

METROLOGIC INSTRUMENTS, INC.

MS2320 Stratos*H*[™] Scanner / Avery Scale Installation and User's Guide



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INTRODUCTION

MANUAL SCOPE

This guide provides information on the installation, setup and operation of Metrologic's Stratos*H*, MS2320 scanner/Avery scale unit. It is designed to be used in conjunction with Metrologic's MetroSelect Configuration Guide (MLPN 00-02407x) and the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x).

Product manuals are also available for download in Adobe® Acrobat® file format at www.metrologic.com/corporate/guides.htm.

PRODUCT OVERVIEW

The Stratos*H* MS2320 is designed to meet the demanding needs of high volume supermarket and point-of-sale applications. With advanced features like 6-sided, 360° scanning, 5840 scans per second, a complex scan zone and advanced decoding software, this high performance in-counter scanner/scale model guarantees fast customer checkouts with minimal operator fatigue and stress. The MS2320 scanner/scale is equipped with a multitude of standard features including:

- Stratos SCAN™ 6-sided, 360° scanning that minimizes product orientation
- Stratos SPHERE™ Decoding software that reads poor quality and damaged bar codes
- Stratos SYNC[™] Horizontal and vertical scanning zones operate independently from one another
- RSS-14 Decoding Decodes RSS-14, RSS Limited and RSS expanded emerging symbologies
- Flash ROM Upgrade latest software enhancements on site
- Powered Aux Port Connect hand-held scanner for large or bulky items
- Integrated Scale Factory integrated Avery scale
- Loud Speaker 3 volume/7 tone settings can be heard in all environments
- Easy Configuration Windows[®] based utility or simple bar code setup
- Fully Automatic "No touch" infrared wake up from power save modes
- EAS Deactivation Electronic Article Surveillance (EAS) equipped (EAS cable is an optional purchase)
- Field Replaceable Vertical Window Quickly remove vertical window for cleaning or replacement
- Stratos SCOPE™ Visual diagnostic indicator for easy to read feedback on scanner condition
- Stratos SWAP[™] Modular optics engine technology small, pre-aligned, field replaceable modules
- Stratos **SCHOOL**[™] Operator training software

MODEL NUMBER DESIGNATION



Figure 1. Model Number Designation

BASE KIT COMPONENTS

BASE KIT COMPONENTS					
Part # Description					
MS2320-*	Stratos <i>H</i> [™] Series Scanner				
* See model number designation above for detailed information on interface, window, cable and unit type.					
00-02407 <i>x</i>	MetroSelect [®] Configuration Guide				
00-02034 <i>x</i>	MS2xxx Stratos Series Configuration Addendum				
00-02048 <i>x</i>	MS2320 StratosH Scanner/Avery Scale Installation and User's Guide				

Guides also available for download at www.metrologic.com.

OPTIONAL ACCESSORIES

OPTIONAL ACCESSORIES						
Part #	Description					
57-57000 <i>x</i> -N-3	RS232 Interface Cable, Straight, 3.7 m (12') Cord					
57-57004 <i>x</i> -N-3	IBM 46xx Port 9 Cable, Straight 3.7 m (12') Cord					
57-57015 <i>x</i> -N-3	OCIA Interface Cable, Straight, 3.7 m (12') Cord					
57-57200 <i>x</i> -N-3	USB Full Speed Communication Cable, Straight 2.7 m (9') Cord, Locking 12V Plus-Power [™] Type A					
57-57006 <i>x</i> -N-3	USB Full Speed Communication Cable, Straight 3.7 m (12') Cord, Non-Locking Type A					
57-57099 <i>x</i> -3	LSO RS232 PowerLink AUX Cable with built in power jack, Straight, 2.1 m (7') cord					
57-57000 <i>x</i> -N-3	Dual Interface Cable, Straight, 3.7 m (12') Cord					
52-52511 <i>x</i>	24" EAS Cable					

INTRODUCTION

	OPTIONAL ACCESSORIES						
Part #	Description						
	AC to DC Power Transformer - Regulated Output: +5V @ 1.5A +12V @ 1.5A						
46-46812	120V United States and Canada						
46-46813	220V – 240V Continental European						
46-46814	220V – 240V United Kingdom						
46-46817	220V – 240V China						
46-46928	220V – 240V Australia						
Optional Remote S	cale Display						
46-00248	Remote Scale Display (lb.)						
46-00249	Remote Scale Display (kg.)						
61 mm 2.40" € 000 1 273 mm 10.75"	53 mm 60 mm 6.00" 2.36" 9 9 10000 10000 100000 100000 10000000						

REPLACEMENT PARTS

REPLACEMENT PARTS						
Part #	Description					
	Window types (Diamonex and Sapphire) are <u>not</u> interchangeable due to laser safety and/or scanner performance differences.					
Caution	To change window type, the scanner must be returned to the manufacturer for reconfiguration.					
46-46889	Vertical Window					
46-46806	Diamonex Platter – Full (Long) Size					
46-46808	Sapphire Platter – Full (Long) Size					

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department at 1-800-ID-METRO or 1-800-436-3876.

INTRODUCTION

GENERAL PRECAUTIONS

The following list includes general precautions to remember when handling the StratosH.

DO NOT TURN the unit upside down with the platter in place.

Do NOT PRESS on the window in the

placement platter or the vertical window frame.







Figure 5



No hardware or tools are required to remove the platter / horizontal scan window (see Figure 6). Refer to the Maintenance section of this manual for additional information on platter replacement.



See caution statement on page 3.



Figure 6

LIFT HANDLES

REST both thumbs against the vertical window frame for added stability when lifting the unit by the handles provided.



Figure 7

MS2320 SCANNER/SCALE DESIGN SPECIFICATIONS

	Design Specifications							
Operational								
Light Source:	VLD 650 nr	VLD 650 nm						
Peak Laser Power:	<2.2 mW	<2.2 mW						
Maximum IR LED Output:	50µW per II	50μW per IEC 60825-1 measurement procedure						
Horizontal Depth of Field:	0 mm - 152	mm (0"- 6") for 0	.33 mn	n (13 mil) Bar C	ode			
Vertical Depth of Field:	0 mm - 216	mm (0"- 8.5") for	⁻ 0.33 n	nm (13 mil) Bar	Code			
Scan Speed:	5840 Scan	Lines per Second	b					
No. of Scan Lines:	66 (38 Hori:	zontal / 28 Vertica	al)					
Motor Speed:	4800 / 6000	RPM (Horizonta	al / Ver	tical)				
Min Bar Width:	0.152 mm (6.0 mil)						
Decode Capability:	All Standard	d 1-D Bar Codes,	RSS-1	14, RSS-Expan	ded, and RSS-14 Limi	ted Bar	Codes	
System Interfaces:	RS232, Au	k RS232, IBM468	8x/469x	, USB, and OC	IA			
Print Contrast:	35% Minim	um Reflectance [Differen	ice				
No. Characters Read:	Up to 80 da	ta characters. M	laximur	n number will v	ary based on symbold	gy and	density.	
Beeper Operation:	7 Tones or	No Beep; 3 Volu	me Set	tings				
Indicators (LED):	Blue	Laser ON, Read	dy to So	can				
	ED): White Good Read, Decoding							
Mechanical								
L x W x H:	508 mm (20") Length 290 mm (11.4") Width 181 mm (7.1") Tower Height							
Depth (Below Counter):	100 mm (3.	100 mm (3.9")						
Weight (with Platter):	11.34 kg (2	4.95 lbs.)						
Electrical								
Voltage Supply:	1.5A @ +5\	/ / 1.5A @ +12V						
Power:	Operating,	14.25 Watts			Standby, 3.25 Watts			
Current:	Operating,	1A @ 5V / .75A @	@ 12V		Standby, .44 A @ 5	//.08A	@ 12V	
DC Transformers:	Class II; 5.2	2VDC @ 1.5A; 12	VDC @	D 1.5A				
Laser Class 1:	IEC 60825-	1:1993+A1:1997	+A2:20	01, EN 60825-	1:1994+A11:1996+A2	2:2001+	A1:2002	
EMC:	FCC, ICES	-003 & EN 55022	Class	A				
Scale Capacities								
Capacity:	kg unit	15 kg					lb. unit	30.0 lb.
Minimum Increment:	kg unit	0.005 kg					lb. unit	0.01 lb.
Maximum Static Weight:	kg unit	75 kg					lb. unit	150 lb.
Adjustments Required:	Calibration	Only						
Environmental								
Operating Temperature:	0°C to 40°C	C (32°F to 104°F)						
IP Rating:	IP 55							
Light Levels:	4842 Lux (450 footcandles)							
Storage Temperature:	-40°C to 60	°C (-40°F to 140°	°F)					
Humidity:	5% to 95% Relative Humidity, Non-Condensing							
Contaminants:	Sealed to re	esist airborne par	ticulate	contaminants.				
Ventilation:	None Requ	ired						

MS2320 Scanner/Scale

Components



Figure 8. MS2320 Components

ITEM NO.	DESCRIPTION OF ITEM	
1	Blue and White LED Indicators (see page 30)	
2	Volume/Tone Multi-Function Button (see page 35)	
3	Scale Zero Button	
4	Speaker (see page 30)	
5	High Impact Window Frame / Vertical Window (Laser Aperture) (see page 3)	
6	Flow Direction Indicators	
7	Stainless Steel Platter with Finger Recess (see page 3)	
8	Debris Channel	
9	Scale Side Guards	
10	Diamonex or Sapphire Horizontal Window (Laser Aperture)	
11	Sealed Calibration Switch/Button Cover On a fully installed unit, the calibration switch cover should be sealed with a lead wire or paper seal. The seal indicates if the appropriate Federal, State and Local Weights and Measures authorities have calibrated the scale. See the <i>Scale Operation: Calibration</i> section of this guide for further information.	
12	Handles for Lifting Unit	
13	Diagnostic Indicator Display (see page 32 for Error Codes)	
14	Power, Scale and EAS Connectors (see page 7)	
15	Interface and Aux Scanner Connectors (see page 7)	
ŧШ	Scanner/Scale label information can be found on page 8.	

MS2320 Scanner/Scale

Dimensions



Figure 9. MS2320 Dimensions

Connector Panel



Figure 10. MS2320 Connector Panel

MS2320 Scanner/Scale

Caution and Serial Number Labels







QUICK INSTALLATION OUTLINE

The following is a quick preview of the steps required for 1st time installations. Each item is discussed in detail later in this section.

- Determine clearance, ventilation and service access requirements.
- Determine checkstand layout taking into account package flow, cable routing and power requirements.
- Choose the mounting option which provides the best cable/power access and unit stability.
- Unpack the unit and remove the shipping hardware from the scale arms.
- Make the appropriate countertop cutouts and install all support brackets.
- Place the unit in the counter.
- Install the platter.
- Follow the steps under the correct interface to connect the cables and power supply.
- Configure the unit for the correct interface.
- Calibrate the scale (for the MS2320 model only).

SITE REQUIREMENTS

Before installing your StratosH scanner, please consider the following items.

Vertical Clearance

A minimum clearance height of 7.00" from the checkstand surface is needed for the vertical 'hood' on all of the scanner models.

Ventilation and Spacing

All Stratos*H* models have a die-cast housing to dissipate heat allowing the unit to operate without a ventilation fan. Metrologic recommends that the temperature surrounding the unit does not exceed 40° C (104° F). There should be adequate convection and minimal heat producing equipment in close proximity of the unit. A cooling fan with a filter is recommended if there will be a conveyor motor or other heat producing equipment close to the unit that will create a high temperature environment.

Adequate spacing between the unit and the checkstand opening is required for proper operation of the scale. When the scanner/scale model is mounted properly, the scale platter should be able to move up and down freely without hitting the edges of the checkstand cutout. Refer to *Installing the Unit in the Counter* for detailed cutout dimensions and mounting instructions.

Service Access

When routing and installing the cable(s) and power supply, make sure you leave access so that these components may be swapped easily without the need to remove the unit from the checkstand.

When changing the StratosSWAP optics engine modules, Metrologic recommends removing the unit completely from the checkstand.

When calibrating or zeroing the scale, do not remove the unit from the checkstand. Refer to the Scale Operation Section of this guide for detailed instructions on zeroing and calibration.

QUICK INSTALLATION OUTLINE

Power Installation

The Power Supply (AC/DC) should be connected to an AC Outlet that is free of electrical noise (clean). A qualified electrician can determine the amount of electrical noise on the AC line. See additional information on power installation and restrictions under the *Installation: Cable Installation (Interface Specific)* section of this manual.

Metrologic recommends using a switched AC outlet. The switch should be located on the operator's side of the checkstand in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

Checkstand Layout Considerations

When placing a scanner in a checkstand, the following factors should be considered.

- Items should flow at a distance to the operator that maximizes comfort. The operator should not need to stretch or strain to reach for and scan packages.
- The Stratos*H* can scan a bar code on six sides of a package. The packages should flow into the scan area that provides the maximum reading performance. No lifting or orientation of the items is necessary. A properly placed item diverter can maximize the flow of packages.
- In what direction are the packages flowing? Most checkstands are designed for left-handed takeaway. If the operator is facing the vertical window of the scanner, packages flow from the operator's right to left. The packages are in queue on the conveyor to the right and the bagging is to the left.

UNPACKING THE UNIT

- 1. Make sure the shipping box is top-side up before opening.
- 2. Remove the accessories box and check the box's content for the following items.
 - **Product Manuals** •
 - Power Supply •
 - **Communication Cables**



Figure 12



Figure 13

Lift the scanner out of the shipping box by gripping the 3. bottom of the unit on both sides.

Carefully remove the shipping foam around the unit.

Important! Do not turn the unit upside down or tilt the

foam. The platter is not attached to the unit and can fall off!

unit onto its side while removing the shipping

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4.

Important! Do not lift the unit out of the box by gripping the sides of the platter.



Figure 14



Figure 15

Lift the platter off the unit and store it in a safe 5. location until the unit is installed in the checkstand counter.

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UNPACKING THE UNIT

MS2320 Package Warning

All hardware securing the scale arms during shipping must be removed or the scale will not function!

Do not discard instruction sheet and shipping hardware! These items must be reinstalled if the unit is going to be shipped. See figure 2 for instructions on how to reinstall hardware before shipping.



Figure 16: Removal of Shipping Hardware

Do not discard these instructions and shipping hardware! If the unit is going to be reshipped at any time this hardware <u>must</u> be reinstalled prevent damage to the scale arms during shipping.

Lifting the Unit by the Handles

There are two handles located under the removable platter near the base of the vertical window. These handles are provided to assist in installation when placing the unit in the checkstand cutout.

To decrease the risk of dropping the unit during installation, rest both thumbs against the vertical window frame for added stability when lifting the unit by the handles. The unit will tilt forward when lifted by the handles if it is not stabilized making installation in the countertop cutout difficult.



Figure 17: Handles for Lifing

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INSTALLING THE UNIT IN THE COUNTER

MS2320 Mounting Diagram (Two Point Support)



Figure 18. MS2320 Mounting Diagram, Two Point Support

INSTALLING THE UNIT IN THE COUNTER

MS2320 Mounting Diagram (Three Point Support)



Figure 19. MS2320 Mounting Diagram, Three Point Support

RS232

The following steps describe how to properly install the cables for an RS232 Stratos*H* application. The scanner/scale **must** then be configured to match the host's RS232 parameters. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system.



Configuration bar codes are located in the MetroSelect Configuration Guide (MLPN 00-02407x) and the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x).

- 1. Turn off the host system.
- Plug the 10-pin RJ45 end of the RS232 interface cable (MLPN 57-57000*x*-N-3) into the 10-pin socket labeled Scanner RS232 to Host, on the bottom of the StratosH. Refer to figure on page 16.
- 3. Connect the other end of the RS232 cable to the proper communication port on the host device.



Before continuing, verify that the RS232 interface cable is connected to the appropriate interface socket on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner and/or terminal.

Steps 4 and 5 are for *dual cable* interfaces where the scale and the scanner connect to the host with their own separate communication cables. Skip to step 6 for a *single cable* interface where the scale and scanner connect to the host with a single cable.

- 4. Plug the dual interface cable (MLPN 57-57000*x*-N-3) into the 10-pin socket labeled, *Scale RS232 to Host*, on the bottom of the Stratos*H*.
- 5. Connect the other end of the dual interface cable (MLPN 57-57000*x*-N-3) to the appropriate communication port on the host's scale device.
- 6. Plug the optional remote display cable (MLPN 46-00248*x* or 46-00249*x*) into the 10-pin socket labeled, *Scale to Display*, on the bottom of the Stratos*H*.
- 7. Plug the external power supply (MLPN 46-46*xxx*) into the 3-pin Molex socket labeled, *DC Power In*, on the bottom of the Stratos*H*.
 - xxx* Specifies international connection. See Optional Accessories in the Introduction section of this guide for a complete listing.



Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

Metrologic recommends using a switched AC outlet. The switch should be located on the operator's side of the checkstand in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

8. Connect AC power to the transformer. If the AC outlet is equipped with an on/off switch, turn the power on.



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.

RS232

- 9. Turn on the host system.
- 10. Scan the *Recall Defaults* bar code.

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The *Recall Defaults* bar code is located in the MetroSelect Configuration Guide (MLPN 00-02407*x*), under *Need to Start Over*.

11. Configure the Stratos*H* to match the host system's RS232 parameters.

Refer to the MetroSelect Configuration Guide (MLPN 00-02407 x) under Section G: RS232 for **Enabling RS232 Mode** (scan the *recall defaults* bar code first).



Figure 20. RS232 Interface Cable Installation Schematic

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.

FULL SPEED USB

The following steps describe how to properly install the cables for a Full Speed USB Stratos*H* application. The scanner/scale **must** then be configured to match the host's USB parameters. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system.



Configuration bar codes are located in the MetroSelect Configuration Guide (MLPN 00-02407x) and the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x).

- 1. Turn off the host system.
- 2. Plug the 10-pin RJ45 end of the USB interface cable (MLPN 57-57200*x*-N-3 or 57-57006*x*-N-3) into the 10-pin socket labeled, *Scanner USB to Host*, on the bottom of the Stratos*H*. Refer to Figure on page 19.
- 3. Connect the other end of the USB interface cable to the appropriate USB port on the host device.



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

Steps 4 and 5 are for *dual cable* interfaces where the scale and the scanner connect to the host with their own separate communication cables. Skip to step 6 for a *single cable* interface where the scale and scanner connect to the host with a single cable.

- 4. Plug the dual interface cable (MLPN 57-57000*x*-N-3) into the 10-pin socket labeled, *Scale RS232 to Host*, on the bottom of the Stratos*H*.
- 5. Connect the other end of the dual interface cable (MLPN 57-57000*x*-N-3) to the appropriate communication port on the host's scale device.
- 6. Plug the *optional* remote display cable (MLPN 46-00248*x* or 46-00249*x*) into the 10-pin socket labeled, *Scale to Display*, on the bottom of the Stratos*H*.
- 7. Plug the external power supply (MLPN 46-46xxx) into the 3-pin Molex socket labeled, **DC Power In**, on the bottom of the Stratos*H*.
 - xxx* Specifies international connection. See Optional Accessories in the Introduction section of this guide for a complete listing.

Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

Metrologic recommends using a switched AC outlet. The switch should be located on the operator's side of the checkstand in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

8. Connect AC power to the transformer. If the AC outlet is equipped with an on/off switch, turn the power on.



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To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (<u>Safety Extra Low V</u>oltage) according to EN/IEC 60950.

CABLE INSTALLATION (INTERFACE SPECIFIC)

FULL SPEED USB

- 9. Turn on the host system.
- 10. Configure the StratosH to match the host system's USB parameters.

For Single Cable Applications:

The *IBM OEM Full Speed USB English and Metric* bar codes are located in the *MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x)* under Scanner Configuration Bar Codes: **Single Cable** Protocols for POS Compatibility, IBM OEM Full Speed USB.

For Dual Cable Applications:

The **IBM OEM Full Speed USB Communication Defaults** bar code is located in the *MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x)* under Scanner Configuration Bar Codes: **Dual Cable** Scanner Configuration Bar Codes, IBM OEM Full Speed USB Communication Defaults and IBM OEM Full Speed USB Protocols.

FOR USB SERIAL EMULATION MODE OR KEYBOARD EMULATION MODE ONLY

These features can only be used for a Dual Cable Applications.

11. Configure the Stratos*H* for **USB Serial Emulation Mode** or **USB Keyboard Emulation Mode** by scanning the appropriate configuration bar codes in the USB section of the *MetroSelect Configuration Guide (MLPN 00-02407x)* under Low Speed USB. Any low speed USB warnings may be disregarded when utilizing these codes for a Full Speed USB Stratos*H* scanner.



These features can only be used for a Dual Cable Applications. The IBM OEM Full Speed USB Communication Defaults bar code listed in step 10 must be scanned before scanning one of these barcodes or this feature will not work properly.

CABLE INSTALLATION (INTERFACE SPECIFIC)



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.

CABLE INSTALLATION (INTERFACE SPECIFIC)

IBM 46xx

The following steps describe how to properly install the cables for an IBM 46xx Stratos*H* application. The scanner/scale **must** then be configured to match the host's IBM 46xx parameters. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system.

Configuration bar codes are located in the MetroSelect Configuration Guide (MLPN 00-02407x) and the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x).

1. Turn off the host system.

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- Plug the 10-pin RJ45 end of the IBM interface cable (MLPN 57-57004 x-N-3) into the 10-pin socket labeled Scanner RS232 / IBM 46xx to Host, on the bottom of the StratosH. Refer to Figure on page 21.
- 3. Connect the other end of the IBM cable to communication port 9 on the host device.

Before continuing verify that the IBM cable is connected to the appropriate interface socket on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner and/or terminal.

Manufacturers Note: Plugging the scanner into the serial port of the host device does not guarantee that scanned information will appear at the host device. A software driver and correct configuration settings are also required for proper communication to occur.

Steps 4 and 5 are for *dual cable* interfaces where the scale and the scanner connect to the host with their own separate communication cables. Skip to step 6 for a *single cable* interface where the scale and scanner connect to the host with a single cable.

- 4. Plug the dual interface cable (MLPN 57-57000*x*-N-3) into the 10-pin socket labeled, *Scale RS232 to Host*, on the bottom of the Stratos*H*.
- 5. Connect the other end of the dual interface cable (MLPN 57-57000*x*-N-3) to the appropriate communication port on the host's scale device.
- 6. Plug the *optional* remote display cable (MLPN 46-00248*x* or 46-00249*x*) into the 10-pin socket labeled, **Scale to Display**, on the bottom of the Stratos*H*.
- 7. Plug the external power supply (MLPN $46-46xxx^*$) into the 3-pin Molex socket labeled, **DC Power In**, on the bottom of the Stratos*H*.
 - xxx* Specifies international connection. See Optional Accessories in the Introduction section of this guide for a complete listing.

i Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

Metrologic recommends using a switched AC outlet. The switch should be located on the operator's side of the checkstand in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

8. Connect AC power to the transformer. If the AC outlet is equipped with an on/off switch, turn the power on.

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.

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CABLE INSTALLATION (INTERFACE SPECIFIC)

IBM 46xx

- 9. Turn on the host system.
- 10. Configure the StratosH to match the host system's IBM 46xx parameters.

For Single Cable Applications:

The *IBM 3rd Generation 46xx, English* and *Metric* bar codes are located in the MS2xxx Stratos Series Configuration Addendum (*MLPN 00-02034x*) under Scanner Configuration Bar Codes: **Single Cable** Protocols for POS Compatibility, IBM 3rd Generation 46*xx*.

For Dual Cable Applications:

The **IBM 3rd Generation 46xx and IBM OEM Full Speed USB** bar code is located in the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x) under Scanner Configuration Bar Codes: **Dual Cable** Scanner Configuration Bar Codes, IBM 3rd Generation 46xx and IBM OEM Full Speed USB.



Figure 22. IBM Cable Installation Schematic



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.

OCIA

The following steps describe how to properly install the cables for an OCIA Stratos*H* application. The scanner/scale **must** then be configured to match the host's OCIA parameters. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system.



Configuration bar codes are located in the MetroSelect Configuration Guide (MLPN 00-02407x) and the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x).

- 1. Turn off the host system.
- 2. Plug the 10-pin RJ45 end of the OCIA interface cable (MLPN 57-57015*x*-N-3) into the 10-pin socket labeled **Scanner OCIA to Host** on the bottom of the Stratos*H*. Refer to figure on page 23.
- 3. Connect the other end of the OCIA Interface cable (MLPN 57-57015*x*-N-3) to the appropriate communication port on the host device.



Before continuing verify that the OCIA cable pinouts match the host system's and is connected to the appropriate interface socket on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner and/or terminal.



Manufacturers Note: Plugging the scanner into the serial port of the host device does not guarantee that scanned information will appear at the host device. A software driver and correct configuration settings are also required for proper communication to occur.

Steps 4 and 5 are for *dual cable* interfaces where the scale and the scanner connect to the host with their own separate communication cables. Skip to step 6 for a *single cable* interface where the scale and scanner connect to the host with a single cable.

- 4. Plug the dual interface cable (MLPN 57-57000*x*-N-3) into the 10-pin socket labeled, *Scale RS232 to Host*, on the bottom of the Stratos*H*.
- 5. Connect the other end of the dual interface cable (MLPN 57-57000*x*-N-3) to the appropriate communication port on the host's scale device.
- 6. Plug the *optional* remote display cable (MLPN 46-00248*x* or 46-00249*x*) into the 10-pin socket labeled, *Scale to Display*, on the bottom of the Stratos*H*.
- 7. Plug the external power supply (MLPN 46-46*xxx**) into the 3-pin Molex socket labeled, *DC Power In*, on the bottom of the Stratos*H*.

xxx* Specifies international connection. See Optional Accessories in the Introduction section of this guide for a complete listing.



Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.



Metrologic recommends using a switched AC outlet. The switch should be located on the operator's side of the checkstand in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

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CABLE INSTALLATION (INTERFACE SPECIFIC)

OCIA

- 8. Connect AC power to the transformer. If the AC outlet is equipped with an on/off switch, turn the power on.
- 9. Turn on the host system.
- 10. Configure the StratosH to match the host system's OCIA parameters.

Refer to the MetroSelect Configuration Guide (MLPN 00-02407*x*) under **Section I: OCIA** for Enabling and **Setting OCIA Parameters**.



Figure 23. OCIA Cable Installation Schematic

Caution:

<u>/!</u>

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.

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CABLE INSTALLATION (SECONDARY METROLOGIC SCANNER)

The following steps describe how to properly install the cables between a secondary *Metrologic* scanner and the Stratos*H*. The Stratos*H* and the secondary scanner **must** then be configured to communicate properly. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system and secondary scanner.

Contact a Metrologic customer service representative before connecting another manufacturer's scanner to th Stratos <i>H</i> as a secondary scanner.

Configuration bar codes are located in the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x) under Scanner Configuration Bar Codes: Auxiliary Port, Quick Start for a Secondary Metrologic Scanners.

- 1. Refer to pages 15 22 for the type of interface (*RS232, IBM 46xx, etc.*) required for your application. Follow the cable installation steps under the appropriate interface before continuing. Once the communication and power cables have been installed follow step 2 below for the secondary scanner installation.
- 2. Connect the **straight** end of the RS232 PowerLink AUX cable (MLPN 57-57099*x*-3) to the RS232 into the socket of the **secondary** scanner (*see figure on page 25*).
- 3. Connect the **angled** end of the RS232 AUX cable (MLPN 57-57099*x*-3) into the 10-pin socket labeled *Aux RS232 In*, on the bottom of the Stratos*H*.

Important: The StratosH series' aux port requires the signals; transmit, receive, RTS & CTS from the secondary scanner.

The Stratos*H*'s auxiliary port will support 5VDC devices with a 150mA maximum current. If the auxiliary device exceeds this specification an external power supply will be required to power the auxiliary device.

The following Metrologic scanners can receive power from StratosH: the MS9520, MS9540, and the MS5145.

4. This step is required for secondary devices that require >5VDC and/or 150mA current to operate. Skip to step 5 if the secondary device requires ≤ 150mA 5VDC.

Plug the power supply into the **secondary** scanner's PowerLink cable (MLPN 57-57099x-3) and connect AC power to the secondary scanner.



Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

5. Configure the Stratos*H* and the secondary scanner. The auxiliary input port's data format must match the main output format of the secondary scanner.



Refer to the MS2*xxx* Stratos Series Configuration Addendum (MLPN 00-02034*x*) under Scanner Configuration Bar Codes: Auxiliary Port, Quick Start for a Secondary Metrologic Scanners.

<u>/!`</u>

CABLE INSTALLATION (SECONDARY METROLOGIC SCANNER)



Figure 24. Secondary Scanner Cable Installation Schematic

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.

EAS DEACTIVATION

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

Base Model	Checkpoint Recommended Switch Bank Settings
MS2320	SW1 & SW2 switches 1 and 6 set to ON

All Stratos*H* models have a connector labeled *EAS In* on the bottom of the unit. Metrologic has an optional EAS cable (MLPN 52-52511x) available for purchase for connection between the Checkpoint Device and the Stratos*H*.



Figure 25. EAS Cable Connection (Bottom of StratosH)

The following figure shows the location of the EAS deactivation area for the Stratos*H*. It is important to pass the entire tag through this area to deactivate the security tag.



Figure 26. EAS Deactivation Area

SCAN ZONE



Figure 27. Checker-Side (13 mil)



Figure 28. Horizontal Left/Right (13 mil)

SCAN ZONE



Figure 29. Horizontal Direct (13 mil)



Figure 30. Vertical Direct (13 mil)

IR ACTIVATION AREA (IR LED OUTPUT)



Figure 31. IR Activation Area Perpendicular to Package Flow (IR LED Output)

INDICATOR DESCRIPTIONS

Audible

When in operation the Stratos*H* provides audible feedback that indicates the status of the unit and the current scan. 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 the *Changing the Beeper Tone & Volume* section of this manual.



When the scanner *first* receives power the white LED will flash, the blue LED will turn on and the scanner will beep once (*the white LED will remain on for the duration of the beep*). The scanner is now ready to scan.

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

Razzberry Tone $\blacksquare \gtrsim$

This is a failure indicator. Refer to failure modes on page 31.

Three Beeps - during operation $\mathbf{q} \in \mathbf{r}$

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

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

When using one-code-configuring, 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 $\P \in \Gamma \Gamma$

This is a failure indicator. Refer to failure modes on page 31.

Visual

White and blue LEDs are located at the top of the vertical output window. When the scanner is ON, the flashing or constant, illumination of the LEDs indicates the status of the Stratos*H* and the current scan.



No White or Blue LED

Figure 32. LEDs

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

Steady Blue

When all lasers are active, the blue LED is illuminated. The blue LED will remain illuminated until all lasers are deactivated.

Steady Blue and Single White Flash

When the scanner successfully reads a bar code, the white LED will flash and the scanner will beep once. If the white LED does not flash or the scanner does not beep once, then the bar code has not been successfully read.
INDICATOR DESCRIPTIONS

Visual

Steady White and Blue

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

Flashing Blue then Flashing White

This indicates the scanner is in configuration 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 White, Blue Off

This indicates the scanner may be waiting for communication from the host.

Flashing Blue

This indicates there is an error active on the diagnostic indicator display (see Error Codes on page 32). The scanner may continue to operate depending on the type of error.

Failure Modes

Flashing Blue and One Razzberry Tone

This indicates that the scanner has experienced a laser subsystem failure. The scanner will try up to 3 times to correct the failure condition. If the laser subsystem continues to fail, that subsystem (horizontal or vertical) will be shut down and an error indication will be shown on the Diagnostic Indicator Display. This error stays on the display until corrected. If the remaining subsystem is still operational, scanning will continue using the operational components.

Flashing Blue and White and Two Razzberry Tones

This indicates that the scanner has experienced a motor subsystem failure. The scanner will try up to 3 times to correct the failure condition. If the motor subsystem continues to fail, that subsystem (horizontal or vertical) will be shut down and an error indication will be shown on the Diagnostic Indicator Display. This error stays on the display until corrected. If the remaining subsystem is still operational, scanning will continue using the still operational components.

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.

INDICATOR DESCRIPTIONS

Diagnostic Indicator Display



There is a two-digit error code display located under the platter near the end of the scanner farthest from the vertical window (see figure below).

Figure 33. Error Code Display

The following is a list of possible error codes and their meanings. Some errors will require immediate scanner maintenance.

Error Code	DESCRIPTION
01	Reserved
02	RAM ERROR – The scanner's Random Access Memory (RAM) is tested as faulty. Return the unit for repair at an authorized service center.
03	PROGRAM ERROR – The scanner's software program is failing. Return the unit for repair.
04	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. Correct this problem by getting the proper hardware interface OR programming Stratos <i>H</i> configuration for the proper interface hardware attached.
05	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. This error is also accompanied by 3 beeps. This error will remain during operation as a reminder that this power cycle is scanning against a default-generated configuration.
06	COMMUNICATION ERROR – The RS232 data line is being held active. This causes the scanner to read a "break" signal constantly and continuous attempts are made to enter MetroSet configuration mode. A short on the RX Data line can cause this condition. It can also be the result of a laptop in power save mode. The scanner will abort attempts to enter configuration mode after a short timeout. The scanner can automatically recover from this condition once the short in the RX Data line is corrected.
09	COPROCESSOR COMMUNICATION ERROR – The main microprocessor is not communicating with the interface coprocessor. The interface coprocessor may be in a fault condition with the host or just not able to respond. This error may appear when the scanner is configured for USB or IBM interface applications or during an attempt to update the interface software through the flash utility. The unit should be repaired at an authorized service center.

INDICATOR DESCRIPTIONS

Diagnostic Indicator Display

Error Code	DESCRIPTION
11	SWITCH ERROR – The switch used for volume selection or sleep mode is detected in error (always closed). The condition is self-correcting if possible. If the error persists, return the unit for repair at an authorized service center. The scanning operation can continue with this error active.
13	SCALE ERROR – Single Cable Scanner/Scales Only. The scanner does not communicate with the scale. Make sure there is nothing plugged into the <i>Scale RS232 to</i> <i>Host</i> port. If there is a cable connected, disconnect the cable it may be causing the communication error. If there is still no communication between the scanner and scale return the unit to an authorized service center for repair.
14	SCALE RETURN TO ZERO ERROR – The scale did not return to zero between scale weight requests if the zero checking function in enabled. The scale will need to be re-zeroed.
21	LASER #1 (VERTICAL) ERROR – The laser in the vertical scanning subsystem denotes a failure. The scanner will try three times to correct the laser operation. If the laser error persists, the vertical scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators. If the horizontal scanning subsystem is still healthy, it will remain active and scanning can CONTINUE using the remaining good subsystem! The unit will still need to be repaired at an authorized service center when convenient.
22	LASER #2 (RIGHT HORIZONTAL) ERROR – The right laser in the horizontal scanning subsystem denotes a failure. The scanner will try three times to correct the laser operation. If the laser error persists, and the left horizontal laser (#3) is also in error, the horizontal scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators. If the left (Laser #3) horizontal scanning subsystem is still healthy, the horizontal scanning subsystem remains active and scanning can CONTINUE using the remaining good components! The unit, however, should be scheduled for repair at an authorized service center when convenient.
23	LASER #3 (LEFT HORIZONTAL) ERROR – The left laser in the horizontal scanning subsystem denotes a failure. The scanner will try three times to correct the laser operation. If the laser error persists, and the right horizontal laser (#2) is also in error, the horizontal scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators. If the right (Laser #2) horizontal scanning subsystem is still healthy, the horizontal scanning subsystem remains active and scanning can CONTINUE using the remaining good components! The unit, however, should be scheduled for repair at an authorized service center when convenient.
31	MOTOR #1 (VERTICAL) ERROR – The motor in the vertical scanning subsystem denotes a failure. The scanner will try three times to correct the motor operation. If the motor error persists, the vertical scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators. If the horizontal scanning subsystem is still healthy, it will remain active and scanning can CONTINUE using the remaining good subsystem! The unit, however, should be scheduled for repair at an authorized service center when convenient.
32	MOTOR #2 (HORIZONTAL) ERROR – The motor in the horizontal scanning subsystem denotes a failure. The scanner will try three times to correct the motor operation. If the motor error persists, the horizontal scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators. If the vertical scanning subsystem is still healthy, it will remain active and scanning can CONTINUE using the remaining good subsystem! The unit, however, should be scheduled for repair at an authorized service center when convenient.

SCANNER OPERATION

POWER SAVE MODES

The Stratos*H* has five configurable power save modes. Refer to the *MetroSelect Configuration Guide (MLPN 00-02407 x)* 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:

Turns the laser OFF after a configured 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 31* on page 29).

3. Laser & Motor Off Power Save Mode:

Turns the laser and motor OFF after a configured period of non-use.

Any movement detected by the IR will "wake" the scanner from the power save mode (see *Figure 31* on page 29). 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 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.



Any movement detected by the IR will "wake" the scanner from the power save mode (see Figure 31 on page 29).

5. Dual Action Power Save Mode #2 (Default):

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
-		

Any movement detected by the IR will "wake" the scanner from the power save mode (see Figure 31 on page 29).

BEEPER OPTIONS AND BUTTON FUNCTIONS

Changing the Beeper Tone

Beeper tones may be configured 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.



Changing the Beeper Volume

Volume levels may be configured using the volume button 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.



The Multi-Function Button



Figure 34. The Multi-Function Volume Button



Figure 35. Changing the Beeper Volume



Figure 36. Laser & Motor Off Power Save Move



Figure 37. Normal Operation

Changing the Beeper Volume

A short (<3 second) depression and the beeper volume will change. The new volume will be heard. The silent (no beep) volume is also selectable.

Placing the Unit in Laser & Motor Off Power Save Mode

Long (>3 seconds) depression The *Laser & Motor Off Power Save Mode* is the only power save mode that can be activated with the multi-function button*.

* This feature is configuration dependent. Refer to the MetroSelect Configuration Guide (MLPN 00-02407x) under Scanner Operation: Power Save Modes to enable this feature.

Waking the Unit from All Power Save Modes

The next button depression will awaken the scanner for normal operation.

SCANNER OPERATION

STARTUP

When the scanner *first* receives power the white LED will flash, the blue LED will turn on and the scanner will beep once (the white LED will remain on for the duration of the beep). The scanner is now ready to scan.

POWER-UP TEST MODE

When a Stratos*H* scanner is first powered up, it cycles through a number of self-tests before starting normal operation. If there are any initial failures during this sequence of tests the scanner will beep or razz to indicate the error and an error code will appear in the diagnostic indicator display.

The following are examples of the types of tests performed at power-up.

- 1. Memory tests
- 2. Hardware setup tests
- 3. Motor tests
- 4. Laser tests
- 5. Configuration tests
- 6. Interface tests
- 7. Scale tests

These tests are also performed on a periodic basis with the operator alerted to any failures.

CONFIGURATION MODE

All Stratos*H* series scanners have been configured at the factory with a set of default communication protocols. Since many host systems have unique formats and protocol requirements, Metrologic provides a wide range of configurable features that may be selected with the use of the MetroSelect[®] Configuration Guide (MLPN 00-02407*x*), the MS2*xxx* Stratos Series Configuration Addendum (MLPN 00-02034*x*) and MetroSet.

For a complete list of the factory default settings, refer to the Default Settings section of this guide.

SCALE ZEROING

After the unit has been officially calibrated (see page 38) the scale can be re-zeroed by pressing the scale zeroing button on either the unit or on the remote display stand. Refer to the figures below for button locations.



Figure 38. Scale Zero Button



Figure 39. Optional Remote Display Keypad

CALIBRATION

The scanner/scale must be calibrated if:

- it is a first time installation
- the scale cannot be re-zeroed
- the calibration verification tests indicate errors
- there is a change in the units of measure [i.e. from pounds (lbs.) to kilograms (kg)]
- if the scale load cell has been replaced
- the calibration seal is missing or torn

The certification of the weighing mechanism of the scale version of this scanner is subject to federal, state and local Weights and Measures statutes and regulations and can only be performed by authorized government agencies and/or their duly registered agents. Each time the scale or weighing mechanism is calibrated, it should be properly sealed with a paper seal or a wire seal prior to being placed into service in commerce.

It is the responsibility of the owner of the scale to confirm compliance with the relevant Weights and Measures statutes and regulations applicable in your area by checking with the appropriate government agency before placing a newly calibrated unit into service or removing any official seals.

Tools Required

- Field Standard 30.0 pound Weight Set or 15.0 kilogram Weight Set
- Wire or Paper Seal



• Phillips #1 Screw Driver

Scale Calibration Methods

- Scale Calibration with Remote Display uses the scale display to sequence through the calibration steps and store critical calibration points.
- **Bar Code Scale Calibration without Remote Display*** uses the scanner / scale *only* and assumes there is no remote scale display. A bar code is used to initiate the calibration sequence and the speaker volume switch is used to store critical range values.
- * This calibration procedure will work with the remote display connected to the StratosH but no data will appear on the remote display.

Priming the Scale for Calibration

Prime the scale before starting either method of calibration.

i	Calibrate the scanner/scale after the unit is installed in the checkstand countertop.
	It is important to use the correct certified (lb. or kg.) field weight set when calibrating the scale.

- 1. Check the platter to ensure that nothing is interfering with its freedom to move. Assure that no debris is present from daily use of the scanner/scale if it has been in service.
- 2. Apply power to the scanner/scale.
- 3. Wait 5 minutes after power up before proceeding.



Figure 40. Scale Center

- 4. Place the 30.0 lb. weight **or** the 15 kg weight on the center of the scale. Allow the weight to settle.
- 5. Remove the weight.
- 6. Repeat three times to prime the scale before calibration.



Figure 41. Priming the Scale for Calibration

i

Scale Calibration Procedure (lbs. or kg) with Remote Display*

1. Temporarily remove the platter and place it in a safe location.

It is the responsibility of the owner of the scale to confirm compliance with the relevant Weights and Measures statutes and regulations applicable in your area by checking with the appropriate government agency before placing a newly calibrated unit into service or removing any official seals.

2. If this is a currently installed scanner/scale* in need of calibration, cut and remove the calibration switch cover seal. If this is a new installation, cut and remove the factory-applied adhesive seal.



3. Remove the M3 screw securing the calibration switch/button cover. Place the cover and screw in a safe location. Verify that the scale calibration switch is in the Run position.



Figure 42. Calibration Switch/Button Cover Removal

4. **Enter full service access mode.** Power down the unit if necessary. Press and hold down the calibration push button then power up the scanner/scale. Release the calibration push button.



Figure 43. Entering Full Service Access Mode

Scale Calibration Procedure (lbs. or kg) with Remote Display*

5. Enter calibration mode. The remote display will flash all of the characters available (see illustration below). Press the right arrow button twice (►)(►) while the display flashes all characters. The remote display should then read CAL 1.



Figure 44. Enter Calibration Mode

6. Reinstall the platter onto the scanner/scale. Check the platter to ensure that it is seated properly and nothing is interfering with its freedom to move.



Figure 45. Install Platter

- 7. Make sure there is no load on the scale platter.
- 8. Calibrate a zero load. Press the right arrow (►) button once when the remote display reads CAL 1 and there is no load on the scale platter.



* These procedures are for MS2320 StratosH Scanner/Avery Scale models only.

Scale Calibration Procedure (lbs. or kg) with Remote Display

9. Place a half load (15.00 lbs. or 7.500 kg) on the center of the scale platter then press the right arrow (►) button.





10. Add an additional half load (15.00 lbs. or 7.500 kg) to the existing half to simulate a full load, center entire load then press the right arrow (►) button.



Figure 48.

11. Remove half of the load (15.00 lbs. or 7.500 kg), center the remaining load then press the right arrow (▶) button.



12. Remove the remaining half load from the scale then press clear (C). The message done will flash briefly on the display.



- Figure 50.
- 13. Exit calibration mode. Press and hold the test button for at least 3 seconds then release. With no load on the scale the display should read 0.00 lb. or 0.000 kg.



Figure 51.

Scale Calibration Procedure (lbs. or kg) with Remote Display*

14. The unit's calibration must now be verified as required by state and/or local Weights and Measures regulations (starting on page 48).

Need to Start Over?

If for any reason you need exit the calibration mode or restart the process press the test button then the clear button.



Figure 52.

Bar Code Calibration Procedure without Remote Display*

The following calibration procedure can be used when the remote scale display is not present. This procedure requires that the scanner/scale have a software serial number of 15001, or greater. The beeper volume switch is used to advance to the next stage of calibration and the LED display notifies the operator which 'calibration stage' (1 through 5) is active.

1. Temporarily remove the platter and place it in a safe location.

It is the responsibility of the owner of the scale to confirm compliance with the relevant Weights and Measures statutes and regulations applicable in your area by checking with the appropriate government agency before placing a newly calibrated unit into service or removing any official seals.

2. If this is a currently installed scanner/scale* in need of calibration, cut and remove the calibration switch cover seal. If this is a new installation, cut and remove the factory-applied adhesive seal.



Follow all Electo-Static Discharge (ESD) procedures when exposing internal scanner/scale components.

3. Remove the M3 screw securing the calibration switch/button cover. Place the cover and screw in a safe location.



Figure 53. Calibration Switch Plate Cover Removal

4. Enter the scale program mode. Power down the unit and slide the scale program switch to the program position. *If the system is a dual cable system*, disconnect the host to scale RS232 cable from the unit.



Figure 54. Entering the Scale Program Mode

CALIBRATION

Bar Code Calibration Procedure without Remote Display*

5. Reinstall the platter and power up the unit.



Figure 55. Platter Installation and Power Up

6. Enter bar code calibration mode. Use the vertical window to scan the following bar code. The scanner will beep once as it enters the bar code calibration mode and the calibration utility will start.



Figure 56. Entering Bar Code Calibration Mode

If a razz tone sounds, an error has occurred. Refer to *Diagnostic Indicator Display; Error Codes* starting on page 32 for additional information.

- 7. Make sure there is **no load** on the scale platter. The white LEDs will be used to indicate the current step in the calibration process.
- 8. **Calibrate a zero load.** The white LEDs will blink once periodically. Wait 8 to 10 seconds for scale stability then press the beeper volume switch one time. The beeper will beep 1 time indicating that the Cal 1 value has been stored.





CALIBRATION

Bar Code Calibration Procedure without Remote Display*

Place a half load on the center of the scale platter. The white LEDs will blink twice periodically. Wait for scale stability, and then press the beeper volume switch once. The beeper will beep 2 times indicating that the Cal 2 value has been stored.







11. Remove half of the load and center the remaining load. The white LEDs will blink four times periodically. Wait for scale stability, and then press the beeper volume switch once. The beeper will beep 4 times indicating that the Cal 4 value has been stored.



Figure 60.

12. Remove the remaining half load from the scale. The white LEDs will blink five times periodically. Wait for scale stability, and then press the beeper volume switch once. The beeper will beep 5 times indicating that the Cal 5 value has been stored.



Figure 61.

CALIBRATION

Bar Code Calibration Procedure without Remote Display*

- 13. Calibration is now complete. The scanner will automatically restart, and beep one time, in 5 seconds.
- 14. In order to use the scale in the normal operating mode, the unit must be powered down and the scale program switch returned to the run position.



Figure 62.

15. The unit's calibration must now be verified as required by state and/or local Weights and Measures regulations (starting on page 48).

CALIBRATION VERIFICATION

U.S. Pounds (lbs.)

The following tests verify if the scale's Calibration is accurate. For Kilograms see instructions starting on page 49.

The following tests are based on a 2-digit accuracy setting for pounds.

- Increasing Load Test
- Shift Test
- Decreasing Load Test
- Return to Zero Test

Increasing Load Test

- 1. Ensure there is no load on the scale platter and verify the remote display reads 0.00 lbs.
- 2. Place a 5.00 lb. weight on the center of the scale platter and verify the display reads 5.00 lbs.
- 3. Place an additional 5.00 lb. weight on the center of the scale platter and verify the remote display reads between 9.99 and 10.01 lbs.
- 4. Place an additional 10.00 lb. weight on the center of the scale platter and verify the remote display reads between 19.99 and 20.01 lbs.
- 5. Place an additional 10.00 lb. weight on the center of the scale platter and verify the remote display reads between 29.99 and 30.01 lbs.
- 6. Remove all the weight from the scale platter and verify the display reads 0.00 lbs.

Shift Test

- 1. Ensure there is no load on the scale platter and verify the remote display reads 0.00 lbs.
- 2. Place a 15.00 lb. weight on the scale platter in the center of zone A (see diagram) and verify the remote display reads between 14.99 and 15.01 lbs.
- 3. Remove the 15.00 lb. weight and verify the display reads 0.00 lbs.
- 4. Repeat steps 2 and 3 for each of the remaining zones (B, C, and D).
- 5. Verify that the remote display reads 0.00 lbs. when all weight has been removed.

Decreasing Load Test

- 1. Ensure there is no load on the scale platter and verify the remote display reads 0.00 lbs.
- 2. Place a 30.00 lb. load on the center of the scale platter (use two 10.00 lb. weights and two 5.00 lb. weights). Verify the remote display reads between 29.99 and 30.01 lbs.
- 3. Remove a 10.00 lb. weight from the platter and center remaining weight. Verify that the remote display reads between 19.99 and 20.01 lbs.
- 4. Remove another 15.00 lbs. from the platter, center the remaining weight and verify the scale reads 5.00 lbs.
- 5. Remove all the weight from the platter and verify the scale has returned to 0.00 lbs.

Return to Zero Test

1. Ensure there is no load on the scale platter and verify the remote display reads 0.00 lbs.



Figure 63. Shift Test Zones

CALIBRATION VERIFICATION

Kilograms (kg)

The following tests verify if the scale's Calibration is accurate. For US Pounds see instructions starting on page 48.

The following tests are based on a 3-digit accuracy setting for kilograms.

- Increasing Load Test
- Shift Test
- Decreasing Load Test
- Return to Zero Test

Increasing Load test

- 1. Ensure there is no load on the scale platter and verify the remote display reads 0.000 kg.
- 2. Place a 2.500 kg weight on the center of the scale platter and verify the display reads 2.500 kg.
- 3. Place an additional 2.500 kg weight on the center of the scale platter and verify the remote display reads between 4.995 kg and 5.005 kg.
- 4. Place an additional 5.000 kg weight on the center of the scale platter and verify the remote display reads between 9.995 kg. and 10.005 kg.
- 5. Place an additional 5.000 kg weight on the center of the scale platter and verify the remote display reads between 14.995 kg. and 15.005 kg.
- 6. Remove all the weight from the scale platter and verify the display reads 0.000 kg.

Shift Test

- 1. Ensure there is no load on the scale platter and verify the remote display reads 0.000 kg.
- 2. Place a 7.500 kg weight on the scale platter in the center of zone A (see diagram) and verify the remote display reads between 7.495 kg. and 7.505 kg.
- 3. Remove the 7.500 kg weight and verify the display reads 0.000 lbs.
- 4. Repeat steps 2 and 3 for each of the remaining zones (B, C, and D).
- 5. Verify that the remote display reads 0.000 kg when all weight has been removed.

Decreasing Load Test

- 1. Ensure there is no load on the scale platter and verify the remote display reads 0.000 kg.
- 2. Place a 15.000 kg load on the center of the scale platter. Verify the remote display reads between 14.995 kg. and 15.005 kg.
- 3. Remove 7.500 kg from the platter and center remaining weight. Verify that the remote display reads between 7.495 kg. and 7.505 kg.
- 4. Remove another 5.000 kg from the platter, center remaining weight and verify the scale reads 2.500 kg.
- 5. Remove all the weight from the platter and verify the scale has returned to 0.000 kg.

Return to Zero Test

1. Ensure there is no load on the scale platter and verify the remote display reads 0.000 kg.



Figure 64. Shift Test Zones

SECURITY SEAL INSTALLATION

1 The certification of the weighing mechanism of the scale version of this scanner is subject to federal, state and local Weights and Measures statutes and regulations and can only be performed by authorized government agencies and/or their duly registered agents. Each time the scale or weighing mechanism is calibrated, it should be properly sealed with a paper seal or a wire seal prior to being placed into service in commerce.

It is the responsibility of the owner of the scale to confirm compliance with the relevant Weights and Measures statutes and regulations applicable in your area by checking with the appropriate government agency before placing a newly calibrated unit into service or removing any official seals.

Type of seal to be used will depend on the guidelines specified by the local Weights and Measures authorities.

The security seal must only be installed if there were no errors during the scale calibration verification tests.

Pressure Sensitive Security Seal*

- 1. Temporarily remove the platter and place it in a safe location.
- 2. Reinstall the calibration switch/button cover.



Figure 65. Calibration Switch/Button Cover

3. Apply the calibration security seal over the switch cover.



Figure 66. Calibration Switch/Button Security Seal Placement

4. Reinstall the platter.



Figure 67. Platter Installation

SECURITY SEAL INSTALLATION

Wire Security Seal (Seal Conversion Kit 46-46890)*

- 1. Temporarily remove the platter and place it in a safe location.
- 2. Install the calibration switch/button tabbed cover.
- 3. Secure the cover in place with the flat head Phillips screw provided.
- 4. Position the security seal cage over the tab on the calibration switch/button cover.
- 5. Thread the wire through the hole in the tab on the calibration switch/button cover and through the wire lock at the other end forming a loop (see *Figure 68*).
- 6. Crimp the lock closed to secure the wire, then pack the wire and lock into the cage.
- 7. Insert the tab on the end of the transparent cage cover into the slot on the security cage then snap the other end into place over the security cage hook.
- 8. Reinstall the platter.



Figure 68. Calibration Switch/Button Wire Security Seal Assembly.

PLATTER / HORIZONTAL SCAN WINDOW REPLACEMENT



Figure 69. Platter/Horizontal Scan Window Replacement*

* See replacement parts on page 3.

VERTICAL SCAN WINDOW REPLACEMENT (MLPN 46-46889)



Figure 70. Vertical Scan Window Replacement

DAILY MAINTENANCE

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

For the glass window:

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

For the inner plastic window:

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

Routinely check and clean the base unit to ensure that no debris is interfering with the platter movement.

TROUBLESHOOTING

The following guide is for reference purposes only. Contact a Metrologic representative at 1-800-ID-METRO or 1-800-436-3876 to preserve the limited warranty terms.

Symptom	Possible Cause(s)	Solution				
All Interfaces						
No LEDs, beep or motor spin.	No power is being supplied to the scanner.	Check the transformer, outlet and the power strip. Make sure the power cable is plugged into the scanner.				
During power up the unit beeps 3 times.	A Non-volatile RAM failure.	Contact a Metrologic service representative, if the unit will not hold the configuration.				
During power up the unit razzes continuously.	A RAM or ROM failure.	Contact a Metrologic service representative, if the unit will not function.				
During power up the unit razzes once and the blue LED flashes.	A VLD failure.	Contact a Metrologic service representative.				
During power up the unit razzes twice and both LEDs flash.	Scanner motor failure.	Contact a Metrologic service representative.				
There are multiple scans upon presentation of code.	The <i>same symbol timeout</i> is set to short.	Adjust same symbol timeout for a longer time.				
	The beeper is disabled.	Enable the beeper.				
The unit powers up but does not beep.	No volume is selected.	Select a volume.				
	No tone is selected.	Select a tone.				
	The unit is trying to scan a particular symbology that is not enabled.	UPC/EAN and Code 128 are enabled by default. Verify that the type of bar code being read has been selected.				
The unit powers up but does not scan and/or beep.	The unit has been configured for a character length lock or a minimum length and the bar code being scanned does not satisfy the configured criteria.	Verify that the bar code that is being scanned falls into the criteria. <i>Typical of Non-UPC/EAN codes. The scanner defaults to a minimum of 4 character bar code.</i>				
The unit scans a bar code, but locks up after the first scan (<i>the white LED stays</i> 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.				

TROUBLESHOOTING

Symptom	Possible Cause(s)	Solution				
All Interfaces						
	The print quality of the bar code is suspect.	The type of printer and/or the printer settings could be the				
	Check the character length lock.	problem.				
Scanner beeps at some	The aspect ratio of the bar code is out of tolerance.	example change to econo mode or high speed.				
bar codes and NOT for others of the same bar	The bar code may have been printed incorrectly.	Check if it is a check digit, character or border problem.				
code symbology.	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.				
RS232 Only						
The unit powers up OK	The com port at the host is not working or is not configured properly.					
and scans OK but does not communicate properly to the host.	The cable is not connected to the proper com port.	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.				
	The com port is 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.				
Characters are being dropped.	The intercharacter delay needs to be added to the transmitted output.	Add some intercharacter delay to the transmitted output by using the MetroSelect Configuration Guide (MLPN 00-02407 x).				
Aux Port Operation With An	y Interface					
The secondary scanner is not functioning.		Refer to the user's guide provided with the secondary scanner.				
The secondary scanner	The secondary scanner cable may not be connected to the proper port on the Stratos <i>H</i> .	Ensure that the secondary scanner is connected to the Stratos <i>H</i> 's com port marked "Aux" port.				
powers up but data is not relayed to the host.	The auxiliary com port may	* The Stratos <i>H</i> must be configured to enable the auxiliary port.				
	not be operating properly.	The auxiliary input port's data format must match the main output format of the secondary scanner.				
* Refer to the MS2xxx Stratos Series Configuration Addendum (MLPN 00-02034x) under Scanner Configuration Bar Codes: Auxiliary Port, Quick Start for a Secondary Metrologic Scanner.						

RS232 DEMONSTRATION PROGRAM

If an RS232 scanner is not communicating with your IBM compatible PC, key in the following BASIC program to test that the communication port and scanner are working. This program is for demonstration purposes only. It is only intended to prove that cabling is correct, the com port is working, and the scanner is working. If the bar code data displays on the screen while using this program, it only demonstrates that the hardware interface and scanner are working. At this point, investigate whether the application software and the scanner configuration match. If the application does not support RS232 scanners, a software wedge program that will take RS232 data and place it into a keyboard buffer may be needed. This program tells the PC to ignore RTS-CTS, Data Set Ready (DSR) and Data Carrier Detect (DCD) signals. If the demonstration program works and yours still does not, jumper RTS to CTS and Data Terminal Reading (DTR) to DCD and DSR on the back of your PC.

10	CLS
20	ON ERROR GOTO 100
30	OPEN "COM1:9600,S,7,1,CS0,DS0,CD0,LF" AS #1
35	PRINT "SCAN A FEW BAR CODES"
40	LINE INPUT #1, BARCODE\$
50	PRINT BARCODE\$
60	K\$ = INKEY\$: IF K\$ = CHR\$(27) THEN GOTO 32766
70	GOTO 40
100	PRINT "ERROR NO."; ERR; " PRESS ANY KEY TO TERMINATE."
110	K\$ = INKEY\$: IF K\$ = "" THEN GOTO 110
32766	CLOSE: SYSTEM
32767	END

Many functions of the scanner can be "configured" - that is, enabled or disabled. The scanner is shipped from the factory preconfigured to a set of default conditions. The default parameter of the scanner has an asterisk (*) in the charts on the following pages. If an asterisk is not in the default column then the default setting is Off or Disabled. Every interface does not support every parameter. If the interface supports a parameter listed in the charts on the following pages, a check mark will appear.

PARAMETER	DEFAULT	OCIA	RS232	IBM 46xx	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 CD on Code 39		✓	✓	✓	✓
Transmit Mode 43 CD		✓	✓	✓	✓
Paraff		✓	✓	✓	✓
Paraff Lead "A"		~	✓	✓	✓
Allow Paraff Failures		~	✓	✓	✓
French PC Terminal			✓		
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		~	✓	~	✓
ITF Symbol Lengths	Variable	~	✓	~	✓
ITF Minimum Symbol Length	6	~	✓	~	✓
Symbol Length Lock	None	~	✓	~	✓
Minimum Symbol Length	4	~	✓	~	✓
Trioptic		~	✓	~	✓
RSS14 Enable		~	~	~	✓
RSS14 ID "]e0"	*	~	✓	~	✓
RSS14 App ID "01"	*	~	✓	✓	✓
RSS14 Check Digit	*	~	✓	✓	✓

Parameter	DEFAULT	OCIA	RS232	IBM 46xx	USB
RSS Expanded Enable		\checkmark	✓	~	~
Expanded ID "]e0"	*	\checkmark	✓	~	~
RSS Limited Enable		\checkmark	✓	~	~
RSS Limited ID "]e0"	*	\checkmark	✓	~	~
RSS Limited App ID "01"	*	✓	✓	1	√
RSS Limited Check Digit	*	✓	✓	~	~
DTS/SIEMENS		✓			
DTS/NIXDORF	*	✓			
NCR F		✓			
NCR S		✓			
Beeper Tone	Normal	✓	✓	√	✓
Beep Transmit Sequence	Before Transmit	✓	✓	√	✓
Beeper Volume	Loudest	✓	✓	√	✓
Power-Up Disable Good Scan Beep		✓	✓	√	✓
Communication Timeout	None	✓	✓	√	✓
Razzberry Tone on Timeout		✓	✓	√	✓
Three Beeps on Timeout		\checkmark	✓	√	✓
Fast Beep		\checkmark	✓	√	✓
Beep Twice on Supplements		\checkmark	✓	√	✓
No Beeps on Timeout	*	\checkmark	✓	√	✓
5 Retries Before Timeout		\checkmark	✓	√	✓
Timeout In	2 secs.	✓	✓	√	✓
Laser Off Between Records		✓	✓	√	✓
Variable Laser Off Delay	5 - 635 msec	✓	✓	√	✓
Disable Button Control of Power Save Mode	*	✓	✓	√	✓
Disable Button Control of Beep Volume		✓	✓	√	✓
Flash LED on Good Scan	*	\checkmark	✓	√	✓
Reverse LED Convention		\checkmark	✓	√	✓
Flash LED on Good Scan	*	\checkmark	✓	√	✓
Enter Power Save Mode	10 mins.	\checkmark	✓	√	✓
Blink Power Save Mode		\checkmark	✓	√	✓
Laser OFF Power Save Mode		\checkmark	✓	√	✓
Laser & Motor OFF Power Save Mode		\checkmark	✓	√	✓
Dual Action Power Save Mode #1		\checkmark	✓	√	✓

Parameter	DEFAULT	OCIA	RS232	IBM 46xx	USB
Dual Action Power Save Mode #2	*	\checkmark	~	~	~
Same Symbol Rescan Timeout: 500 msecs Configurable in 50 msec steps (MAX 6.35 seconds)	500 msec	✓	✓	~	✓
Intercharacter Delay Configurable in 1 msec steps (MAX 255 msecs)	1 msecs 10 msecs in KBW	✓	~	~	
Number of Scan Buffers	1	✓	✓	✓	✓
UPC GTIN-14 Format		✓	✓	✓	✓
EAN-8 Enable	*	✓	✓	1	✓
Transmit EAN-8 Check Digit	*	\checkmark	✓	✓	✓
Convert EAN-8 to EAN-13		\checkmark	✓	✓	✓
EAN-8 with Small Borders		\checkmark	✓	✓	✓
EAN-13 Enable	*	\checkmark	✓	✓	✓
Transmit EAN-13 Check Digit	*	✓	✓	1	✓
UPC-A Enable	*	✓	✓	✓	✓
Convert UPC-A to EAN-13		✓	~	~	~
Transmit UPC-A Check Digit	*	✓	✓	✓	✓
Transmit UPC-A Number System	*	✓	✓	✓	✓
Transmit UPC-A Manufacturers ID.	*	✓	✓	✓	✓
Transmit UPC-A Item ID	*	✓	✓	✓	✓
UPC-E Enable	*	✓	✓	✓	✓
Expand UPC-E		✓	✓	✓	✓
Transmit UPC-E Lead '0'	*	✓	✓	✓	✓
Transmit UPC-E Check Digit		✓	✓	✓	✓
Disable UPC-E Auto Redundancy	*	✓	✓	✓	✓
Transmit Codabar Start/Stop Characters		√	✓	✓	✓
Codabar CLSI		\checkmark	✓	✓	✓
Dual Field Codabar		\checkmark	✓	✓	✓
Tab Between Dual field Codabar		\checkmark	✓	~	✓
Codabar CLSI Check Digit		\checkmark	✓	~	✓
Codabar 7-Check Check Digit		\checkmark	✓	✓	✓
Codabar Mod-16 Check Digit		\checkmark	✓	✓	✓
Transmit MSI Plessey Check Digits		✓	✓	1	1
Number of MSI Plessey Check Digits	0	✓	✓	✓	✓
UK Plessey A to X Convert		✓	✓	✓	✓
UK Plessey Special 12 Character Format		✓	✓	✓	✓
Transmit UK Plessey Check Digit		✓	✓	1	✓

Parameter	DEFAULT	OCIA	RS232	IBM 46xx	USB
EAN 128 Enable		√	✓	✓	✓
Enable French Pharma		✓	✓	~	✓
Enable Matrix 2 of 5 Check Digit		✓	✓	~	✓
Enable Hong Kong 2 of 5		✓	✓	~	✓
Enable Alpha Telepen		✓	✓	~	✓
Telepen Convert Lead '^L' to 'E'		✓	✓	~	✓
Enable Code 11 Check Digit		✓	✓	~	✓
Parity	Space		✓		
Baud Rate	9600		✓		
8 Data Bits			✓		
7 Data Bits	*		✓		
Stop Bits	2		✓		
RTS / CTS Enabled			✓		
Message RTS			✓		
Character RTS	*		✓		
ACK / NAK			✓		
O / N Handshaking			✓		
Host Bell / Cancel			✓		
Xon / Xoff			✓		
No Transmit Without DTR Present			✓		
French PC Terminal Emulation			✓		
"D/E" Disable Command			✓		
"Z/R" Disable Command			✓		
"F/L" Laser Command			✓		
"M/O" Motor Enable Commands			✓		
Beep on Bell			✓		
Razz on 'z'			✓		
CTS Scan Transmit Enable			✓		
Limit 1 Scan per CTS			✓		
Activate on DTR			✓		
Activate on DC2 Character			✓		
Xmit No Read Message on DC2 Timeout			✓		
No Transmit LED During No Read Message			✓		
Configurable "No Read" Message			✓		
Recv "I" = Transmit "METROLOGIC"			✓		
Recv "i" = Transmit Scanner ID Byte			✓		

Parameter	DEFAULT	OCIA	RS232	IBM 46xx	USB
STX Prefix			✓		✓
TAB Prefix			~		~
Metrologic Prefix			~		~
UPC Prefix			✓		✓
ETX Suffix			~		✓
TAB Suffix			✓		✓
Carriage Return Suffix	*		✓		✓
Line Feed Suffix	*		~		~
UPC Suffix			✓		✓
Transmit LRC			~		✓
Start LRC on 1 st Byte			✓		✓
Start LRC on 2 nd Byte			✓		✓
'c' Prefix for UPC			✓		√
'\$' Prefix for UPC			✓		√
Configurable Prefix Characters	10 avail		✓		√
Configurable Suffix Characters	10 avail		✓		√
Predefined Code ID Sets	Multiple Selections		✓		✓
Configurable Prefix for Code Types			✓		√
Configurable Suffix for Code Types			✓		√
Configurable Code Length Locks	7 avail		✓	√	✓
Code Selects	7 avail		~	~	✓
Transmit High Priority Code at Timeout			✓	1	✓
Random Code Deselects	1 Set		✓	1	✓
Do not transmit Similar Codes			✓	1	✓
Target Code Deselects	1 Set		✓	1	✓
Transmit Lower Priority Codes			~	~	~
Code Select / Deselect Timeout 0.1 to 25.5 seconds	5 sec		~	~	~
Razz on Code Select Timeout	*		✓	√	√
Replace 1 Character in Transmission			✓		✓
Japan Dual Field Code Selects			✓	√	✓
EAN-13 Only in Japan Dual Field			✓	√	√
Two Digit Supplements		✓	✓	√	✓
Five Digit Supplements		\checkmark	✓	√	√
Require Supplements		\checkmark	✓	✓	✓
Remote Supplement Support		\checkmark	✓	✓	✓
Two Digit Redundancy		✓	~	~	~

PARAMETER	DEFAULT	OCIA	RS232	IBM 46xx	USB
Five Digit Redundancy		✓	✓	✓	✓
Enable Coupon Code 128		✓	✓	✓	✓
Transmit Coupon ']C1'	*	×	×	~	~
Group Separator	*	✓	✓	~	✓
Coupon Code Can Begin with '4'		✓	✓	~	✓
Enable EAN-99 Coupon Code		✓	✓	~	✓
Bookland Supplements		~	~	~	~
French 378/379 Supplements		✓	✓	~	✓
German 434/439 Supplements		✓	✓	~	✓
Convert Bookland to ISBN		~	~	~	~
Bookland 979 Supplements		✓	✓	~	✓
Convert 979 to ISBN		✓	✓	✓	✓
Convert 290 to ISBN		✓	✓	~	✓
Reformat ISBN		✓	✓	~	✓
Add EAN Article ID		✓	✓	1	✓
Transmit ISBN / EAN Check Digit		✓	✓	✓	✓
977 Supplements (2-digit)		✓	✓	✓	✓
Convert 977 to ISSN		✓	✓	✓	✓
Reformat ISSN		✓	✓	✓	✓
Transmit ISSN Check Digit		✓	✓	✓	✓
414 / 419 requires Supplements		✓	✓	✓	✓
Number System 2 Enables Supplements		✓	✓	✓	✓
Number System 2 Requires 5-Digit Supplements		✓	✓	✓	✓
Number System 5 Enables Supplements		✓	✓	✓	✓
Allow Code ID's with Supplements		✓	✓	✓	✓
High Density Codes	*	✓	✓	✓	✓
Medium Density Codes		1	✓	~	1
Low Density Codes		1	✓	~	1

Default Settings for Aux Interface

The secondary scanner and the Stratos*H* series always communicates via RS232. Data is relayed to the host via various primary interfaces

PARAMETER	DEFAULT	OCIA	RS232	IBM 46xx	USB
Aux Baud Rate	38400	~	✓	~	~
Aux Parity	none	✓	✓	~	✓
Aux Data Bits	8	✓	✓	~	✓
Aux Stop Bits	1	✓	✓	~	✓
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)	~	✓	~	~
Aux Port to Stratos-School [†]	None (Disabled)	~	~	~	~

† When the Aux Port connects to a host port, the Aux Port Data Format should be disabled (requires cable MLPN 57-57008x-N-3).

Γ

SCANNER PINOUT CONNECTIONS

The Stratos*H* scanner terminates to 10-pin modular jacks located on the bottom of the unit. The serial number label indicates the model number and interface of the scanner.

EAS In			
Pin	Function		
1	EAS In		
2 EAS Out			

DC Power In Pin Function 12VDC

Ground

5.2VDC

1 2

3

Auxiliary RS232 In			
Pin	Function		
1	Ground		
2	RS232 Receive Input		
3	RS232 Transmit Output		
4	RS232 RTS In		
5	RS232 CTS Out		
6-8	No Connect		
9	+5V Out		
10	No Connect		



Figure 71. Connector Layout on the Bottom of the Scanner

Scanner IBM 46xx to Host			
Pin	Function		
1	Signal Ground		
2	RS232 TX Output		
3	RS232 RX Input		
4	Reserved for RS232 Interface		
5	Reserved for RS232 Interface		
6	Reserved for RS232 Interface		
7	IBM B-		
8	IBM B+		
9	No Connect		
10	No Connect		

Scanner OCIA to Host			
Pin	Function		
1	Signal Ground		
2	Reserved		
3	Reserved		
4	R Data		
5	R Data Return		
6	Clock In		
7	Clock Out		
8	Clock In Return / Clock Out Return		
9	No Connect		
10	Shield Ground		

Specifications are subject to change without notice.

Scanner RS232 to Host			
Pin	Function		
1	Signal Ground		
2	RS232 TX Output		
3	RS232 RX Input		
4	RS232 RTS Output		
5	RS232 CTS Input		
6	RS232 DTR Input		
7	Reserved for IBM 46xx Interface		
8	Reserved for IBM 46xx Interface		
9	No Connect		
10	No Connect		

Scanner USB to Host			
Pin	Function		
1	Signal Ground		
2	Reserved		
3	Reserved		
4	Reserved for OCIA Interface		
5	Reserved for OCIA Interface		
6	Data +		
7	PC+5VDC		
8	Data -		
9	No Connect		
10	Shield Ground		

SCANNER PINOUT CONNECTIONS



Figure 72. Scale Data (Dual Cable Applications) and Scale Display Connector Layout

Scale RS232 to Host Scale Data, Dual Cable Applications				
Pin	Function**			
1	Ground			
2	Scale RS232 TX Out			
3	Scale RS232 RX In			
4	Scale RS232 RTS Out			
5	Scale RS232 CTS In			
6	No Connect			
7	No Connect			
8	No Connect			
9	Reserved			
10	Shield			

Scale to Display			
Pin	Function**		
1	SIG1		
2	SIG2		
3	SIG3		
4	SIG4		
5	SIG5		
6	SIG6		
7	SIG7		
8	SIG8		
9	No Connect		
10	No Connect		

** All signals referenced from the StratosH scanner.

Specifications are subject to change without notice.

CABLE CONNECTOR CONFIGURATIONS

The following cables are examples of some of the standard cables that may be shipped with the Stratos*H* scanner. Please keep in mind that every application is unique and the cables received with the Stratos*H* may be custom cables that are not shown below.

	RS232 Interface Cable, MLPN 57-57000 x-N-3			
Pin	Function**			
1	Shield Ground			
2	RS232 TX Output	5 1		
3	RS232 RX Input			
4	DTR Input			
5	Signal Ground			
6	No Connect	9-Pin D-Type Connector		
7	CTS Input			
8	RTS Output			
9	No Connect			

Full Speed USB Cable, MLPN 57-57200 <i>x</i> -N-3 OR MLPN 57-57006 <i>x</i> -N-3			
Pin	Function**	同 間 1	F 1
1	PC+5V USB	00	
2	Data -	<u>لگانگا</u> 4	
3	Data +	Locking, Type A	Non-Locking, Type A
4	Signal Ground	57-57200 <i>x</i> -N-3	57-57006 <i>x</i> -N-3

IBM 46xx Cable, MLPN 57-57004 <i>x</i> -N-3		
Pin	Function**	
1	Signal Ground	4 E
2	IBM A+	
3	IBM B-	
4	No Connect	

OCIA Cable, MLPN 57-57015 <i>x</i> -N-3		
Pin	Function**	
1	Shield Ground	5 1
2	R Data	
3	R Data Return	
4	Clock Out	
5	Signal Ground	
6	Clock In Return / Clock Out Return	
7		
8	Clock In	
9	No Connect	

** All signals referenced from the StratosH scanner.
CABLE CONNECTOR CONFIGURATIONS

Aux Port Configuration Cable*, MLPN 57-57008 <i>x</i> -N-3		
Pin	Function**	
1	No Connect	5 1
2	Output from Scanner	
3	Input to Scanner	
4	No Connect	9 6
5	Ground	9-Pin D-Type Connector
6-9	No Connect	

	RS232 LSO/AUX Cable, MLPN 57-57099x-3	
Pin	Function [†]	
1	Signal Ground	1 10
2	RS232 from Aux / Secondary Scanner	
3	RS232 to Aux / Secondary Scanner	
4	RTS from Aux / Secondary Scanner	
5	CTS to Aux / Secondary Scanner	
6-8	No Connect	
9	+5VDC – Transformer / Direct	10-Position Angled Modular Plug
10	Shield Ground	

* This configuration cable was designed to be used with the StratosH auxiliary connector only.

** All signals are referenced from the StratosH scanner.

† All signals are referenced from the auxiliary / secondary scanner.

Specifications are subject to change without notice.

LASER AND PRODUCT SAFETY

NOTICES

This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense. Any unauthorized changes or modifications to this equipment could void the users authority to operate this device.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice

This Class A digital apparatus complies with Canadian ICES-003.

Remarque

Cet appareil numérique de la classe A, conformé a la norme NMB-003 du Canada.

European Standard

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Funkstöreigenschaften nach EN 55022:1998

Warnung!

Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem fall kann vom Betrieber verlangt werden, angemessene Maßnahmen durchführen.

Standard Europeo

Attenzione

Questo e' un prodotto di classe A. Se usato in vicinanza di residenze private potrebbe causare interferenze radio che potrebbero richiedere all'utilizzatore opportune misure.

Attention

Ce produit est de classe "A". Dans un environnement domestique, ce produit peut être la cause d'interférences radio. Dans ce cas l'utiliseteur peut être amené à predre les mesures adéquates.

LASER AND PRODUCT SAFETY

CAUTIONS

▲ Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure. Under no circumstances should the customer attempt to service the laser scanner. Never attempt to look at the laser beam, even if the scanner appears to be nonfunctional. Never open the scanner in an attempt to look into the device. Doing so could result in hazardous laser light exposure. The use of optical instruments with the laser equipment will increase eye hazard.

Atención

La modificación de los procedimientos, o la utilización de controles o ajustes distintos de los especificados aquí, pueden provocar una luz de láser peligrosa. Bajo ninguna circunstancia el usuario deberá realizar el mantenimiento del láser del escáner. Ni intentar mirar al haz del láser incluso cuando este no esté operativo. Tampoco deberá abrir el escáner para examinar el aparato. El hacerlo puede conllevar una exposición peligrosa a la luz de láser. El uso de instrumentos ópticos con el equipo láser puede incrementar el riesgo para la vista.

Attention

L'emploi de commandes, réglages ou procédés autres que ceux décrits ici peut entraîner de graves irradiations. Le client ne doit en aucun cas essayer d'entretenir lui-même le scanner ou le laser. Ne regardez jamais directement le rayon laser, même si vous croyez que le scanner est inactif. N'ouvrez jamais le scanner pour regarder dans l'appareil. Ce faisant, vous vous exposez à une rayonnement laser qu êst hazardous. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

Achtung

Die Verwendung anderer als der hier beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine gefährliche Laserstrahlung hervorrufen. Der Kunde sollte unter keinen Umständen versuchen, den Laser-Scanner selbst zu warten. Sehen Sie niemals in den Laserstrahl, selbst wenn Sie glauben, daß der Scanner nicht aktiv ist. Öffnen Sie niemals den Scanner, um in das Gerät hineinzusehen. Wenn Sie dies tun, können Sie sich einer gefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

Attenzione

L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli descritti nel presente Manuale può provocare delle esposizioni a raggi laser rischiose. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai il raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Facendolo potete esporVi ad una esposizione laser rischiosa. L'uso di apparecchi ottici, equipaggiati con raggi laser, aumenta il rischio di danni alla vista.

CLASS 1 LASER PRODUCT APPAREIL A LASER DE CLASSE 1 LASER KLASSE 1 PRODUKT LASER CLASE 1 PRODUCTO

IEC 60825-1:1993+A1:1997+A2:2001

LIMITED WARRANTY

The MS2320 Stratos*H*[™] Series scanners are manufactured by Metrologic at its Blackwood, New Jersey, U.S.A. facility. The MS2300 Stratos*H* Series scanners have a two (2) year limited warranty from the date of manufacture. Metrologic warrants and represents that all MS2320 Stratos*H* Series scanners are free of all defects in material, workmanship and design, and have been produced and labeled in compliance with all applicable U.S. Federal, state and local laws, regulations and ordinances pertaining to their production and labeling.

This warranty is limited to repair, replacement of product or refund of product price at the sole discretion of Metrologic. Faulty equipment must be returned to one of the following Metrologic repair facilities: Blackwood, New Jersey, USA; Madrid, Spain; or Suzhou, China. To do this, contact the appropriate Metrologic Customer Service/Repair Department to obtain a Returned Material Authorization (RMA) number.

In the event that it is determined the equipment failure is covered under this warranty, Metrologic shall, at its sole option, repair the Product or replace the Product with a functionally equivalent unit and return such repaired or replaced Product without charge for service or return freight, whether distributor, dealer/reseller, or retail consumer, or refund an amount equal to the original purchase price.

This limited warranty does not extend to any Product which, in the sole judgment of Metrologic, has been subjected to abuse, misuse, neglect, improper installation, or accident, nor any damage due to use or misuse produced from integration of the Product into any mechanical, electrical or computer system. The warranty is void if the case of Product is opened by anyone other than Metrologic's repair department or authorized repair centers.

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PATENTS

Patent Information

This METROLOGIC product may be covered by one or more of the following U.S. Patents:

U.S. Patent No.;

5,343,027; 5,627,359; 5,686,717; 5,789,731; 5,828,049; 6,029,894; 6,209,789; 6,299,065; 6,345,505; 6,422,467; 6,481,625; 6,494,377; 6,814,292; 6,830,190; 6,874,690; 6,918,540; 6,951,304;

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Other worldwide patents pending.

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