METROLOGIC INSTRUMENTS, INC.

MS951 Hand-Held Laser Scanner
and MS951 Hand-Held Scanner
with Built-in PC
Keyboard Wedge Interface

Installation and User's Guide

MLPN 2365
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Table of Contents

Introduction

The scanning process is initiated by an infrared device (ScanQuest™ Sensor) that is active as long as power is applied to the unit. The infrared (IR) signal extends approximately eight (8) inches beyond the scan window in long range mode. In short range mode it extends approximately three (3) inches beyond the scan window. To activate the unit, wave an object in front of the IR sensor or pick up the scanner and direct the scan window down-wards.

When the unit is activated by the IR sensor, the red LED will remain on. This is a visual indication that the laser is on and the scanner is beginning a sequence of bar code recognition, decoding, and transmission. When an object is in the scan field, the laser determines if a bar code is present. If a bar code is not detected within approximately 2.5 seconds, the red LED will shut off indicating that the laser is no longer on. To reactivate the scanning sequence, the object must be removed and another object must be presented.

When a bar code is recognized, the scanner will decode the bar code and then transmit the data to the host system. When this occurs, the green LED will flash and the scanner will beep when the decoding is complete. At this time, the laser will turn off if the object is removed from the field. However, if the object stays in the field the laser remains on for up to 2.5 seconds trying to detect another bar code. This feature allows very fast consecutive scans of symbols in close proximity, such as a wall of boxes or cartons, or a bar coded menu. The laser will stay on for approximately 4 seconds and then will turn off if the same symbol stays in the field after a successful scan. This prevents unintentional reads of the same bar code. To read the same symbol more than once, simply remove the object from the scan field for approximately 1 second and then the scanner can then scan the same symbol on the next pass.

The MS951 Hand-Held Laser Scanner with Built-in PC Keyboard Wedge Interface is designed to be used for keyboard emulation only. However, many RS-232 programmable functions that are available in other Metrologic scanners are also available as keyboard wedge functions. The most important selectable options specific to the keyboard wedge are the following:

Keyboard Type

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

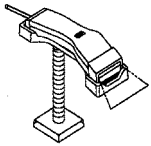
Keyboard Country Type

- ** USA
- United Kingdom
- French
- German
- Italian
- Spanish
- Belgium
- Swiss
- IBM KB4700 Financial Keyboard

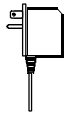
** Default setting. Refer to the Programming Guide MLPN 2366 for information on how to change the default settings.

Scanner and Accessories

The following is a list of the parts included in the MS951 shipping carton.



- MS951 Hand-Held Laser Scanner - Refer to page 28 for available communication protocols
- Stand (MLPN 45482)
- Optional Power Transformer 120V or 220V or 240V (AC in) 5V (DC out) @300mA regulated (MLPN 46010/46009/46008) for applications where host power is not available



- Installation and User's Guide (MLPN2365)
- MS951 Hand-Held Laser Scanner including all Scanner Configurations Programming Guide (MLPN 2366)

Keyboard Wedge Scanners:

- Adaptor Cable with a 5-pin DIN male connector on one end and a 6-pin mini DIN female connector on the other (MLPN 19716)

RS-232, Light Pen, some OCIA and some 46xx scanners:

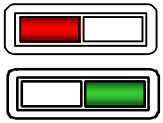
- MCA (Metrologic Connector Adaptor) (MLPN MCA951)

- For direct connect application (No Power Transformer) 4 position MCA ground jumper (MLPN 51191)

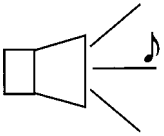
- RS-232 Scanner Demonstration Program (Receive) diskette (MLPN 2351)

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.

Quick Start



1.) Plug in the scanner. When the MS951 is ready to scan, the red LED will turn on, followed by the green LED, and then the scanner will emit one beep.



2.) The scanner is shipped from the factory programmed with default settings. To configure the MS951 scanner to meet the host system's specific needs, refer to the Programming Guide (MLPN 2366) for instructions on how to enter the program mode and to select the appropriate bar codes.

Note: Keyboard Wedge scanners default to Keyboard Wedge Communications and USA, AT keyboard when the Recall Defaults is scanned. With all other versions, the Recalll Defaults barcode configures the MS951 for an RS-232 interface. If RS-232 is not being used, scan at least one other bar code to enable OCIA, Light Pen or 46xx.

Operational Test

If the scanner is to receive power from an external power supply, test the scanner before it is connected to the host system.

Keyboard Wedge Scanners:

1. Plug one end of the coil cable into the keyboard connector on the PC. Then plug the keyboard connector into the other end of the coil cable. Plug in the external transformer.

2. Check the AC input requirements of the power supply (for special circumstances only) to make sure the voltage matches the AC outlet. Connect AC power to the transformer.

3. Listen for a single beep (red LED on) which indicates the scanner is ready for use.

RS-232, Light Pen, OCIA and 46xx scanners:

1. Plug the scanner's coil cable into the MCA (Metrologic Connector Adaptor).

2. Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. Plug the power supply into the MCA and the appropriate AC outlet. (the socket-outlet shall be installed near the equipment and shall be easily accessible.)

3. Listen for a single beep (red LED on) which indicates the scanner is ready for use.

Scanner Installation: Powered by External Power Supply

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

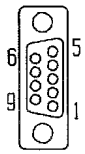
1. Turn off the host system.

2. If using a communication cable, connect the cable to the correct port on the host device and the MCA (Metrologic Connector Adaptor). If the host device is an IBM compatible PC with a male 9-pin serial port, connect the MCA to the port.

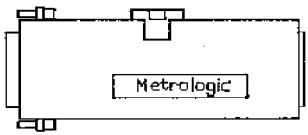
3. Plug the scanner's coil cable into the MCA.

4. Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. (the socket-outlet shall be installed near the equipment and shall be easily accessible.) Plug the power supply into the MCA and the AC outlet.

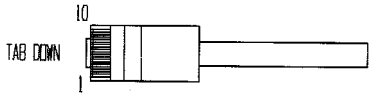
5. Turn on the host system.



Female 9-pin D



MCA



10 Position Modular Connector at the end of the Coil Cable

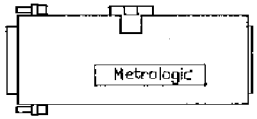
Note: **a.** When the scanner first receives power, the red LED will turn on, followed by the green LED, and then the scanner will beep once.

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

MS951- 9, 11, 14 and 15
Scanner Installation: Powered by Host Device

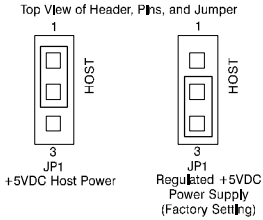
If the host system supplies +5VDC power to the scanner, reposition the internal jumper within the MCA (Metrologic Connector Adaptor) before connecting the scanner to the host device. In addition, plug the 4 position ground jumper into the power supply connector located on the side of the MCA.

1. Make sure the MCA is not connected to the scanner, communication cable or host and unfasten the case.



MCA

2. Reposition the shunt on JP1 to pins 1 and 2 and close the case.

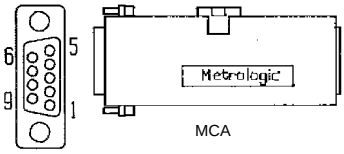


Note: The factory setting of jumper 1 (JP1) is on pins 2 and 3. To direct power for the scanner from the host device, position the jumper on pins 1 and 2.

3. Plug the 4 position ground jumper into the power supply connector.

4. Turn off the host system.

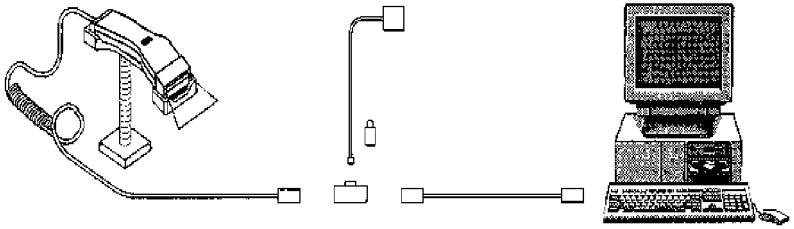
5. If using a communication cable, connect the cable to the correct port on the host device and the MCA. If the host device is an IBM compatible with a male 9-pin serial port, connect the MCA to the port. There is an optional cable (MLPN 51236) that is available for IBM PC applications where the MCA will not fit at the back of the computer.



Female
9-pin D
MCA

6. Plug the scanner's coil cable into the MCA.

7. Turn on the host system.



MS951- 47 and MS961- 47 Scanner Installation to the PC (Scanner with Built-in PC Keyboard Wedge Interface)

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

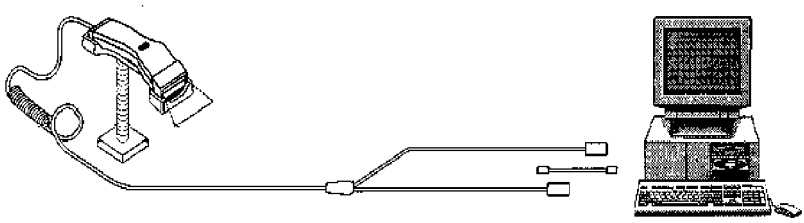
1. The "Y" coil cable is terminated with a 5-pin DIN female connector on one end, and a 6-pin mini DIN male on the other. Also included with the MS951 is an adaptor cable with a 5-pin male DIN on one end and a 6-pin female mini DIN on the other to mate to a specific keyboard. According to the termination required, connect the appropriate end of the adaptor cable to the coil cable, leaving the necessary termination exposed for connecting to the keyboard and the keyboard port on the PC. Refer to Appendix C page 40 for pin assignments.

2. If the PC is on, exit the application and turn the PC off.

3. Disconnect the keyboard from the PC.

4. Plug one end of the coil cable into the keyboard connector on the PC. Then plug the keyboard connector into the other end of the coil cable.

5. Power up the PC.



MS951- 57 and MS961- 57 Scanner Installation to the PC (Scanner with Built-in PC Keyboard Wedge Interface)

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

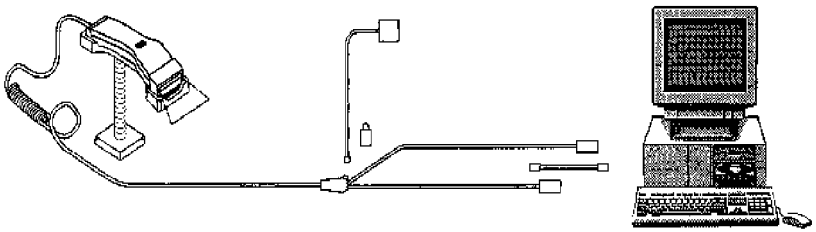
1. This version uses an external power supply. The "Y" coil cable is terminated with a 5-pin DIN female connector on one end, and a 6-pin mini DIN male on the other. Also included with the MS951 is an adaptor cable with a 5-pin male DIN on one end and a 6-pin female mini DIN on the other to mate to a specific keyboard. According to the termination required, connect the appropriate end of the adaptor cable to the coil cable, leaving the necessary termination exposed for connecting to the keyboard and the keyboard port on the PC. Refer to Appendix C page 40 for pin assignments.

2. If the PC is on, exit the application and turn the PC off.

3. Disconnect the keyboard from the PC.

4. Plug one end of the coil cable into the keyboard connector on the PC. Then plug the keyboard connector into the other end of the coil cable. Plug in the external transformer. Connect AC power to the transformer.

5. Power up the PC.



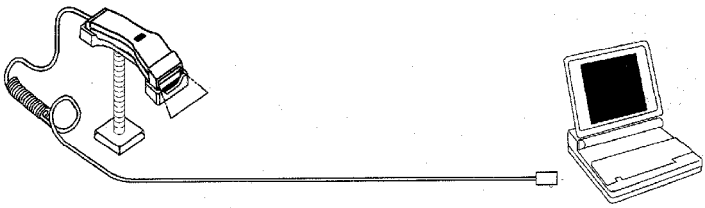
Configuration of the MS951/MS961- 48 Scanner

The Keyboard Laser Scanner version of the MS951 is terminated with a 6-pin male mini DIN. The version 48 plugs directly into the external keyboard port of a register or notebook computer.

Application Test:

The MS951/MS961-48 is compatible with some but not all notebook computers equipped with an external keyboard port. It has been proven to work with an IBM 4614 Sure One POS terminal. Due to variations in host systems, Metrologic cannot guarantee that the MS951/MS961-48 will work with the system.

A reliable test for compatibility would be to connect an external keyboard to the notebook and power up the unit. If the notebook accepts data from both the external keyboard and the built in keyboard, the notebook is likely to work with the MS951/MS961-48.



Version “11" 46XX Interface

Output Format: IBM RS-485 serial input/output for the 4680 and 4690 (46XX) point-of-sale terminals

The Version 11 46XX interface can be used in several different ways. Both the 46XX terminal and the scanner must be configured to match each other.

Warning: Power to the scanner and 46XX terminal should be turned off before making physical connection.)

The 4680 and 4690 series terminals have different types of physical ports for connecting bar code scanners. Scanner ports include Port 5B, Port 17, and Port 9? (? = A, B, C, or E). A Port 9 type connector is present on all versions of the 46XX families of terminals. That is one reason it is the normal point of connection for Metrologic scanners. Another reason is that there is enough 12 volt power available to operate many Metrologic scanners. If the terminal configuration requires the use of a different physical port, for connecting bar code scanners, contact Metrologic to get particular adaptor cable information.

No matter what port is used for physical connection, all devices use a common communications bus inside the 46XX terminal. Each device uses a different address when it must communicate. The terminal must be configured to look for a device at a logical address.

The IBM 1520 mode/address was selected as a default because it was the first IBM 46XX family scanner to support UPC/EAN, Code 39 and Interleaved 2 of 5. The Version 11 scanner formats Codabar, Code 128, and Code 93 using the Code 39 function code designation supported by the IBM device driver for this scanner type. Other emulation modes currently available are the Port 17 IBM 3687-2 fixed scanner and the Port 9B IBM 4500 CCD hand-held bar code reader. Use one of these other emulation modes depending on which operating system (4680.OS, 4690.OS, POS/DOS or DOS/RIPPS) is being used at the site.

Note: Metrologic’s 46XX hand-held scanner models are typically installed with adaptor cables that draw power from the terminal.

Configuring the Scanner with 46XX Interface

To configure an MS951 Version “11” scanner for general autodiscriminate applications, scan the following bar codes found in the Programming Guide MLPN 2366:

Enter/Exit Program Mode
Recall Defaults
Enable IBM 46XX Interface (If necessary, change the emulation.)
Enter/Exit Program Mode

Disconnect and reconnect the scanner to allow the terminal device driver to initialize for the emulation mode selected properly.

Operating Characteristics

The MS951 supports the enable/disable commands that newer 46XX device drivers use to support scanners. If the scanner does not appear to work beyond the good power on diagnostics' beep, check that the application is at a prompt that expects scanner input.

For some slow application software, there are special features in the MS951 that may change the scanner operating characteristics to prevent data loss while not significantly slowing the scanner performance.

They include:

Beep After Transmit	R50 - Beep before transmission (default) R51 - Beep after transmission

R20 - No inter record delay
R21 - 25 m/sec inter record delay (default)
R22 - 50 m/sec inter record delay
R23 - 125 m/sec inter record delay

Experiment with these options to find the combination that works best for the application.

Configuring the IBM 46XX

The 4683 and 4693 terminals are configured on the store controller. The 4684 and 4694 terminals are typically configured on the individual terminals. Follow the appropriate guide for the type of equipment.

IBM 4683 and 4693 Terminals Driven by a 46XX Store Controller Running 4680.OS or 4690.OS

Access the terminal configuration menu on the store controller. If not already selected, select an IBM 1520 laser hand scanner (4680.OS Port 5B), an IBM 4500 hand-held bar code reader (CCD, 4680.OS Port 9B), or an IBM 3687-2 fixed scanner (4680.OS Port 17) that matches the configuration of the scanner. Regarding the 4690.OS, at the time of this printing, Metrologic does not know exactly which terminal port configuration screen is used for selecting scanners. It should be listed under the Port 9A, 9B, 9C, or 9E sections. The 4693 terminal has a Port 5B that was originally used for the IBM 1520 scanner. While IBM has withdrawn this product, it was not clear how terminal configuration and device driver support would be provided for the installed base of users.

Save the configuration and activate it for the desired terminals, download the configuration to the terminal(s) per standard procedures.

IBM 4684 and 4694 Systems

Initialize the RIPPS drivers for a hand scanner if hand scanner emulation was selected. Initialize the RIPPS drivers for a "POS scanner" if the 3687-2 scanner has been selected.

Parts of the MS951

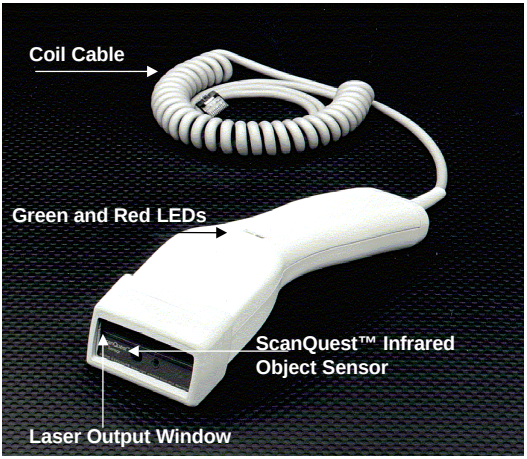


Figure 1

Green and Red LEDs

When the red LED is on, this indicates that the laser is on. When the green LED flashes on, the scanner has read a bar code successfully. When the green light turns off, communication to the host is complete.

Laser Output Window

Laser light emits from this aperture.

ScanQuest™ Infrared Object Sensor

When a specified time has elapsed without any scanning, the unit will enter a “standby” mode. To reactivate the unit, wave an object in front of the IR (infrared) sensor or pick up the scanner and direct the scan window downwards. When the red LED comes on, the scanner is ready to scan.

Coil Cable

This cable is terminated with a 10-pin modular connector, which attaches to the MCA951. The Keyboard Wedge unit has a "y" coil cable terminated with a 5-pin female on one end, and a 6-pin male on the other.

Components of the MS900 Series Stand

The following are the components used to build the MS900 series stand (MLPN: 45482):

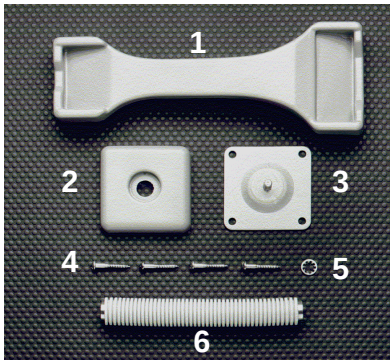


Figure 2

1	Cradle	4	Wood Screws
2	Stand Cover	5	Internal Lock Washer
3	Stand Base	6	Flexible Shaft

Installation of the MS900 Series Stand

1. Use the 2½ inch x 2½ inch stand base to mark the position for pilot holes.

2. Use the four wood screws to secure the base to the work surface.

3. Position the stand cover on top of the stand base. Screw the flexible shaft to the stand base (Refer to Figure 3).

4. Place the internal lock washer on top of the flexible shaft and then screw the cradle to the shaft (Refer to Figures 4 and 5).

Note: Fasten the stand to the work surface before adjusting the angle of the flexible shaft. To adjust the angle, firmly hold the shaft and push the shaft to a north, south, east, or west direction.

Caution: This device can generate an electromagnetic field. Position stand at least 12 inches from computer monitor, diskettes, or other magnetically sensitive devices.

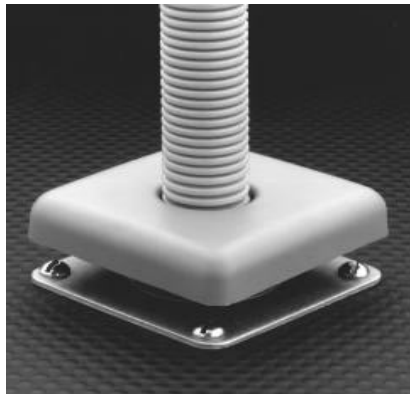


Figure 3

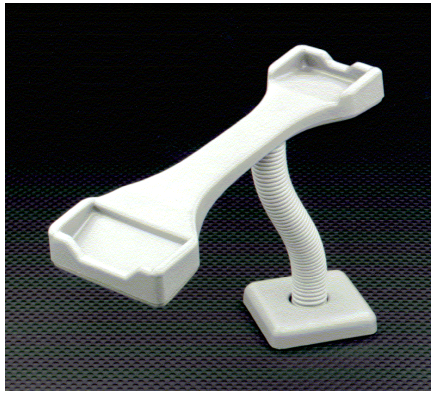


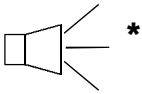
Figure 4

Figure 5

Audible Indicators

When the MS951 scanner is in operation, it provides audible indications. These sounds indicate the status of the scan and scanner.

One Beep



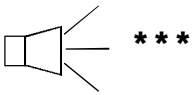
When the scanner *first* receives power, the red LED will blink, followed by the green LED, and then the scanner will emit one beep. After the scanner performs this startup sequence, the scanner is ready to scan.

When the scanner *successfully* reads a bar code, the green light will flash and then beep once. If the scanner does not beep once and the green light does not flash, then the bar code has *not* been successfully read.

Razzberry Tone

If, upon power up, the scanner emits a razzberry tone, then the scanner has failed diagnostics.

Three Beeps



When entering the program mode, the green LED will flash three times while the scanner simultaneously beeps three times. When exiting the program mode, the same visual and audible indications will occur. After this sequence is completed, the red LED will turn off.

There are four settings that are available for the volume of the beep. To change the volume or turn the beeper off, refer to the Programming Guide MLPN 2366 section: Beeper Tones.

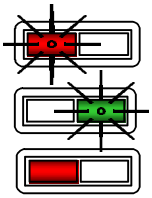
Visual Indicators

There is a red and green LED at the top of the scanner. These LEDs indicate the status of the scan and scanner.

No Red or Green

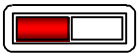
Illumination of the LEDs will not occur if the scanner is not receiving power from the PC and if the scanner is receiving power but has remained dormant for a specified time thus turning the laser and motor off.

Red Flash; Green Flash; Steady Red



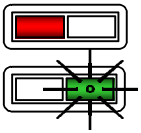
When the scanner *first* receives power, the red LED will flash, followed by the green LED, and then the scanner will beep once.

Steady Red



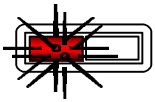
When the laser is on, the red LED will also be on. This occurs when an object is in the scan field.

Steady Red; Green Flash



When the scanner *successfully* reads a bar code, the green LED will flash then beep once.

Repetitive Red Flashes



When the red LED flashes several times while it lays upon a stationary surface, then an object is within the scan field and is activating the IR sensor. This can occur even while the scanner is lying upon the counter or cradle. To eliminate this disturbance, direct the scan window toward a different location.

Steady Green

After a successful scan, the scanner transmits the data to the host device. When the host is ready to accept the information, the scanner's green LED will remain on until the data can transmit.

Signaux optiques

Sur la partie supérieure du scanner se trouvent une diode LED rouge et une diode LED verte. Quand le scanner est sous tension, les diodes rouge et verte clignotantes ou allumées vous informent sur l'état de palpage et de scanner.

Ni la diode rouge, ni la diode verte n'est allumée

Il existe deux raisons possibles quand les diodes ne s'allument pas. Si le scanner ne reçoit pas d'énergie de l'ordinateur PC, les diodes ne s'allument pas. Quand le scanner reçoit de l'énergie et ne s'allume cependant pas, le scanner est resté pendant une certaine période sans être utilisé et le laser et le moteur sont désactivés. Pour réactiver l'unité, déplacer un objet devant le palpeur infrarouge ou prendre le scanner et diriger la fenêtre de palpage vers le bas.

Diode rouge clignotante; diode verte clignotante; diode rouge restant allumée

Quand le scanner reçoit *pour la première fois* de l'énergie, la diode rouge se met d'abord à clignoter, puis la diode verte. Ensuite, le scanner émet un bip sonore unique. Une fois cette séquence de démarrage effectuée, la diode rouge reste allumée pendant un certain temps indiquant que le laser est en service. Quand le scanner ne détecte aucun objet, la diode rouge et le laser s'éteignent.

Diode rouge restant allumée

Quand le laser est activé, la diode rouge s'allume également. C'est par exemple le cas quand un objet se trouve devant la fenêtre de palpage. Si, en l'espace de 2,5 secondes, aucun code barres n'est détecté, la diode rouge s'éteint, ce qui signifie que le laser est désactivé.

Diode rouge restant allumée; diode verte clignotante

Après lecture *avec succès* d'un code barres par le scanner, la diode verte se met à clignoter, suivie d'un bip sonore unique. Si la diode verte ne clignote pas ou quandaucun bip sonore n'est émis, cela signifie que le code barres *n'a pas* pu être lu avec succès.

Clignotement répété de la diode rouge

Quand la diode rouge clignote plusieurs fois pendant que l'appareil repose sur une surface non déplacée, un objet activant le palpeur infrarouge se trouve devant la fenêtre de palpage. Ceci peut se produire même quand le scanner se trouve sur une table ou un reposoir. Pour éliminer ce défaut, positionner le scanner de façon différente.

Diode verte restant allumée

Une fois le palpage effectué *avec succès*, le scanner transmet les données à l'ordinateur PC. Si ce dernier n'est pas prêt à recevoir les données, la diode verte du scanner s'allume jusqu'à ce que les donnés puissent être transmises.

Optische Anzeigen

Auf der Oberseite des Scanners befinden sich eine rote und eine grüne Leuchtdiodenanzeige. Ist der Scanner eingeschaltet, so geben Ihnen die blinkenden oder feststehenden Leuchtdiodenanzeigen Aufschluß über den Scannerstatus.

Weder rote oder noch grüne Leuchtanzeige

Es gibt zwei mögliche Gründe, weshalb die Leuchtdiodenanzeigen nicht aufleuchten. Bekommt der Scanner keine Energie vom PC ,leuchten die Leuchtdiodenanzeigen nicht auf. Wenn der Scanner jedoch Energie bekommt und die Leuchtdiodenanzeigen dennoch nicht aufleuchten, so ist der Scanner für einen bestimmten Zeitraum untätig geblieben, und Laser und Motor sind abgeschaltet. Zur Reaktivierung der Einheit sollten Sie ein Objekt vor dem Infrarot-Sensor hin- und herbewegen oder den Scanner aufnehmen und das Abtastfenster nach unten richten.

Rote Blinkanzeige; Grüne Blinkanzeige; feststehende grüne Leuchtanzeige

Wenn dem Scanner *erstmalig* Energie zugeführt wird, blinkt zunächst die rote Leuchtdiodenanzeige auf, gefolgt von der grünen Leuchtdiodenanzeige,und anschließend sendet der Scanner ein einmaliges Piep-Signal aus. Nach Ausführung dieser Startsequenz leuchtet die rote Leuchtdiodenanzeige für einen bestimmten Zeitraum auf und zeigt an, daß der Laser eingeschaltet ist. Wird dem Scanner kein Objekt präsentiert, so schaltensich die rote Leuchtdiode und der Laser ab.

Feststehende rote Leuchtanzeige

Wenn der Laser eingeschaltet ist, leuchtet auch die rote Leuchtdiodenanzeige auf. Dies ist dann der Fall, wenn sich ein Objekt im Abtastfeld befindet. Wird innerhalb von ca. 2,5 Sekunden kein Barcode erfaßt, so erlischt die rote Leuchtdiodenanzeige, was bedeutet, daß der Laser nicht mehr eingeschaltet ist.

Feststehende rote Leuchtanzeige; grüne Blinkanzeige

Nach *erfolgreichem* Lesen eines Barcodes durch den Scanner blinkt die grüne Leuchtdiodenanzeige auf, gefolgt von einem einmaligen Piep-Signal. Falls die grüne Leuchtdiodenanzeige nicht aufblinkt oder der Scanner kein einmaliges Piep-Signal aussendet, bedeutet dies, daß der Barcode *nicht* erfolgreich - gelesen werden konnte.

Wiederholte rote Blinkanzeigen

Blinkt die rote Leuchtdiodenanzeige mehrmals auf, während das Gerät auf einer nichtbewegten Fläche liegt, so befindet sich ein Objekt innerhalb des Abtastfeldes,das den Infrarot-Sensor aktiviert. Dies kann selbst dann vorkommen, wenn der Scanner auf dem Ladentisch oder dem Ablagegestell liegt. Um diese Störung zu beseitigen, sollten Sie den Scanner anders positionieren.

Feststehende grüne Leuchtanzeige

Nach *erfolgreichem* Abtasten überträgt der Scanner die Daten an den PC. Ist der PC nicht zur Annahme der Daten bereit, so leuchtet die grüne Leuchtdiodenanzeige des Scanners solange auf, bis die Daten übertragen werden können.

Segnali ottici

Sulla parte superiore dello scanner si trovano due diodi luminosi: uno rosso e uno verde. Quando lo scanner è inserito, i diodi luminosi, che possono o essere accesi in continuazione o lampeggiare, Vi informano sullo stato della scansione e dell'apparecchio.

Né il diodo luminoso rosso né quello verde sono accesi

Vi sono due possibili cause se i diodi luminosi non sono accesi. Se lo scanner non viene alimentato dal PC i diodi luminosi non sono accesi. Se invece lo scanner è alimentato e ciònonostante i diodi luminosi non sono accesi, lo scanner è rimasto disattivato per un determinato periodo e laser e motore sono spenti. Per riattivare l'unità dovreste muovere un oggetto davanti al sensore a infrarossi oppure prendere lo scanner e rivolgere il finestrino di scansione verso il basso.

Il diodo luminoso rosso lampeggia; il diodo luminoso verde lampeggia; il diodo luminoso verde è acceso

Quando lo scanner viene alimentato *per la prima volta*, lampeggia dapprima il diodo luminoso rosso e quindi quello verde. Poi lo scanner emette un unico segnale beep. Dopo l'esecuzione di questa sequenza di avvio il diodo luminoso rosso si accende per un determinato periodo ed indica che il laser è inserito. Se allo scanner non viene presentato nessun oggetto, il diodo luminoso rosso e il laser si spengono.

Il diodo luminoso rosso è acceso

Quando il laser è attivato, è acceso anche il diodo luminoso rosso. Questo si ha quando un oggetto si trova nella zona di scansione. Se entro ca. 2,5 secondi non viene registrato nessun codice a barre, il diodo luminoso rosso si spegne; ciò significa che il laser non è più attivato.

Il diodo luminoso rosso è acceso; il diodo luminoso verde lampeggia

Dopo la lettura *riuscita* di un codice a barre da parte dello scanner il diodo luminoso verde lampeggia e quindi viene emesso un unico segnale beep. Se il diodo luminoso verde non lampeggia oppure lo scanner non emette un segnale beep, ciò significa che la lettura del codice a barre *non* è riuscita.

Il diodo luminoso rosso lampeggia ripetutamente

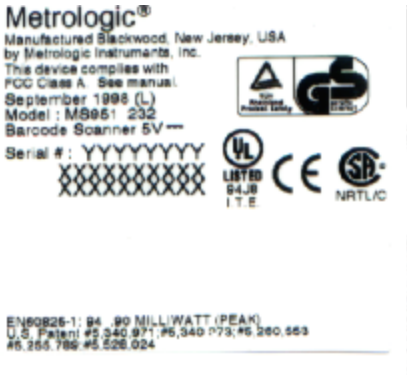
Se il diodo luminoso rosso lampeggia ripetutamente mentre l'apparecchio si trova su una superficie che non si muove, vi è un oggetto all'interno della zona di scansione che attiva il sensore a infrarossi. Ciò può essere addirittura il caso quando lo scanner si trova sul banco oppure nel suo supporto. Per eliminare questa anomalia basta cambiare la posizione dello scanner.

Il diodo luminoso verde è acceso

Dopo la scansione *riuscita* lo scanner trasmette i dati al PC. Se il PC non è pronto per accettare i dati, il diodo luminoso verde dello scanner è acceso fino a che i dati possono essere trasmessi.

Label Locations

The MS951 scanner is either a CDRH Class II laser system or an IEC Class 1 Laser System. The unit will have a CDRH Class II caution label or an LASERKLASSE 1 label affixed below the model number. The model number label is on the bottom of the scanner's head. Directly below the output window at the front of the unit is a red avoid exposure label. The following are examples of these labels:



IR Sensor Activation

The scanning process is initiated by an infrared (IR) device that is below the output window. The signal extends approximately eight (8) inches beyond the output window in long range mode and in short rang mode, it extends approximately three (3) inches (Refer to Figure 6). The IR device remains active as long as power is applied to the unit.

When the unit remains dormant for a time, the laser will turn off. In this stage, the scanner's computer is on "standby". To reactivate the unit, wave an object in front of the IR sensor or pick up the scanner and direct the output window downwards.

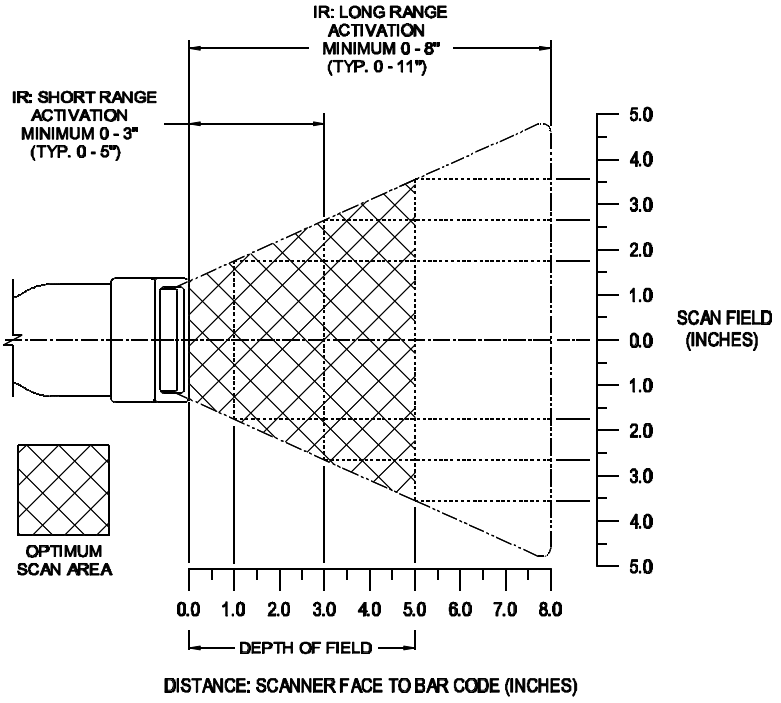


Figure 6

Scan Field

The depth of field for the scanner is from the face of the output window to five (5) inches (Refer to Figure 7). If the scanner is in the stand, present the bar code to the scanner. When holding the scanner, position the output window within five inches of the bar code.

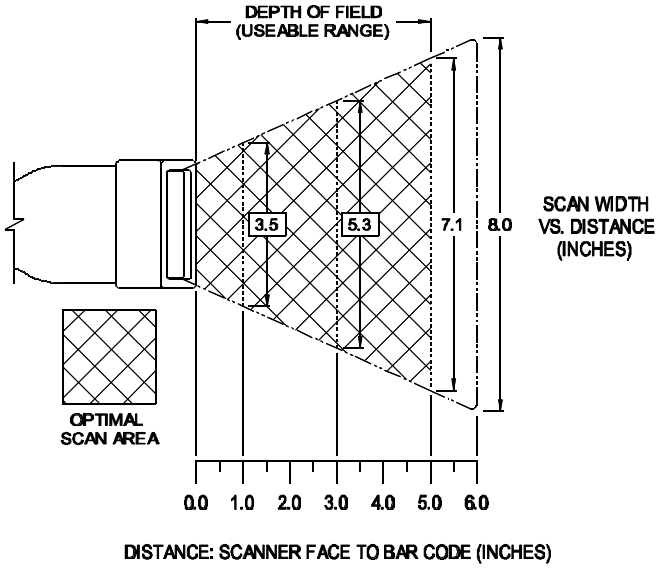


Figure 7

MS951 - Depth of Field and Symbol Specification

(Refer to Figure 8)

Code Type	Minimum Small Element Mil. (1/1000")	Code Density	Depth of Field
UPC/EAN	10.4	80%	0.0cm - 10.3cm (0" - 4")
UPC/EAN	13.0	100%	0.0cm - 12.8cm (0" - 5")
Code 39	7.5	High	0.0cm - 7.7cm (0" - 3")
Code 39	12.0	Medium	0.0cm - 12.8cm (0" - 5")
Code 39	21.0	Low	2.6cm - 20.5cm (1" - 8")
I 2 of 5	7.5	High	0.0cm - 7.7cm (0" - 3")
I 2 of 5	12.0	Medium	0.0cm - 12.8cm (0" - 5")
I 2 of 5	21.0	Low	2.6cm - 20.5cm (1" - 8")
Codabar	7.5	High	0.0cm - 7.7cm (0" - 3")
Codabar	12.0	Medium	0.0cm - 12.8cm (0" - 5")
Codabar	21.0	Low	2.6cm - 20.5cm (1" - 8")
Code 93	10.4	High	0.0cm - 10.3cm (0" - 4")
Code 93	13.0	Medium	0.0cm - 12.8cm (0" - 5")
Code 128	10.4	High	0.0cm - 10.3cm (0" - 4")
Code 128	13.0	Medium	0.0cm - 12.8cm (0" - 5")

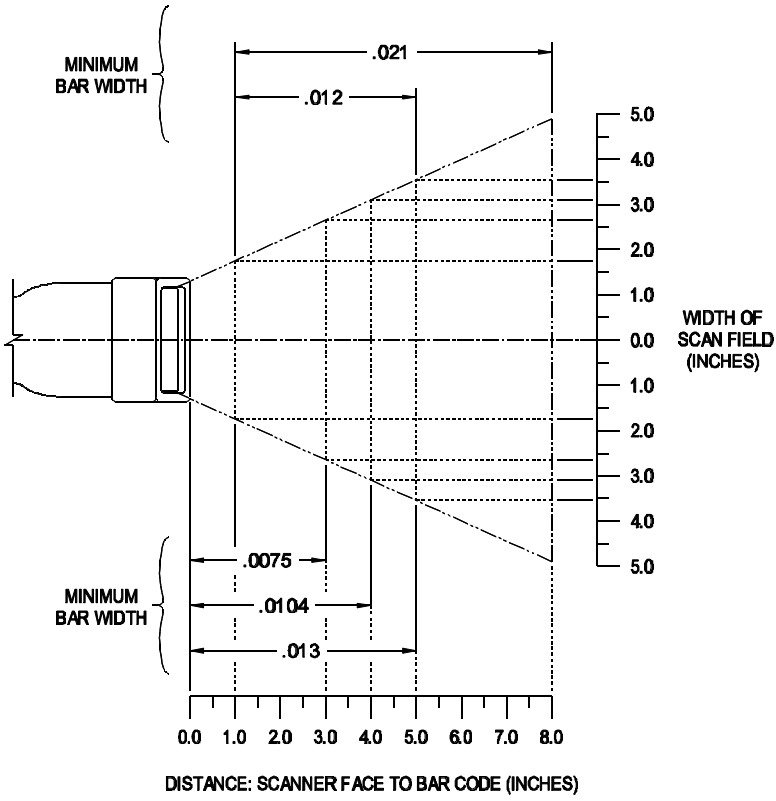

MINIMUM
BAR WIDTH
.021
.012
5.0
4.0
3.0
2.0
1.0
0.0
1.0
2.0
3.0
4.0
5.0
WIDTH OF
SCAN FIELD
(INCHES)
.0075
MINIMUM
BAR WIDTH
.0104
.013
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0
DISTANCE: SCANNER FACE TO BAR CODE (INCHES)

Figure 8

MS961 - Depth of Field and Symbol Specification

(Refer to Figure 9)

Code Type	Minimum Small Element Mil. (1/1000")	Code Density	Depth of Field
UPC/EAN	10.4	80%	0.0cm - 7.7cm (0" - 3")
UPC/EAN	13.0	100%	0.0cm - 10.3cm (0" - 4")
Code 39	5.0	Very High	0.0cm - 3.8cm (0" - 1.5")
Code 39	7.5	High	0.0cm - 5.1cm (0" - 2")
Code 39	12.0	Medium	0.0cm - 10.3cm (0" - 4")
I 2 of 5	7.5	High	0.0cm - 5.1cm (0" - 2")
I 2 of 5	12.0	Medium	0.0cm - 10.3cm (0" - 4")
Codabar	6.5	High	0.0cm - 5.1cm (0" - 2")
Codabar	9.8	Medium	0.0cm - 7.7cm (0" - 3")
Codabar	13.0	Low	0.0cm - 10.3cm (0" - 4")
Code 93	10.4	High	0.0cm - 7.7cm (0" - 3")
Code 93	13.0	Medium	0.0cm - 10.3cm (0" - 4")
Code 128	10.4	High	0.0cm - 7.7cm (0" - 3")
Code 128	13.0	Medium	0.0cm - 10.3cm (0" - 4")

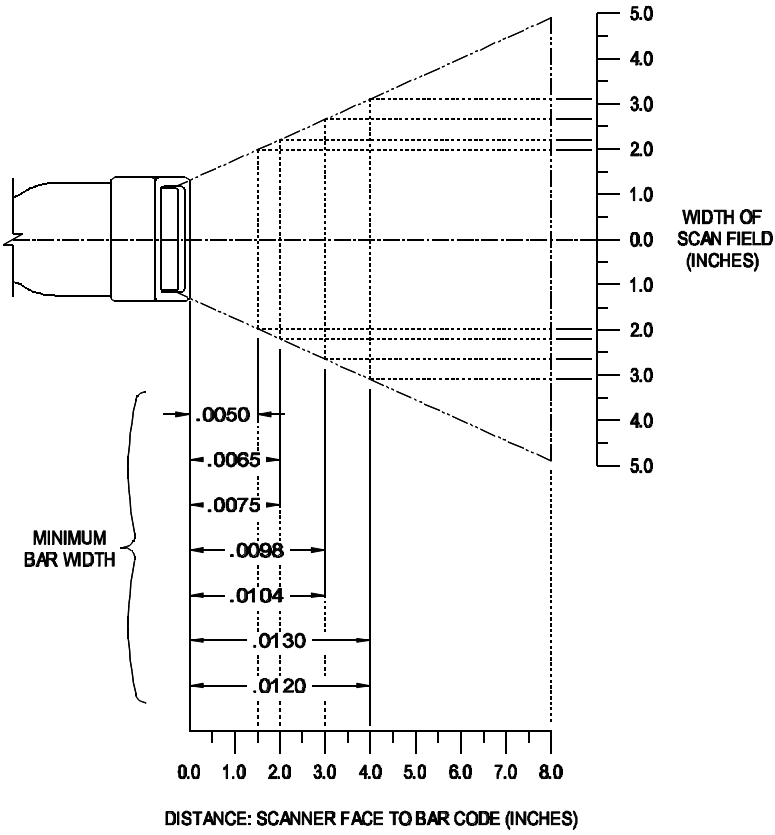

5.0
4.0
3.0
2.0
1.0
0.0
1.0
2.0
3.0
4.0
5.0
WIDTH OF
SCAN FIELD
(INCHES)
.0050
.0065
.0075
.0098
.0104
.0130
.0120
MINIMUM
BAR WIDTH
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0
DISTANCE: SCANNER FACE TO BAR CODE (INCHES)

Figure 9

Maintenance

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

1. Spray glass cleaner onto lint free, non-abrasive cleaning cloth.

2. Gently wipe the scanner window.

Applications and Protocols

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

Scanner	Version Identifier	Communication Protocol(s)
951	9	OCIA (OCIA)
951	11	IBM® 4683/4 (46XX)
951	14	RS-232 (232)
951	15	Light Pen Emulation (LTPN)
951	47	Keyboard Wedge (KBW)
951	48	Keyboard Laser Scanner (KBW)
951	57	Keyboard Wedge (KBW) (external power supply)

Appendix A

MS951 Hand-Held Laser Scanner

Specifications

Application:	Hand-Held Laser Bar Code Scanner
Max. Radiant Power:	Class II laser product - 1.0 mW Laserklasse 1 - 0.5 mW
Light Source:	VLD 675 ± 5nm
CDRH:	Class II laser product
IEC:	Class 1 laser product; EN 60825/09-91
UL/CSA/TUV:	UL Listed, UL114; CSA certified, C22.2 No. 950, UL 1950; TUV certified, GS Mark, EN 60825 and EN 60950
EMI:	FCC & CISPR Class A

Mechanical

Dimensions (L x W x D): (8" x 2.5" x .94")	205mm x 63mm x 24mm
Weight:	177g (6.20 oz.) without cable
Cable Length:	Coil cord collapsed 4.8', Extended 8'

Electrical

Input Voltage, DC:	5V
Power (Watts):	0.8
Operating Current (Amps):	.165
Standby Current (Amps):	.065
DC Transformers:	120V/220V/240V (AC in) Output $5V_{DC}$ @300mA regulated

Per CSA 950/UL 1950 Design:

Caution

"FOR USE WITH A CERTIFIED POWER SUPPLY, WITH CLASS 2 OUTPUT(S): RATED OUTPUT 5V dc, 300mA"

Attention

"POUR UTILIZER AVEC UNE ALIMENTATION CERTIFIEE DOTEE DE SORTIE DE CLASSE 2 AVEC CHARACTERISTIQUES NOMINALES DE SORTIE 5V dc, 300mA.

U.S. Patents #D315901; 5,340,971; 5,340,973; 5,260,553
Other Patents Pending; Specifications subject to change without notice.

Operational

Depth of Field, UPC 100%:	0.0mm to 125mm (0" to 5")
Scan Speed:	36 scan lines per second
Scan Pattern:	Single scan line
Indicators:	LED: red = laser on green = good read, decoding
Beeper Operation:	3 tones or no beep
Maintenance:	Clean output window periodically
Decode Capability:	Autodiscriminates (menu select)
System Interfaces:	RS-232C, OCIA, IBM® 468x/469x, Light Pen Emulation, Keyboard Wedge
Print Contrast:	35% minimum reflectance difference
Roll, Pitch, Yaw:	42E, 68E, 52E

Environmental

Storage Temperature:	-40EC to 60EC (-40EF to 140EF)
Operating Temperature:	0EC to 35EC (32EF to 95EF)
Humidity:	5% to 95% relative humidity, non-condensing
Light Levels:	Up to 3200 foot candles
Ventilation:	None required
Shock:	Drop of 1.5 meters (5')
ESD:	8 kV IEC 801-2
Contaminants:	Sealed to resist airborne particulate contaminants

Specifications subject to change without notice.

MS951 Hand-Held Laser Scanner with Built-in PC Keyboard Wedge Interface

Specifications

Application:	Hand-Held Laser Scanner
Light Source:	VLD 675 ± 5nm
CDRH:	Class II laser product
IEC:	Class 1 laser product; EN 60825 Sept. 91
UL/CSA/TUV:	UL Listed, UL114; CSA certified, C22.2 No. 950, UL 1950; TUV certified, GS Mark, EN 60825 and EN 60950
EMI:	FCC & CISPR Class A

Mechanical

Dimensions: (8"L x 2.5"W x .94"D)	205mmL x 63mmW x 24mmD
Weight:	.38 kg. (13 oz.) without cable
Max. Cable Length:	Coil cord collapsed - 5.25', Extended - 7.6'

Electrical

Power (Watts):	.75
Input Voltage, DC:	5V
Operating Current (Amps):	.165
Standby Current (Amps):	.065

U.S. Patent #D315901; Other Patents Pending
Specifications subject to change without notice.

Operational

Depth of Field, UPC 100%:	0.0mm to 125mm (0" to 5")
Scan Speed:	36 scan lines per second
Scan Pattern:	Single scan line
LED Indicators:	red = laser on green = good read, decoding
Beeper Operation:	User Selected Beep on “Good Read”
Maintenance:	Clean output window periodically
Decode Capability:	Autodiscriminates (menu select)
Print Contrast:	35% minimum reflectance difference
Roll, Pitch, Yaw:	42E, 68E, 52E

Environmental

Storage Temperature:	-40EC to 60EC (-40EF to 140EF)
Operating Temperature:	0EC to 35EC (32EF to 95EF)
Humidity:	5% to 95% relative humidity, non-condensing
Light Levels:	Up to 3200 foot candles; works in direct sunlight
Ventilation:	None required
Shock:	Drop of 1.5 meters (5')
ESD:	8 kV IEC 801-2
Contaminants:	Sealed to resist airborne particulate contaminants

Specifications subject to change without notice.

Appendix B

Default Settings

The scanner is shipped from the factory programmed to a set of default conditions. The default parameter of the scanner is marked with 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 parameter is not supported by every communication. If the communication supports a parameter listed in the charts on the following pages, a check mark will appear.

In order for the scanner to communicate with the host system properly, it needs to be programmed to meet the specific scanning needs. Since each host system is unique, change the default settings to match the host system requirements. Refer to the Programming Guide MLPN 2366, for informa-tion on how to change the default settings.

Parameter	Default	OCIA	IBM 46XX	RS-232	Light Pen	Keyboard Wedge
Enter Program Mode After Any Scan	*	T	T	T	T	T
Enter Program Mode Only on First Scan		T	T	T	T	T
Short Range Activation Out of the Stand		T	T	T	T	T
Long Range Activation Out of the Stand	*	T	T	T	T	T
Short Range Activation In the Stand		T	T	T	T	T
Long Range Activation In the Stand	*	T	T	T	T	T
Normal Scan	*	T	T	T	T	T
Pulsing Scan		T	T	T	T	T
Custom Scan		T	T	T	T	T
Green LED Rescan Indicator		T	T	T	T	T
Short Same Symbol Rescan		T	T	T	T	T
Long Same Symbol Rescan	*	T	T	T	T	T
Alternate Beeper Tone 1		T	T	T	T	T
Alternate Beeper Tone 2	*	T	T	T	T	T
Alternate Beeper Tone 3		T	T	T	T	T
No Beeper Tone		T	T	T	T	T
Two Second Timeout		T	T	T		

Parameter	Default	OCIA	IBM 46XX	RS-232	Light Pen	Keyboard Wedge
No Two Second Timeout	*	T	T	T		
Razzberry Tone on Timeout		T	T	T		
No Tone on Timeout	*	T	T	T		
Three Beeps on Timeout		T	T	T		
Beep Before Transmit	*	T	T	T		T
Beep After Transmit		T	T	T		T
Baud Rate	9600			T		
Parity	Space			T		
8 Data Bits				T		
7 Data Bits	*			T		
RTS/CTS				T		
Character RTS/CTS	*			T		
Message RTS/CTS				T		
ACK/NAK				T		
XON/XOFF				T		
No Intercharacter Delay	*			T		T
1 Millisecond Intercharacter Delay				T		T
5 Millisecond Intercharacter Delay				T		
10 Millisecond Intercharacter Delay						T
25 Millisecond Intercharacter Delay				T		
100 Millisecond Intercharacter Delay						T
DTR Input				T		
Carriage Return	*			T		T
Line Feed	*			T		T
STX Prefix				T		T
ETX Suffix				T		T
Tab Prefix				T		T
Tab Suffix				T		T
Prefix ID for UPC/EAN				T		T
Suffix ID for UPC/EAN				T		T
NCR - S Format		T				
NCR - F Format		T				
DTS/NIXDORF	*	T				
DTS/SIEMENS		T				

Parameter	Default	OCIA	IBM 46XX	RS-232	Light Pen	Keyboard Wedge
Emulating IBM 4500			T			
Emulating 3687/4014			T			
Emulating IBM 1520	*		T			
No Inter Record Delay			T			
25 Millisecond (msc) Inter Record Delay	*		T			
50 msc Inter Record Delay			T			
125 msc Inter Record Delay			T			
Bars High	*				T	
Spaces High					T	
Transmit as Scanned	*				T	
Transmit as Code 39					T	
Poll Light Pen 5 Volts					T	
No Poll Light Pen	*				T	
UPC	*	T	T	T	T	T
EAN	*	T	T	T	T	T
Code 39	*	T	T	T	T	T
Codabar	*	T	T	T	T	T
Code 128	*	T	T	T	T	T
Code 93	*	T	T	T	T	T
Interleaved 2 of 5 (ITF)	*	T	T	T	T	T
MSI - Plessey Decode		T	T	T	T	T
Enable Code 11 Decode		T	T	T	T	T
Enable Airline 2 of 5		T	T	T	T	T
Full ASCII Code 39		T	T	T	T	T
Italian Pharmaceutical		T	T	T	T	T
Minimum 1 Character Code Length		T	T	T	T	T
Minimum 3 Character Code Length	*	T	T	T	T	T
Minimum 6 Character Code Length		T	T	T	T	T
Transmit UPC-A Number Sys	*	T	T	T	T	T
UPC-A Check Digit Transmit	*	T	T	T	T	T
Convert UPC-A to EAN-13		T	T	T		T
Expand UPC-E		T	T	T		T
UPC-E Check Digit Transmit		T	T	T		T
UPC-E Leading 0 Transmit		T	T	T		T
EAN-8 Check Digit Transmit	*	T	T	T	T	T
EAN-13 Check Digit Transmit	*	T	T	T	T	T
2 Digit Supps (Scan)			T	T		T

Parameter	Default	OCIA	IBM 46XX	RS-232	Light Pen	Keyboard Wedge
5 Digit Supps (Scan)			T	T		T
Convert EAN-8 to EAN-13		T	T	T		T
Bookland (Scan)			T	T		T
Supplement Required			T	T		T
Mod 43 Check Digit		T	T	T	T	T
Transmit Mod 43 Check Digit	*	T	T	T	T	T
Transmit Start/Stop		T	T	T	T	T
CLSI Editing (Enable)		T	T	T		T
ITF Check Digit		T	T	T	T	T
Transmit MOD 10 ITF Check Digit		T	T	T	T	T
I 2 of 5 Symbol Lengths	Variable	T	T	T	T	T
MSI - Plessey Test of Check Digit	*	T	T	T	T	T
Enable MSI - Plessey Mod 10 Check Digit	*	T	T	T	T	T
Enable MSI - Plessey Mod 10/10 Check Digit		T	T	T	T	T
Transmit MSI - Plessey Check Digit	*	T	T	T	T	T
Sanyo 635 ECR Protocol				T		T
Post Software ID Characters				T		T
“Newcode” Mode A				T		T
“Newcode” Mode B				T		T
Enable Sineko Mode				T		T
Enable Caps Lock Mode (for MI951 keyboard wedge)				T		
Enable French Wyse 120 PC Term				T		
SNI Beetle Mode				T		T
AT Keyboard	*					T
Type XT Keyboard						T
Type PS2 Keyboard						T
USA Keyboard	*					T
Belgium Keyboard						T
France Keyboard						T
Germany Keyboard						T

Parameter	Default	OCIA	IBM 46XX	RS-232	Light Pen	Keyboard Wedge
Spain Keyboard						T
Italy Keyboard						T
UK Keyboard						T
IBM KB4700 Financial Keyboard						T
Alt Mode						T
AutoDetection or Caps Lock						T
User-Defined Caps Lock						T
F0H Break Code Transmission	*					T
800 Microsecond Delay	*					T
7.5 Milisecond Delay						T
15 Milisecond Delay						T

Appendix C

Pin Assignments

Pin Assignments for the Coil Cable

The MS951 scanners are terminated to a 10 position shielded modular connector. All of the coil cables (MLPN 44530) for the MS951 scanner are terminated the same. The difference between versions is the end of the cable going into the scanner. This connector plugs into different "J" positions on various computer/interface boards. Since each computer/interface board is different, the output signals are different.

Version "9" (OCIA)

Pin	Function
1	Power/Signal Ground
2	RDATA
3	RDATA Return
4	Clock In
5	Clock In Return
6	Clock Out
7	Clock Out Return
8	No Connection
9	+5 VDC Power to Scanner
10	OCIA Shield Ground

Version "11" (46XX)

Pin	Function
1	Power/Signal Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6	IBM 46XX Transmit
7	IBM 46XX Receive
8	No Connection
9	+5 VDC Power to Scanner
10	Shield Ground

Version "14" (232)

Pin	Function
1	Power/Signal Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6	DTR Input
7	DSR Output
8	No Connection
9	+5 VDC Power to Scanner
10	Shield Ground

Version "15" (LTPN)

Pin	Function
1	Power/Signal Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	RTS Output
5	CTS Input
6	Light Pen Source +5V
7	Light Pen Data
8	No Connection
9	+5 VDC Power to Scanner
10	Shield Ground

Pin Assignments for the MCA951 (DEC9S)

Located on the MCA is a 9-pin female D-type connector used to connect the MCA to the host device. The output signals on the 9-pin host end of the MCA are dependent upon which version of the scanner that is being used. The following is a list of the pin assignments for the different versions:

Version "9" (OCIA)

Pin	Function
1	OCIA Shield Ground
2	RDATA
3	RDATA Return
4	Clock Out
5	Power/Signal Ground
6	Clock Out Return
7	Clock In Return
8	Clock In
*9	+5VDC Power to Scanner

Version "11" (46XX)

Pin	Function
1	Shield Ground
2	RS-232 Transmit Output
3	RS-232 Receiver Input
4	IBM 4680 -B
5	Power/Signal Ground
6	IBM 4680 +A
7	Clear to Send Input
8	Request to Send Output
*9	+5VDC Power to Scanner

Version "14" (232)

Pin	Function
1	Shield Ground
2	RS-232 Transmit Output
3	RS-232 Receiver Input
4	Data Terminal Ready Input
5	Power/Signal Ground
6	Data Set Ready Output
7	Clear to Send Input
8	Request to Send Output
9	+5VDC Power to Scanner

Version "15" (LTPN)

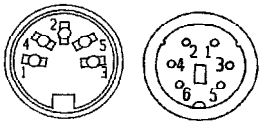
Pin	Function
1	Shield Ground
2	RS-232 Transmit Output
3	RS-232 Receive Input
4	Light Pen Source (+5V Input)
5	Power/Signal Ground
6	Light Pen Data (Output)
7	Clear to Send (Input)
8	Request to Send (Output)
*9	+5VDC Power to Scanner

*When the host supplies power to the scanner, this is the pin assignment for the +5VDC for the scanner. If, in the application, the host device will supply the power necessary for the scanner, reposition an internal jumper within the MCA and plug the 4 position ground jumper to the power supply connector for FCC and ESD purposes. (Refer to Scanner Installation: Powered by External Power Supply page 6).

Pin Assignments for the 5-pin DIN and 6-pin mini-DIN MS951 Hand-Held Laser Scanner with Built-in PC Keyboard Wedge Interface

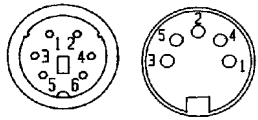
The coil cable is terminated with a 5-pin DIN female connector on one end, and a 6-pin mini DIN male on the other. Metrologic will supply an adaptor cable with a 5-pin DIN male connector on one end and a 6-pin mini DIN female connector on the other.

Coil Cable Connectors



5-pin Female **6-pin Male**

Adaptor Cable Connectors



6-pin Female **5-pin Male**

According to the termination required, connect the appropriate end of the adaptor cable to the coil cable, leaving the necessary termination exposed for connecting to the keyboard and the keyboard port on the PC. The pin assignments are as follows:

5-pin Female DIN

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

6-pin Female mini-DIN

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

5-pin Male DIN

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

6-pin Male mini-DIN

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

Appendix D

Warranty and Disclaimer

Limited Warranty

Products manufactured by Metrologic have a 2-year limited warranty from date of manufacture.

This warranty is limited to repair, replacement or refund at Metrologic's discretion. Faulty equipment must be returned to the Metrologic facility in Blackwood, New Jersey or Puchheim, Germany. To do this, contact Metrologic Customer Service/Repair for a Returned Material Authorization (RMA) number.

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

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Appendix E

Notices

Notice
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.

Notice
This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Industry and Canada.

Caution
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light. 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.

Remarque
Après contrôle de cet appareil, on a noté qu'il répondait aux valeurs limites de la classe A, c-onformément à la partie 15 des directives de l'administration fédérale américaine pour les t-élécommunications. Ces valeurs limites ont été prévues pour garantir une protection suffisante contre les effets nocifs dus à l'emploi de l'appareil dans un magasin. L'appareil génère et utilise une énergie haute fréquence et peut, s'il n'est pas installé et utilisé conformément aux instructions mentionnées dans le guide d'utilisation, entraîner des perturbations dans la radiocommunications. L'utilisation de cet appareil dans une zone d'habitation entraînera très vraisemblablement des perturbations. Dans ce cas, l'utilisateur est tenu de remédier à ces perturbations à ses propres frais. Toute modification ou remplacement non autorisé sur cet appareil peut entraîner l'invalidité de l'autorisation d'utilisation de l'appareil.

Remarque
Cet appareil numérique ne va pas contre les valeurs limites pour émissions de bruits radios des appareils numérique de la classe A, conformément aux directives relatives aux perturbations des radiocommunications du ministère canadien pour l'industrie.

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 mortel. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

Anmerkung
Nach Überprüfung dieses Geräts wurde festgestellt, daß es den Grenzwerten für Digitalgeräte der Klasse A gemäß Teil 15 der Richtlinien der US-amerikanischen Bundesbehörde für das Fernmeldewesen entspricht. Diese Grenzwerte wurden festgelegt, um einen angemessenen Schutz gegen schädliche Auswirkungen bei Einsatz des Geräts in einer Ladenumgebung zu gewähren. Das Gerät erzeugt und verwendet Hochfrequenzenergie und kann diese ausstrahlen, und kann, falls es nicht gemäß den im Bedienerhandbuch enthaltenen Anweisungen installiert und verwendet wird, zu einer Störung des Funkverkehrs führen. Der Betrieb dieses Geräts in einem Wohngebiet führt höchstwahrscheinlich zu Störungen. In diesem Fall ist der Bediener verpflichtet, die Störung auf eigene Kosten zu beseitigen. Durch jegliche unerlaubte Auswechselung oder Änderung an diesem Gerät könnte die Genehmigung des Bedieners zur Verwendung dieses Geräts ungültig werden.

Anmerkung
Dieses Digitalgerät verstößt nicht gegen die Grenzwerte für Funkrauschemissionen von Digitalgeräten der Klasse A gemäß den Richtlinien für Funkstörungen des kanadischen Ministeriums für Industrie.

Achtung
Die Verwendung anderer als der hierin beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine lebensgefährliche 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 lebensgefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

N.B.
Dal controllo di questo apparecchio risulta che esso risponde ai valori limite per apparecchi digitali della classe A conf. parte 15 delle direttive sulle telecomunicazioni dell'Autorità federale statunitense. Questi valori limite sono stati fissati per garantire una protezione adeguata contro gli effetti nocivi se questo apparecchio viene usato all'intero di un negozio. L'apparecchio genera, utilizza e può emettere energia ad alta frequenza e, se non viene installato ed utilizzato conformemente alle indicazioni fornite nel Manuale utente, può provocare disturbi al servizio radiofonico. L'uso di questo apparecchio in zone residenziali causa molto probabilmente dei disturbi. In questo caso l'utente è obbligato ad eliminare questi disturbi a sue spese. Qualsiasi sostituzione o modifica non autorizzata all'apparecchio potrebbe rendere invalida l'autorizzazione dell'utente all'uso dell'apparecchio.

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Attenzione
L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli decritti nel presente Manuale può provocare dei raggi laser pericolosi per la vita. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai nel raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Se tuttavia lo fate, potete esporVi a dei raggi laser pericolosi per la vita. L'uso di apparecchi ottici con questo equipaggiamento laser aumenta il rischio di danni alla vista.

Appendix F

Patents

“Patent Information

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

U.S. Patent No. 4,360,798; 4,369,361; 4,387,297; 4,460,120; 4,496,831; 4,593,186; 4,607,156; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,923,281; 4,933,538; 4,992,717; 5,015,833; 5,017,765; 5,059,779; 5,117,098; 5,124,539; 5,130,520; 5,132,525; 5,140,144; 5,149,950; 5,180,904; 5,200,599; 5,229,591; 5,247,162; 5,250,790; 5,250,791; 5,250,792; 5,262,628; 5,280,162; 5,280,164; 5,304,788; 5,321,246; 5,324,924; 5,396,053; 5,396,055; 5,408,081; 5,410,139; 5,436,440; 5,449,891; 5,468,949; 5,479,000; 5,532,469; 5,545,889

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Index