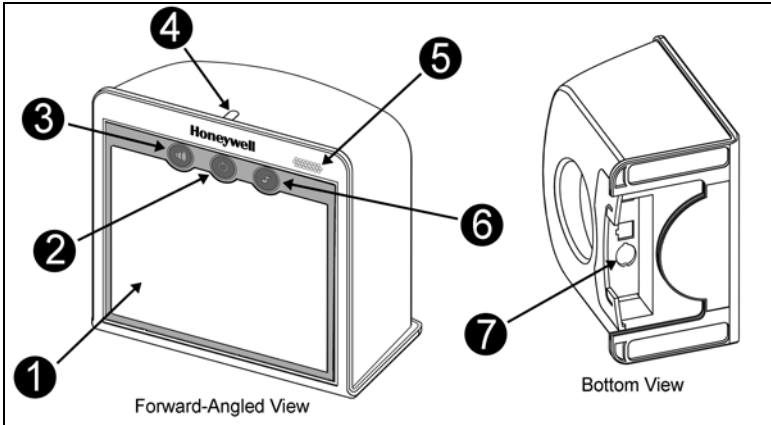
Figure 1. *7820 Bar Code Scanner Parts*

❶	Scratch Resistant Output Window (Laser Aperture)
❷	Power Save Button
❸	Volume Button
❹	Blue Indicator LED
❺	Speaker
❻	Tone Button
❼	Cable Connection Area

7820 SCANNER
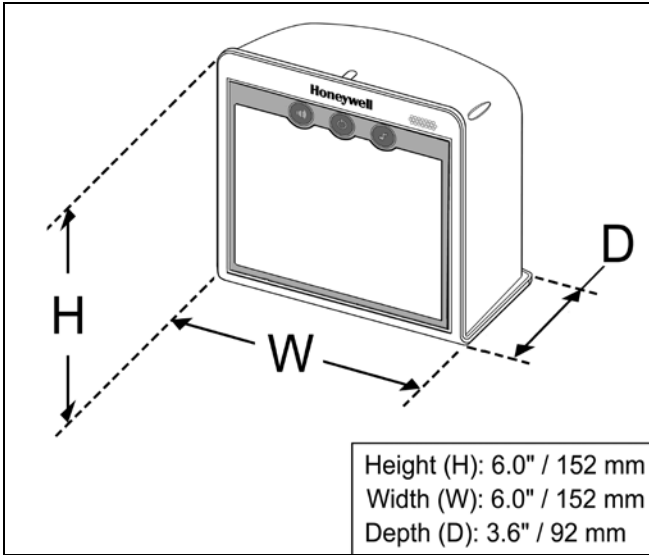
Dimensions

Figure 2. *7820 Bar Code Scanner Dimensions*

Connector Panel
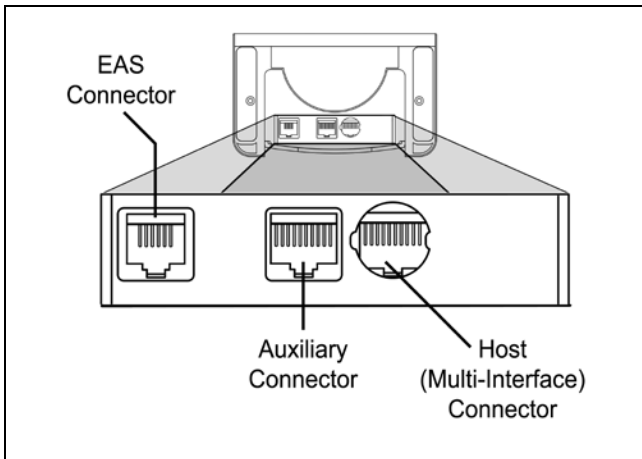
Figure 3. *7820 Connector Panel Layout*

7820 SCANNER

Caution and Serial Number Labels
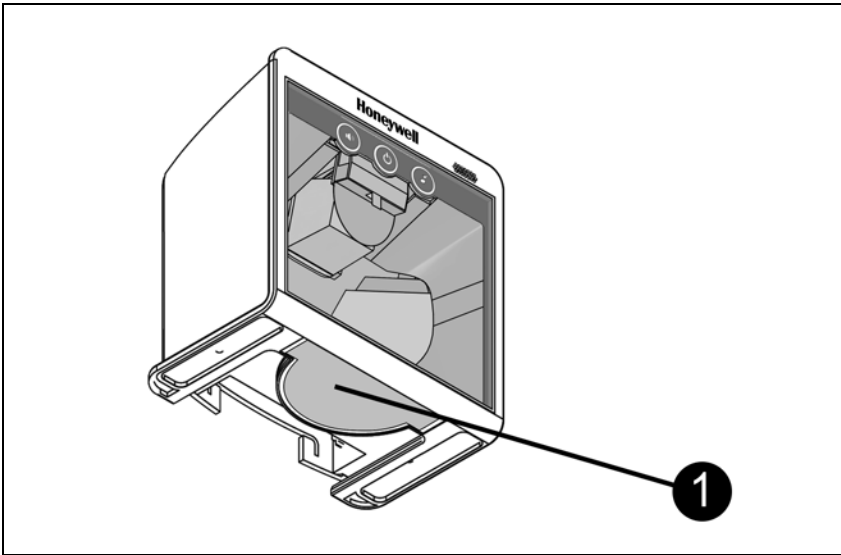
Figure 4. 7820 Label Location (Top) & Sample Label (Below)
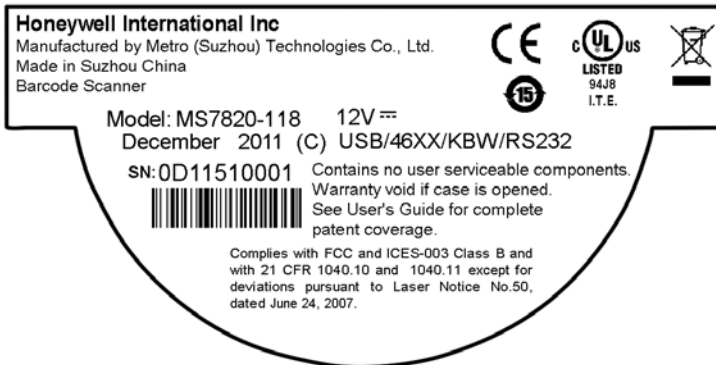
⚠	**Caution**
	To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN/IEC 60950-1.
	To maintain compliance with standard CSA C22.2 No. 60950-1/UL 60950-1 and norm EN/IEC 60950-1, the power source should meet applicable performance requirements for a limited power source.

11

7820 SCANNER

Dust Labels

The EAS and AUX Connectors are covered by dust labels, shown below. Peel off the label to access the connector needed. Keep the dust label on the connector not in use.
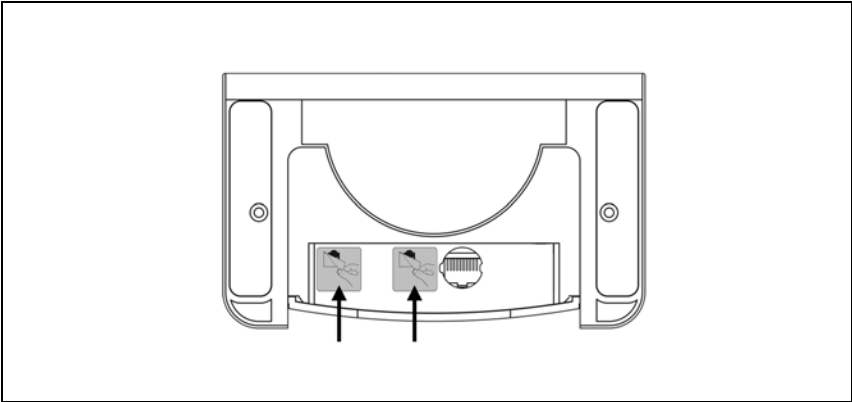
Figure 5. *7820 Label Location (Top) & Label (Below)*
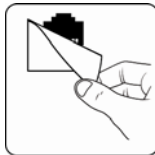
CABLE INSTALLATION (INTERFACE SPECIFIC)

Keyboard Wedge

1. Turn off the host system.

2. Disconnect the keyboard from the host.

3. Connect the keyed VLink cable to the 10-pin Multi-Interface jack. It is the only circular keyed jack located on the bottom of the 7820 *(see figure 6).*

4. Connect the "Y" end of the VLink 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.

🛑 Before continuing, verify the VLink 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 scanner.

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 *Recall Defaults* bar code to configure the 7820 for Keyboard Wedge communication.

9. Turn on the host system.

10. Snap on the cable cover.
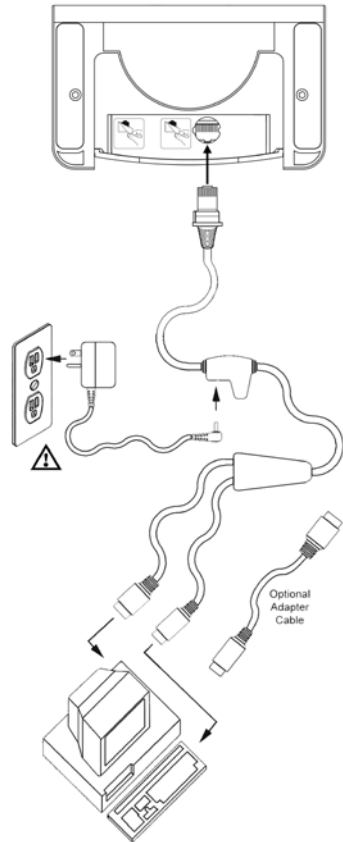
Figure 6.
Keyboard Wedge Interfaces

³ 9 9 9 9 9 8

⚠ *See SELV Power caution statement located on page 11 of this manual.*

13

CABLE INSTALLATION (INTERFACE SPECIFIC)

USB

1. Connect the keyed VLink cable to the 10-pin Multi-Interface jack. It is the only circular keyed jack located on the bottom of the 7820 *(see figure 7)*.

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

(STOP) Before continuing, verify the USB 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.

> 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 depending on settings.
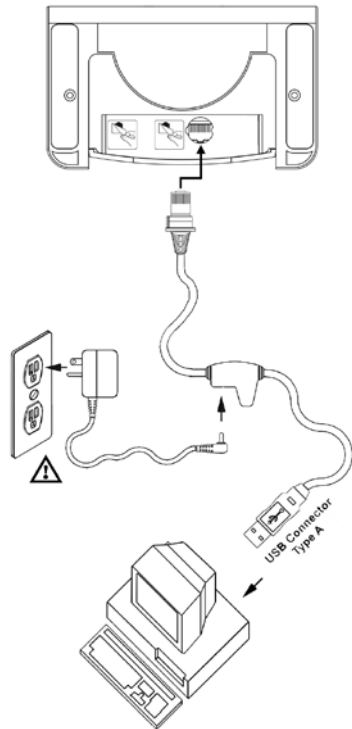
Figure 7. USB, Interface

3. Scan the *Recall Defaults* bar code to configure the 7820 for USB communication.

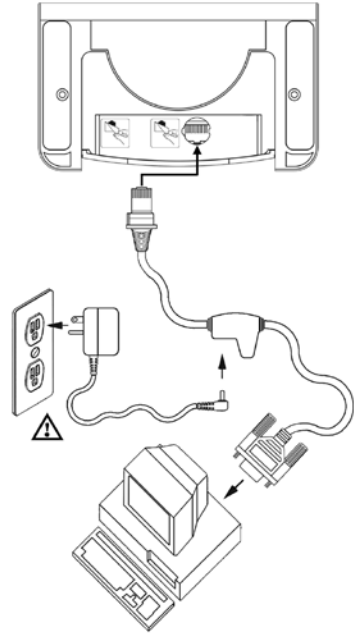4. Turn on the host system.

5. Snap on the cable cover.

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

³ 9 9 9 9 9 8

⚠ *See SELV Power caution statement located on page 11 of this manual.*

CABLE INSTALLATION (INTERFACE SPECIFIC)

RS232

1. Turn off the host system.

2. Connect the keyed VLink cable to the 10-pin Multi-Interface jack. It is the only circular keyed jack located on the bottom of the 7820 *(see figure 8).*

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

    STOP Before continuing, verify the VLink 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 scanner.

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 *Recall Defaults* bar code to configure the 7820 for RS232 communication.

8. Turn on the host system.

9. Snap on the cable cover.

Figure 8. *RS232 Interface*

³ 9 9 9 9 9 8

⚠ *See SELV Power caution statement located on page 11 of this manual.*

15

CABLE INSTALLATION (INTERFACE SPECIFIC)

RS485

1. Turn off the host system.

2. Connect the keyed cable to the 10-pin
    Multi-Interface jack. It is the only
    circular keyed jack located on the
    bottom of the 7820 *(see figure 9)*.

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

STOP Before continuing, verify the cable is
connected to the proper communication
jack on the scanner. Incorrect cable
connection can cause communication
problems or potential damage to the
scanner.

> 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.
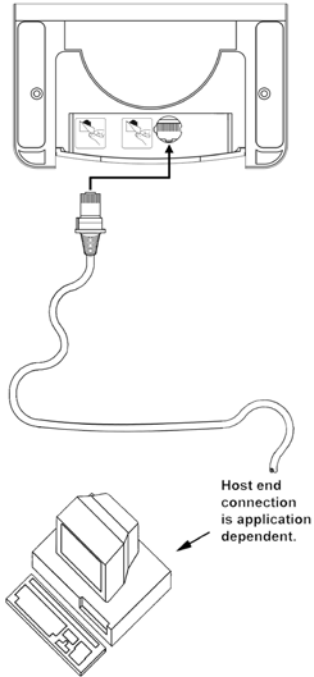
Figure 9. RS485 Interface

4. Turn on the host system.

5. Scan the *Recall Defaults* bar code
    to configure the 7820 for
    RS232/IBM communication.

6. Snap on the cable cover

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

³ 9 9 9 9 9 8

⚠ *See SELV Power caution statement located on page 11 of this manual.*

CABLE INSTALLATION (SECONDARY HONEYWELL SCANNER)

1. Turn off the host system.

2. Connect the round end of the *VLink RS232 AUX* cable
    [PN 57-57170-3] to the RS232 jack of the auxiliary scanner (*see figure 10 on page 19*).

3. Connect the other end of the *VLink RS232 AUX* cable into the Auxiliary
    (*AUX*) jack, which is located directly next to the circular keyed Multi-Interface jack. The Auxiliary (*AUX*) jack has a **square** opening.

    The following Honeywell scanners can be used in the Auxiliary (*AUX*) input
    of the 7820: the MS9520, MS9540, MS7120, MS7220 or another 7820.

    ⚠ Important: The 7820 aux port requires the signals: transmit, receive,
                  RTS & CTS from the auxiliary scanner.

4. Connect the 7820/Host VLink* cable to the circular keyed Multi-Interface
    jack located on the bottom of the 7820.

5. Connect the other end of the 7820/Host VLink cable to the Host.

6. Connect the external power supply to the power jack on the VLink cable.

7. Check the AC input requirements of the power supply to make sure the
    voltage matches the AC outlet.

8. Snap on the cable cover.

9. Connect AC power to the transformer. The outlet should be near the
    equipment and easily accessible.

10. Configure the 7820 for the appropriate interface configuration settings.*

* The 7820/host cable connection is interface dependent. Refer to the
   installation steps provided for the type of interface *(RS232, RS485, etc.)*
   required for your application.

⚠ *See SELV Power caution statement located on page 11 of this manual.*

CABLE INSTALLATION (SECONDARY HONEYWELL SCANNER)

11. Scan the following bar code to configure the auxiliary port on the 7820 to accept a Honeywell scanner as the secondary scanner.

    The following bar codes **do not apply** when using an MS6720 as a secondary scanner. If the secondary scanner is not a Honeywell scanner, refer to the *Auxiliary Port Control* section of the MetroSelect Configuration Guide.

Aux Port Defaults

³ 9 9 9 9 7 7

    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

³ 1 2 4 8 1 7

2nd
Secondary Scanner Data Format

³ 4 3 7 5 2 0

3rd
Enable Comm Timeouts

³ 1 1 8 4 1 2

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

³ 3 1 8 5 0 5

13. Turn on the host system.

CABLE INSTALLATION (SECONDARY HONEYWELL SCANNER)
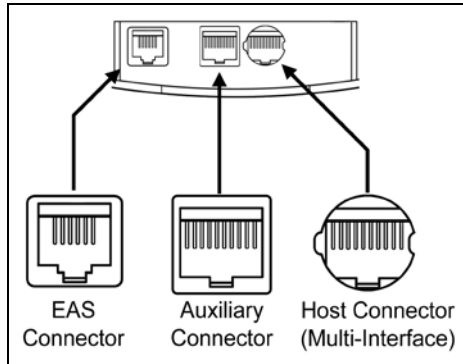
Figure 10. *Connector Orientation (Top)*
Auxiliary Scanner Setup (Bottom)
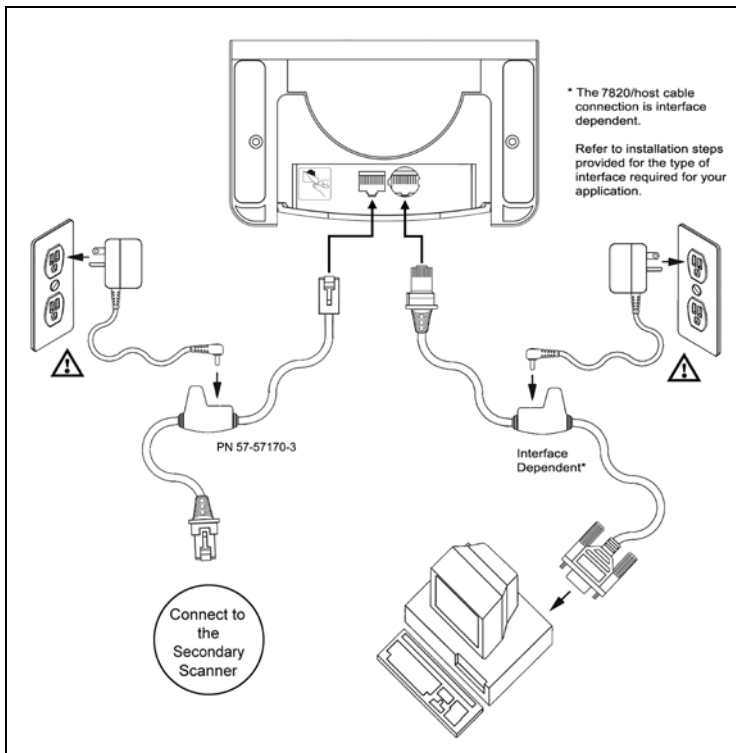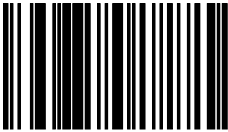
⚠ *See SELV Power caution statement located on page 11 of this manual.*

EAS DEACTIVATION

SW1 and SW2 are the switch banks inside the Checkpoint device that set the deactivation range. Honeywell recommends end users program the 7820 bar code scanner to the *Short Range**, so that the unit does not scan out beyond the deactivation range.

Unit #	Checkpoint Recommended Switch Bank Settings	7820 Depth of Field Recommended Settings
7820	SW1 - 2, 3, 4, 5, 6 set to ON & SW2 - 2, 3, 4, 5, 6 set to ON	Short Range* ³ 1 1 8 7 1 1
* Note: Minimum element width changes to 6.8 mil when in this mode.		
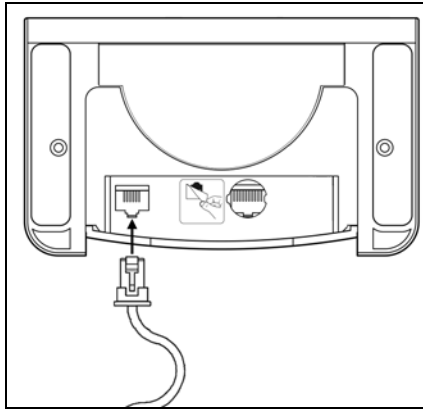
Figure 11. *EAS Deactivation Antenna*

Contact Checkpoint Systems directly for additional EAS support.

FLEX STAND INSTALLATION, PN 46-00868

1. Drill four #39 pilot holes in the counter top for the stand base plate.
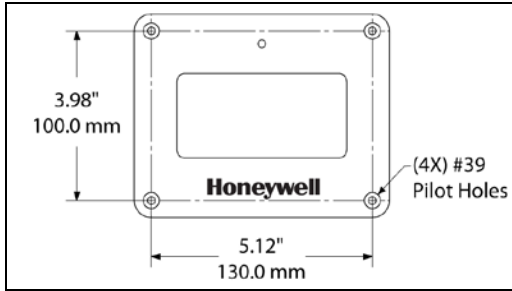
Figure 12. *Base Plate Hole Pattern*

2. Attach the flex pole assembly and secure the base plate to the counter. Slide the flex cover over the flex pole assembly. Once the flex pole has been assembled, mount the stand base plate to the counter and install the flex cover over the flex pole assembly.
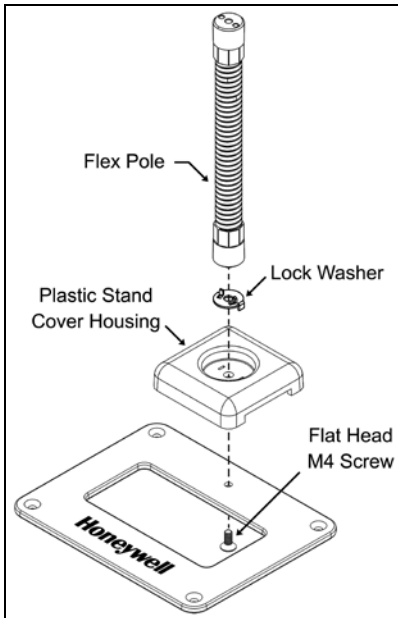
Figure 13. *Pole Assembly*
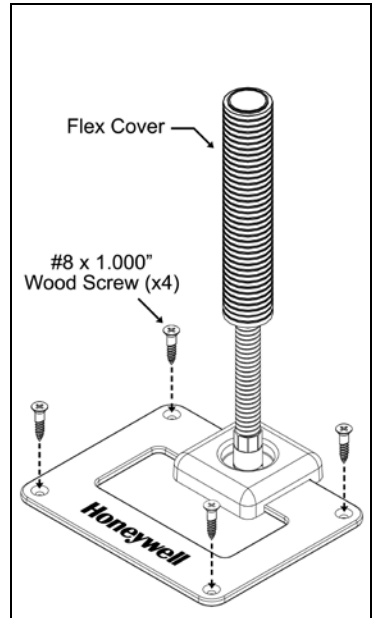
Figure 14. *Cover Assembly*

FLEX STAND INSTALLATION

3. Remove the scanner's back plate from the rear side of the unit. Apply pressure to the points shown in *Figure 15* until the back plate unlatches from the scanner.
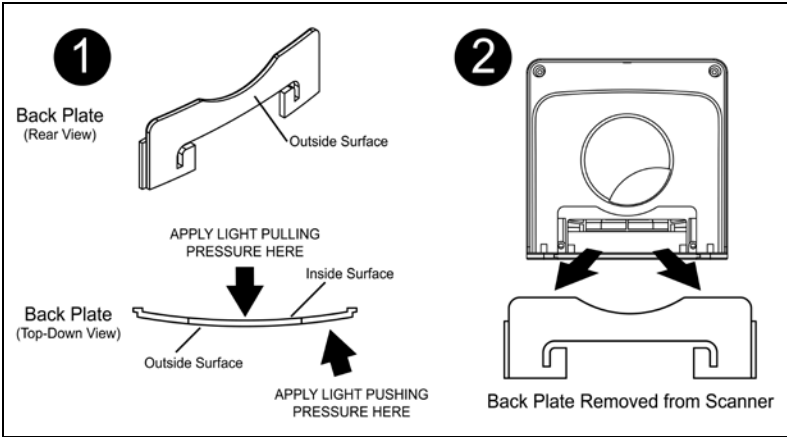
Figure 15. *Cable Cover Removal*

4. Slide the bottom mounting plate off the scanner.
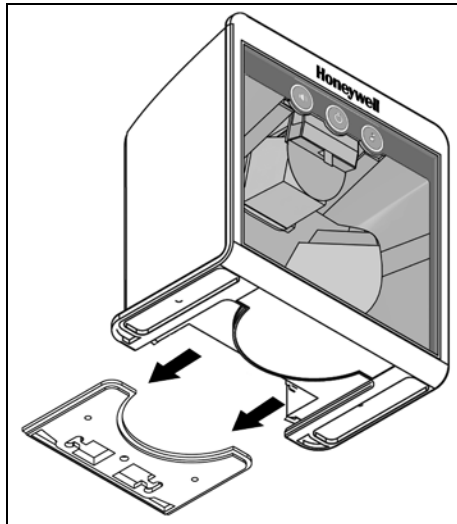
Figure 16. *Mounting Plate Removal*

FLEX STAND INSTALLATION

5.   Attach the scanner mounting plate to the flex pole.
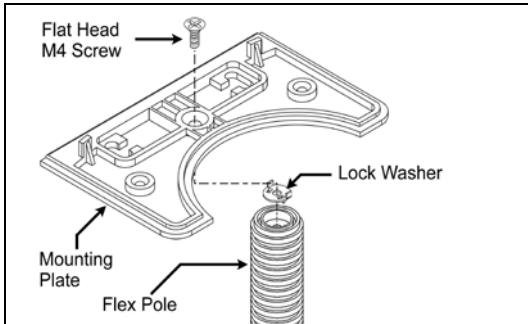
Figure 17. *Secure mounting plate to flex pole.*

6.   Slide the scanner onto the mounting plate until the plate is fully seated into the scanner.
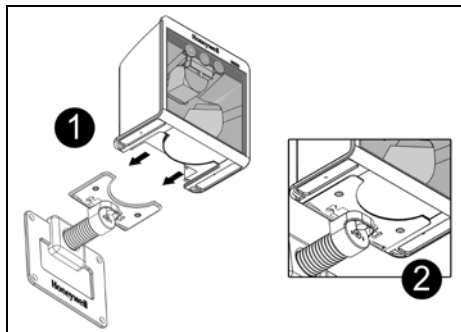
Figure 18. *Slide mounting plate into scanner.*

7.   **Before** installing the scanner's cable cover, refer to pages 13-20 for instructions on the proper cable connections.

8.   Re-Install the scanner's back plate to lock-in the bottom mounting plate.
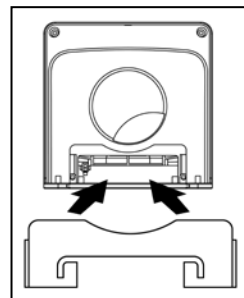
Figure 19. *Install back plate*

WALL MOUNT STAND INSTALLATION, PN 46-00869

1. Locate the area on the wall where the scanner will be mounted and drill four #39 pilot holes in the wall for the stand base plate.
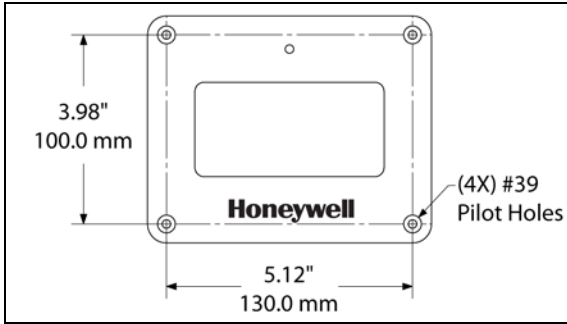
Figure 20. *Base Plate Hole Pattern*

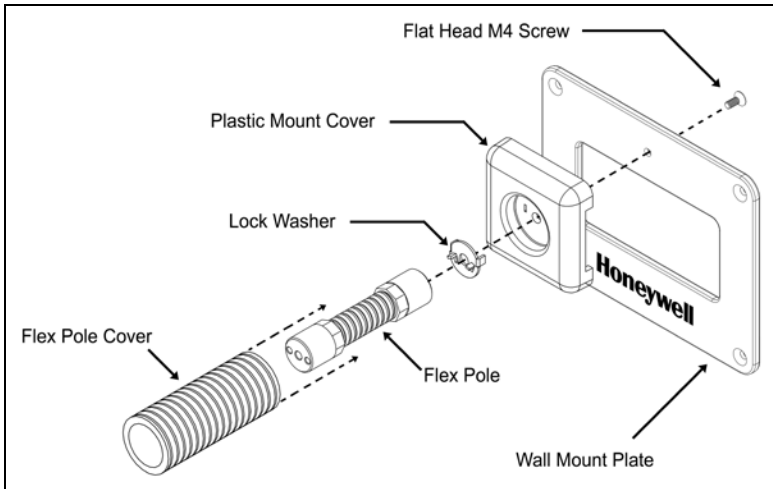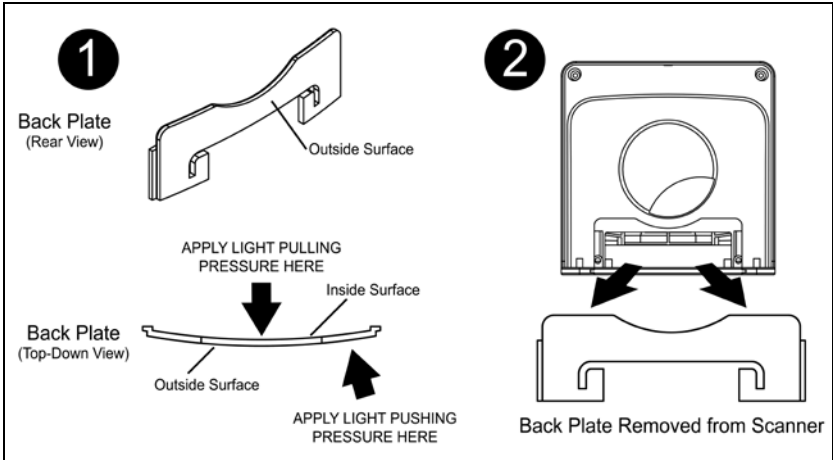2. Attach the flex pole assembly to the Wall Mount plate. Slide the flex cover over the flex pole assembly.

Figure 21. *Pole Assembly*

WALL MOUNT STAND INSTALLATION

3.   Remove the scanner's back plate from the rear side of the unit. Apply pressure to the points shown in *Figure 22* until the back plate unlatches from the scanner.

Figure 22. *Cable Cover Removal*

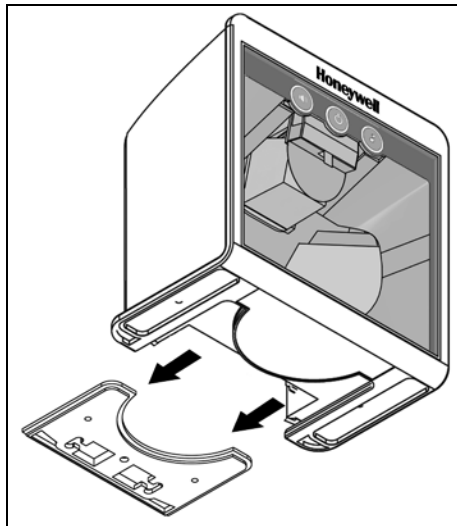4.   Slide the bottom mounting plate off the scanner.

Figure 23. *Mounting Plate Removal*

WALL MOUNT STAND INSTALLATION

5. Secure the wall mounting plate to the wall location designated in Step 1 and assemble the remaining parts as shown in *Figure 24*.
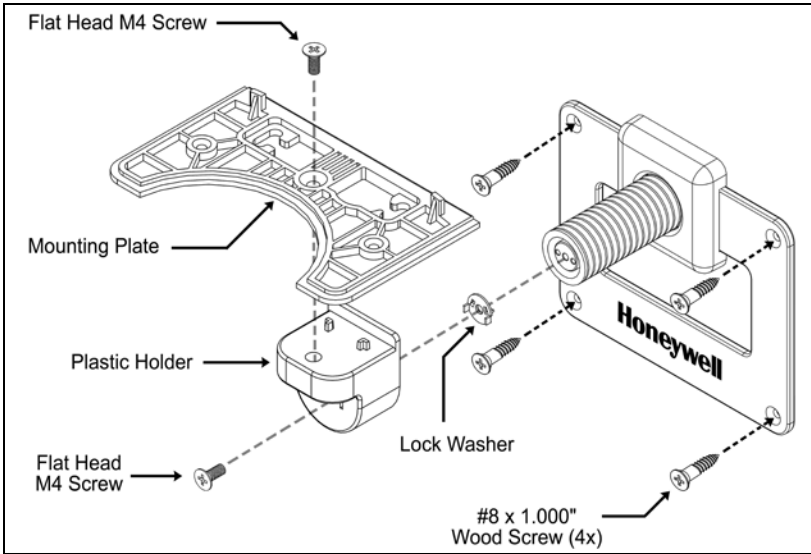

***Figure 24.** Scanner Mounting Plate Assembly*

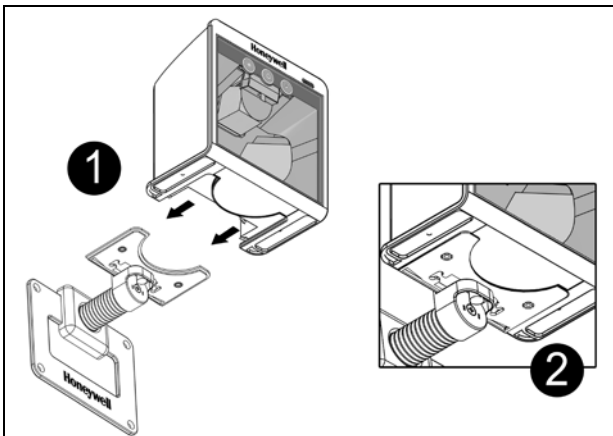6. Slide the scanner onto the mounting plate until the plate is fully seated into the scanner.

***Figure 25.** Slide mounting plate into scanner.*

26

WALL MOUNT STAND INSTALLATION

7. **Before** installing the scanner's cable cover, refer to pages 13-20 for instructions on the proper cable connections.

8. Re-Install the scanner's back plate to lock-in the bottom mounting plate.
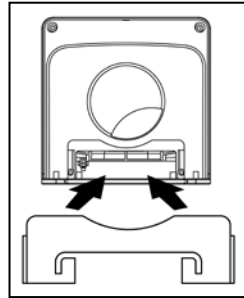

Figure 26. Install back plate
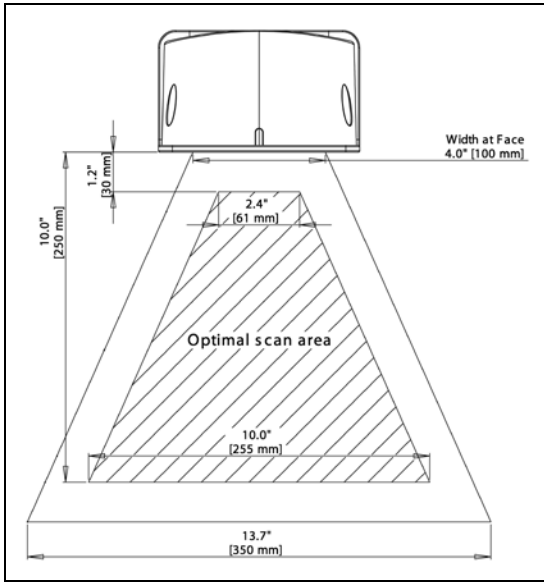
SCAN ZONE (BASED ON 100% UPC BAR CODES)

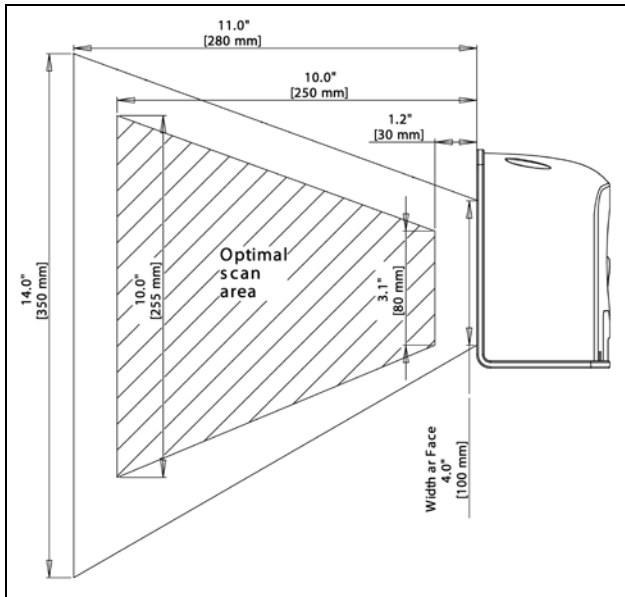**Figure 27.** *Scan Area Top View (top) Side View (Bottom)*

Specifications are subject to change without notice.

28

DEPTH OF FIELD BY MINIMUM BAR CODE ELEMENT WIDTH
(BASED ON 100% UPC BAR CODES)

Figure 28. *Depth of Field Top View*
Long Range Mode

| | Minimum Bar Code Element Width | | | | |
| | Long Range Mode | | | | |
	A	**B**	**C**	**D**	**E**
mm	.132	.190	.264	.330	.660
mils	5.2	7.5	10.4	13.0	26.0

Specifications are subject to change without notice.

DEPTH OF FIELD BY MINIMUM BAR CODE ELEMENT WIDTH
(BASED ON 100% UPC BAR CODES)

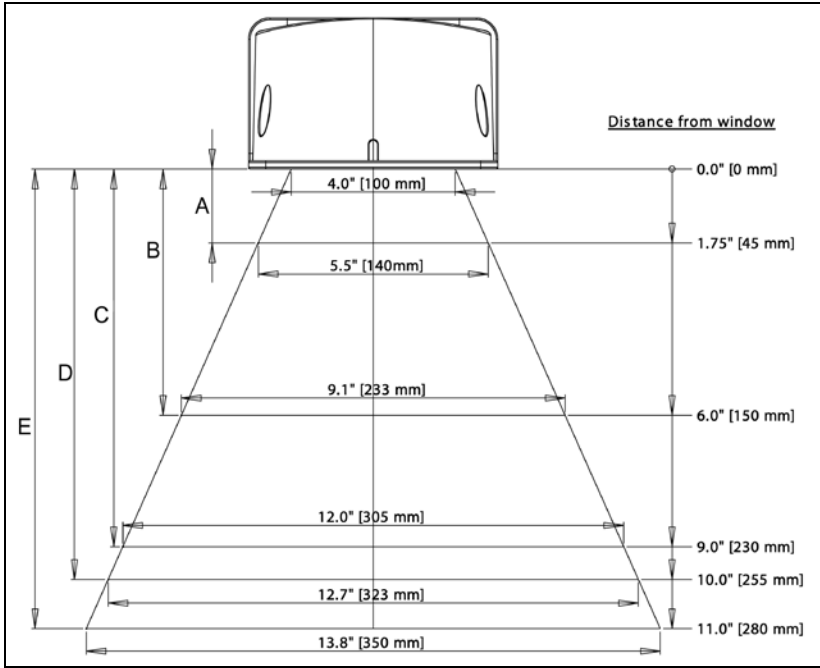**Figure 29.** *Depth of Field Side View*
Long Range Mode

Minimum Bar Code Element Width				
Long Range Mode				
A	B	C	D	E
mm .132	.190	.264	.330	.660
mils 5.2	7.5	10.4	13.0	26.0

Specifications are subject to change without notice.

DEPTH OF FIELD BY MINIMUM BAR CODE ELEMENT WIDTH
(BASED ON 100% UPC BAR CODES)

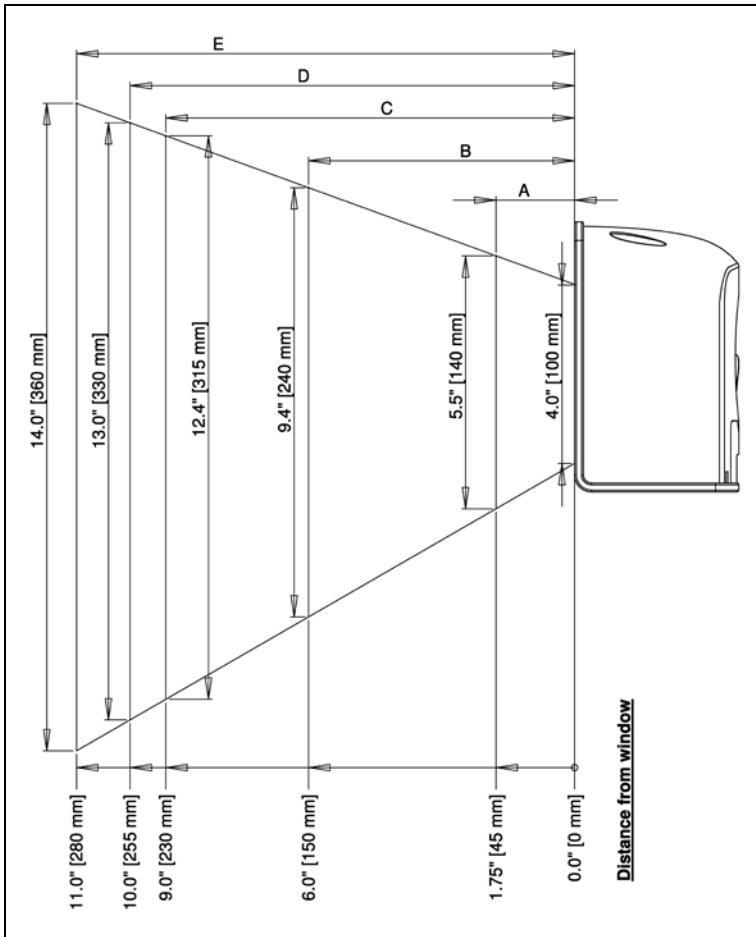**Figure 30.** *Depth of Field Top View*
Short Range Mode

Minimum Bar Code Element Width Short Range Mode		
A	**B**	**C**
mm .190	.264	.330
mils 7.5	10.4	13.0

Specifications are subject to change without notice.

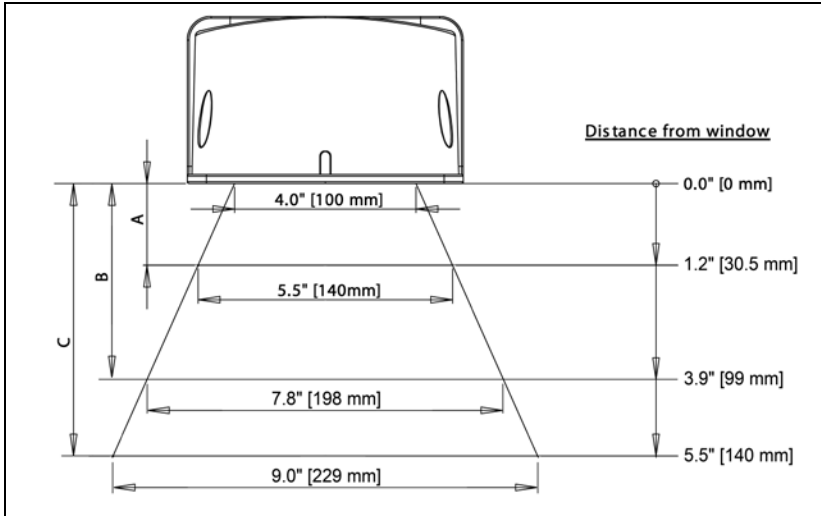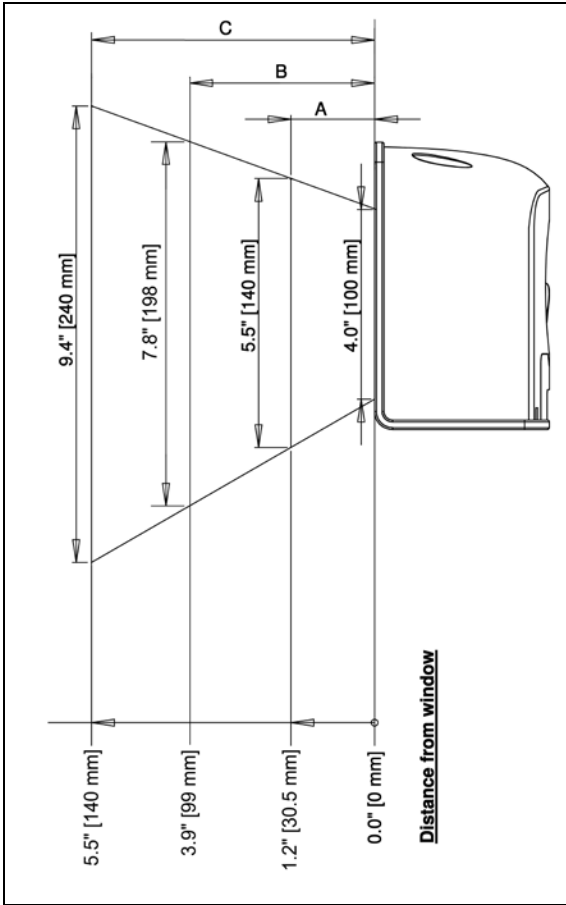## DEPTH OF FIELD BY MINIMUM BAR CODE ELEMENT WIDTH
(BASED ON 100% UPC BAR CODES)

Figure 31. Depth of Field Side View
Short Range Mode

Minimum Bar Code Element Width Short Range Mode		
A	**B**	**C**
mm .190	.264	.330
mils 7.5	10.4	13.0

Specifications are subject to change without notice.

32

INDICATOR DESCRIPTIONS

Audible

When the 7820 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). To change the tone, use the *Tone Button* or refer to the MetroSelect Configuration Guide.

One Beep

When the scanner *first* receives power, the blue LED will turn on and the scanner will beep once. The blue 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 blue LED will flash and the scanner will beep once (if configured to do so). If the scanner does not beep once and the blue LED does not flash, then the bar code has *not* been successfully read.
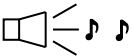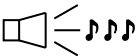
Two Beeps

The scanners programmed interface setting does not match the actual connected interface cable. This audible indicator will be heard during power up, or when a bar code is scanned.

Razzberry Tone

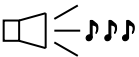This is a failure indicator. Refer to failure modes on page 35.

Three Beeps - during operation

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

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

The scanner will beep three times in an ascending tone, with each beep higher in pitch than the previous. This tells the user that the single configuration bar code has *successfully* configured the scanner.

Three beeps will also occur during a manual adjustment of the beeper tone. The scanner will emit three evenly pitched/spaced tones with the blue indicator LED blinking in unison.

Three Beeps - on power up

This is a failure indicator. Refer to failure modes on page 35.

I<small>NDICATOR</small> D<small>ESCRIPTIONS</small>

Visual

There is a blue LED on the top of the 7820 as well as three illuminated buttons on the front. When the scanner is on, the flashing or constant illumination of the LED indicates the status of the current scan and the scanner.
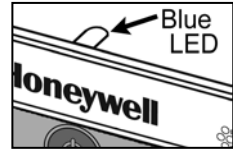

Figure 32. LED

No Blue LED
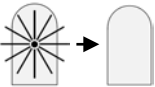The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer.
or
The unit is in Power Save Mode. During Power Save Mode, the laser will be off and the blue LED will not illuminate.

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

Steady Blue LED to OFF
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 blue LED will remain off until the data can be transmitted.

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

The blue LED will also flash once while the EAS is in deactivation mode.

Flashing Blue LED
This indicates the scanner is in program mode. A flashing blue LED with razzberry tone indicates that an invalid bar code has been scanned during this mode.

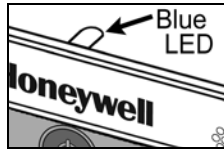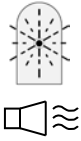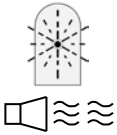INDICATOR DESCRIPTIONS

Failure Modes

Figure 33. *LED*

Flashing BLUE LED 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 Blue LED 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 LED 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.
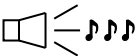
Three Beeps - on power up

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

INDICATOR DESCRIPTIONS

Diagnostic Indicator Display

There is a green colored (when illuminated) single digit error code display located to the left of the scanner's mirrored polygon (see figure to the right).
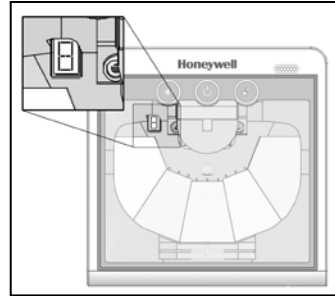

Figure 34. *Failure LED*

| ERROR CODE	DESCRIPTION
0	RAM ERROR – The scanner's Random Access Memory (RAM) is tested as faulty. Return the unit for repair at an authorized service center.
1	PROGRAM ERROR – The scanner's software program is failing. Return the unit for repair.
2	INTERFACE ERROR – After power up and any application exit (e.g. MetroSet, etc.), the scanner checks the interface hardware with that chosen in configuration. If they do not agree, an interface error exists.
3	CONFIGURATION ERROR – The non-volatile configuration memory did not agree with the data last saved. Default configuration data is then used and the scanner continues operating.
4	COMMUNICATION ERROR – The RS232 data line is being held active. The scanner will abort attempts to enter configuration mode after a short timeout.
5	COPROCESSOR COMMUNICATION ERROR – The main microprocessor is not communicating with the interface coprocessor. Return the unit for repair at an authorized service center.
6	LASER ERROR – The laser in the scanning system denotes a failure. Return the unit for repair at an authorized service center.
7	MOTOR ERROR – The motor in the scanning system denotes a failure. Return the unit for repair at an authorized service center.
8	SCALE ERROR – The scanner is not communicating with the scale.
9	EAS ERROR – The scanner is not communicating with the EAS device.

POWER SAVE MODES

The *7820* bar code scanner has five configurable power save modes. Refer to the *MetroSelect Configuration Guide* for additional information on Power Save Modes.

1. **Blink Power Save Mode:**
    "Blinks" the laser OFF & ON after a configured period of non-use.
    When the scanner recognizes a bar code, it will exit the Blink mode.

2. **Laser Off Power Save Mode (Default):**
    Turns the laser OFF after a configured period of non-use.
    The motor continues to spin allowing for a faster "wake" up time. Pressing any of the three buttons will "wake" the scanner from the *Laser Off* power save mode (*see figure 17*).

3. **Laser & Motor Off Power Save Mode:**
    Turns the laser and motor OFF after a configured period of non-use.
    Pressing any of the three buttons will "wake" the scanner from the power save mode (*see figure 38*). This mode's "wake up" 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 configured period of non-use turns the laser and motor OFF at thirty-minute intervals.

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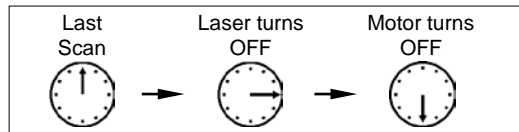   is set to 15 minutes.

Last Scan	Laser starts "Blinking"	Laser & Motor turn OFF
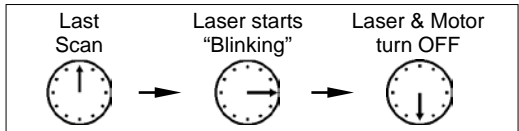
    Pressing the Power Save button will "wake" the scanner from the power save mode (*see figure 38*).

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

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

Last Scan	Laser turns OFF	Motor turns OFF

    Pressing the Power Save button will "wake" the scanner from the power save mode (*see figure 38*).
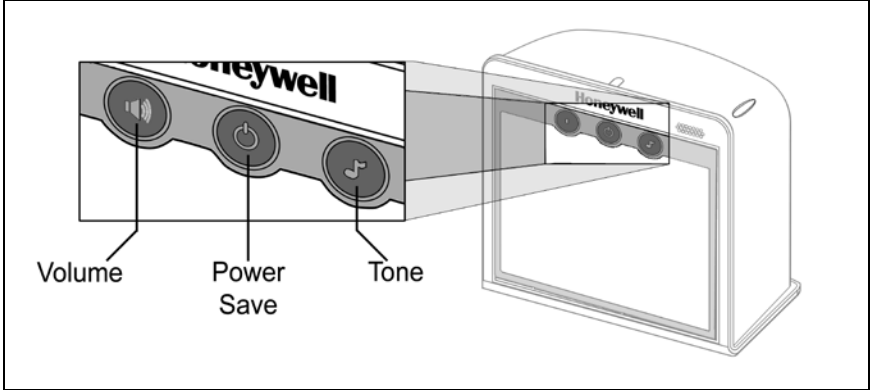
TOUCH BUTTON PANEL

Figure 35. *The Touch Button Panel Operation*

Figure 36. *Changing the Beeper Tone*

CHANGING THE BEEPER TONE
Touch the Tone button once and the beeper tone will change. The new tone will be heard. Then two more of the new tones will be heard signifying the new setting has been set.

Figure 37. *Changing the Beeper Volume*

CHANGING THE BEEPER VOLUME
Touch the Volume Button to adjust the scanner's speaker volume or mute (silence) the scanner.

Figure 38. *Power Save Button*

PLACING THE UNIT IN POWER SAVE MODE
Long (>3 seconds) touch of the Power Save button will place the 7820 scanner into Power Save Mode.

TO WAKE THE UNIT FROM POWER SAVE MODE
Touch any of the three touch panel buttons to awaken the scanner for normal operation.

38

REPLACEABLE PROTECTIVE OUTER WINDOW

The 7820 bar code scanner includes a replaceable protective outer window, which protects the flat-screen window from scratches when used in harsh scanning environments.
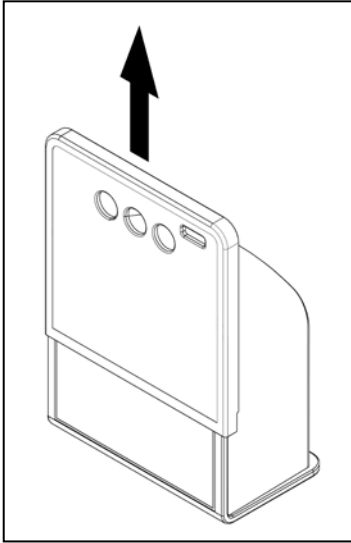

Figure 40.
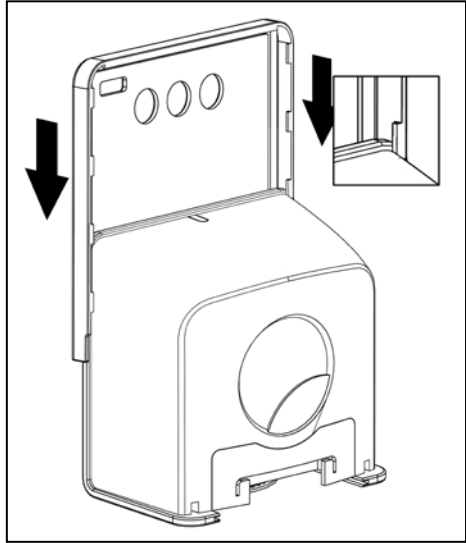*Replaceable Protective Outer*
Window Easy Removal.

Figure 39.
Replaceable Protective Outer
Window Easy Installation.

DAILY 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

Turn the host power off and disconnect the power supply from the cable before attempting to disconnect the cable from the unit.

Remove the scanner's back plate from the rear side of the unit. Apply pressure to the points shown in *Figure 41* until the back plate unlatches from the scanner.
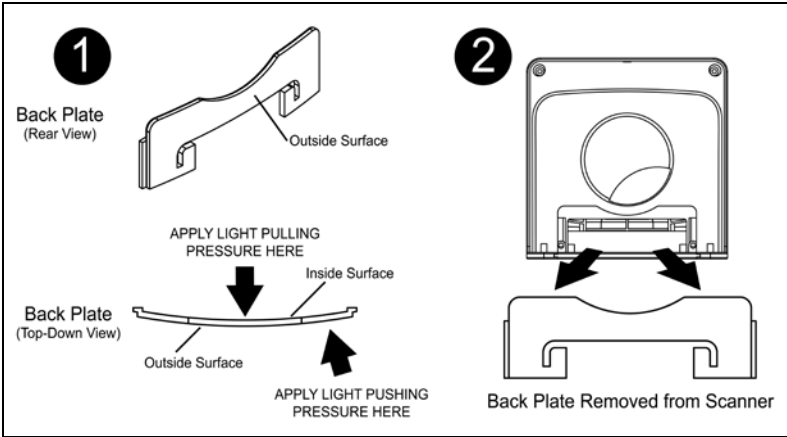

Figure 41. Cable Cover Removal

For AUX and EAS cable removal:

Pinch connector and gently remove cable from the unit.

For HOST cable removal:

1. Locate the small pinhole on the unit near the cable connection point.

2. Bend a paperclip into the shape shown in *Figure 42*.

3. Insert the paperclip into the pinhole and apply pressure to release the connector lock.

4. Pull gently on the strain-relief to remove the cable from the unit.
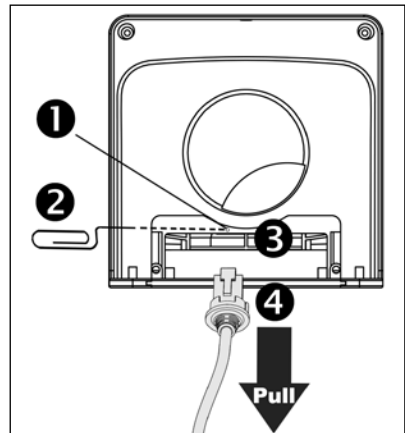

Figure 42. Host Cable Removal

TROUBLESHOOTING GUIDE

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

7820 SERIES TROUBLESHOOTING GUIDE		
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 7820 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 configuration.
Continuous razz tone on power up.	Diagnostic failure.	Contact a customer service representative, if the unit will not function.
Razz tone and blue LED flash at power up.	VLD failure.	Contact a customer service representative.
	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 (configurable). 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 configured for a character length lock, or a minimum length and bar code being scanned does not satisfy the configured criteria.	Verify that the bar code that is being scanned falls into the criteria. (Typical of Non-UPC/EAN codes. *The scanner defaults to a minimum of 4 character bar code.*)
The unit scans a bar code, but locks up after the first scan (blue LED stays off).	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.

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.
Multi-Function Button is not working.	A faulty push button switch.	Contact a customer service representative.
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 or PS2 is selected. Verify correct country code and data formatting are selected. Adjust the intercharacter delay.
The unit is not 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.

TROUBLESHOOTING GUIDE

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.
RS232 Only		
The unit is not transmitting each character.	Configuration is not correct.	Increase the intercharacter delay setting. Adjust whether the F0 break is transmitted (KBW Interface ONLY). It may be necessary to try this in both settings.
Alpha characters show as lower case.	Computer is in Caps Lock mode.	Enable the caps lock detect setting of the scanner to detect if the PC is operating in Caps Lock.
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 "RS232" data.
	Com port not operating properly.	
	Cable not connected to the proper com port.	
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.

44

SYMPTOMS	POSSIBLE CAUSE(S)	SOLUTION
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 57-57170*x*-3] may not be connected to the proper port.	Ensure the secondary scanner is connected to the 7820 com port marked "Aux" port.
	The "Aux" com port may not be operating properly.	* The 7820 must be configured to enable the "Aux" port.
		The secondary scanner must be configured to send 'secondary' formatted data (reserve code 32).
* Use the "Auxiliary mode setup" wizard in MetroSet®.		
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 configured for USB operation. Check that the host's USB port is enabled.

CONFIGURATION MODES

The 7820 has three modes of configuration.

- **Bar Codes**
  Configure the 7820 by scanning the bar codes included in the MetroSelect Configuration Guide shipped with the area imager.
  This manual is available for downloaded at www.honeywellaidc.com.

- **MetroSet*2***
  This user-friendly Windows-based configuration program allows you to simply 'point-and-click' at the desired scanner options. This program is available for downloaded at www.honeywellaidc.com.

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

UPGRADING THE FIRMWARE

The 7820 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 Microsoft® Windows® 95 or greater with an available RS232 serial or USB port is required to complete the upgrade.

> ⚠ PowerLink Cable #54-54014 is required when using RS232 for the upgrade process. **Do not** use the standard cable supplied with keyboard wedge or RS485 scanner interface kits. If using USB for the upgrade process, the standard USB cable provided with the scanner can be used.

To upgrade the firmware in the 7820:

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 7820 Solaris from the list.

5. Click on the *Configure Solaris/7820 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.

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 Customer Support on page 52.

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

SCANNER PINOUT CONNECTIONS

The 7820 scanner interfaces terminate to 10-pin modular jacks located on the back of the unit.

Figure 43. *Scanner Interface Ports*
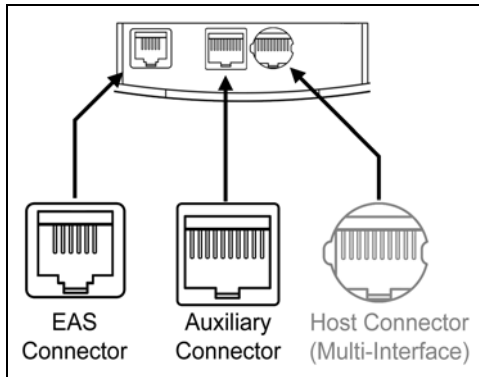
7820 EAS Connector	
Pin	**Function**
1	GROUND
2	ANTENNA +
3	ANTENNA -
4	EAS GPIO OUT
5	EAS GPIO IN
6	SHIELD

7820 Auxiliary Connector	
Pin	**Function**
1	GROUND
2	AUX_RxD
3	AUX_TxD
4	AUX_RTS
5	AUX_CTS
6	SCAN DATA
7	TRIGGER
8	SCAN ENABLE
9	SW +5VDC (OUT)
10	GROUND

SCANNER PINOUT CONNECTIONS
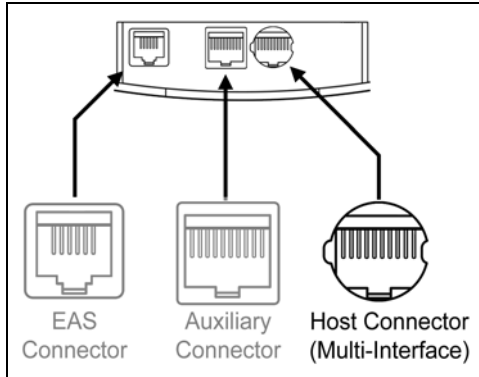
Figure 44. *Scanner Interface Ports*
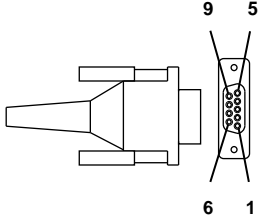
Pin	Function	Pin	Function
	HOST CONNECTOR (Multi-Interface)		
	RS232		**Keyboard Wedge**
1	Ground	1	Ground
2	CTS / DTR	2	Tied to Pin 3 in Cable
3	Data Rx	3	Tied to Pin 2 in Cable
4	N/C	4	PC Data
5	N/C	5	PC Clock
6	RTS*	6	KB Clock
7	N/C	7	+5VDC PC Keyboard
8	Data Rx*	8	KB Data
9	Adapter Power	9	Adapter Power
10	Shield Ground	10	Shield Ground
	RS485		**USB**
1	Ground	1	Ground
2	Tied to Pin 6 in Cable	2	Tied to Pin 4 in Cable
3	N/C	3	N/C
4	IBM A+	4	Tied to Pin 2 in Cable
5	IBM B-	5	N/C
6	Tied to Pin 2 in Cable	6	USB D+
7	N/C	7	+5VDC USB
8	N/C	8	USB D-
9	Adapter Power	9	Adapter Power
10	Shield Ground	10	Shield Ground

* These signals are TTL level outputs.

CABLE CONNECTOR CONFIGURATIONS (HOST END)

VLink Cable, PN 5S-5S*xxx*-3*	
Pin	**Function**
1	Shield Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	N/C
5	Power/Signal Ground
6	Reserved
7	CTS Input †
8	RTS Output
9	+5VDC

9   5

6   1

9-Pin D-Type Conn.
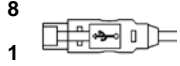
xxx* specifies connection to the host
† *CTS Input can also serve as DTR input.*

USB Type A, VLink Cable PN 5S-5S235-3	
Pin	**Function**
1	+5VDC
2	D-
3	D+
4	Ground

4

1
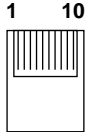
USB Type A

USB Direct 12V (Type A) Locking PN 5S-5S213-N-3	
Pin	**Function**
1	+5VDC
2	D-
3	D+
4	Ground
5	Ground
6	+12VDC
7-8	N/C

8

1

USB Type A. Locking
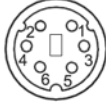
VLink, RS232 AUX Cable, PN 57-57170-3	
Pin	**Function**
1	Ground
2	RS232 Transmit Output
3	RS232 Receive Input
4	RTS Output
5	CTS Input
6-8	N/C
9	+5VDC
10	Shield Ground
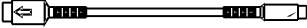
1   10

10-pin Modular Plug

CABLE CONNECTOR CONFIGURATIONS (HOST END)

VLink, Keyboard Wedge PN 54-54002	
Pin	**Function**
1	Keyboard Clock
2	Keyboard Data
3	No Connect
4	Power Ground
5	+5 Volts DC

5-Pin DIN, Female

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

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. According to the termination required, connect the appropriate end of the adapter cable to the VLink cable, leaving the necessary termination exposed for connecting to the keyboard and the keyboard port on the PC.

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

5-Pin DIN, Male

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

6-pin Mini DIN, Female

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 **Get Resources > Service and Repair**.
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.

Limited Warranty

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

Send Feedback

Your feedback is crucial to the continual improvement of our documentation. To provide feedback about this manual, contact the Honeywell Technical Communications department at
ACSHSMTechnicalCommunications@honeywell.com.

INDEX