Zebra reserves the right to make changes to any product to improve reliability, function, or design.

Zebra does not assume any product liability arising out of, or in connection with, the application or use of any product, circuit, or application described herein.

No license is granted, either expressly or by implication, estoppel, or otherwise under any patent right or patent, covering or relating to any combination, system, apparatus, machine, material, method, or process in which Zebra products might be used. An implied license exists only for equipment, circuits, and subsystems contained in Zebra products.

**Warranty**

For the complete Zebra hardware product warranty statement, go to: [www.zebra.com/warranty](http://www.zebra.com/warranty)

**Introduction**

The Zebra MiniScan family is the next generation of industrial fixed scanners. The scanners provide the quickest, easiest and most flexible integration of bar code scanning into all types of devices. The Zebra MiniScan family offers high performance scan engines, along with a housing, exit window, decoder and variety of interfaces (including USB) in a compact durable housing. All Zebra MiniScan products can be easily used as stand-alone, fixed-mount or embedded scanners.

The following models are available:

- **Zebra MS120xFZY**
  The Zebra MS120xFZY incorporates fuzzy logic for premium scanning performance on all types of 1-D and RSS bar codes including poorly printed and low contrast.
• **Zebra MS120xWA**
  The Zebra MS120xWA features a broad 60° scan angle to accommodate large 1-D and RSS bar codes within an extremely close range.

• **Zebra MS954**
  The Zebra MS954, packaged in the smaller MiniScan enclosure, offers customers easier integration into tight areas. In addition, the Zebra MS954 offers excellent 1-D data capture performance. The Zebra MS954 supports RS232 only.

**Accessories**

- For data connection:

  ![Checkmark] Only Zebra MiniScan scanner models ending in ‘07’ (e.g., Zebra MSxx07) can communicate over USB.

  - Push button trigger and cable, p/n 25-04950-01R
  - Female DB9 in right angle connector to USB host (Type A connector), p/n 25-58923-01R
  - USB cable (6 ft. straight) without trigger jack; without beeper, p/n CBL-58926-04
  - Low profile DB9 USB cable (18 in. straight); without trigger jack; without beeper, p/n CBL-58926-05.

- Other:
  - Fixed mount stand, p/n 20-60136-01R
  - Simple Serial Interface Software Developer's Kit (SSI SDK). To download an SSISDK, go to: [www.zebra.com/support](http://www.zebra.com/support)
Connecting the Zebra MiniScan

The Zebra MiniScan can be triggered either by a software trigger command, or by an external switch. If the Zebra MiniScan scanner came without a host cable, or if you are constructing an external triggering switch, consult the Zebra MiniScan Integration Guide.

To connect the Zebra MiniScan:

1. Plug the 9-pin D-connector with the end marked “TO SCANNER” into the Zebra MiniScan scanner.
2. If using an external switch and applicable host cable, plug the trigger cable into the female stereo connector on the flying lead of the 9-pin D-connector.
3. Plug the output cable from the power supply into the receptacle on the end of the connector near the host end of the cable. (USB and Synapse cables do not require a power supply.)
4. Plug the host side connector into the appropriate port on your host terminal.
5. Check all connections to ensure they are secure.
6. Program the Zebra MiniScan. Triggering option bar codes begin on page 5. Refer to the Zebra MiniScan Integration Guide for more information on selecting specific parameters.

Scanning

1. Ensure all connections are secure.
2. Once power is applied to the Zebra MiniScan scanner the LED lights a continuous red.
3. Ensure the bar code is within scanning range. Align the bar code and trigger the unit.
4. Upon successful decode, the scanner LED turns green.
Aiming Tips
Scan the Entire Symbol

1. The scan beam must cross every bar and space on the symbol.

![Image of a barcode scan]

1. Adjust the aim so that the thin, red laser beam covers the entire length of the bar code.

2. If the decode is successful, the green LED lights and the data is transmitted to the host. The scanner may also beep.

Triggering Options
Level Trigger

The laser is enabled and decode processing begins when the trigger line is activated. Decode processing continues until a good decode occurs, the trigger is released, or the Laser-On time expires. The laser is disabled once decode processing is complete. The next decode attempt does not occur until the trigger line is released and then reactivated.

![Image of level trigger]

Pulse Trigger

The laser is enabled and decode processing begins when the trigger line is activated. The laser remains on and decode processing continues regardless of the trigger line until a good decode occurs, or until the Laser-On time expires. The
laser is disabled once decode processing is complete. The next decode attempt does not occur until the trigger line is released and then reactivated.

**Continuous**

The laser is enabled continuously and decode processing is continuously active. In this mode, the scanner can be configured to scan and transmit a bar code and then not decode the same bar code for a set period of time (**Time Between Same Bar Code**) and not decode ANY bar code for a period of time (**Time Between Different Bar Codes**). This allows the user to tailor the application to the rate at which bar codes are presented. Refer to the Zebra MiniScan Integration Guide for these bar codes.

**Host Trigger**

The laser is enabled and decode processing begins in response to an SSI Start Decode message from the host. Refer to the Zebra MiniScan Integration Guide for more information. Decode processing continues until a good decode occurs, an SSI Stop Decode message is received, or the Laser-On time expires. The laser is disabled once decode
processing is complete. The next decode attempt does not occur until the next Start Decode message is received.

Beeper Indications
The beeper indicates the scanner status as follows:

<table>
<thead>
<tr>
<th>Beeper</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Beeps</td>
<td>Power up (or reset) occurred.</td>
</tr>
<tr>
<td>1 Beep</td>
<td>A bar code is successfully decoded.</td>
</tr>
<tr>
<td>4 Beeps</td>
<td>Transmission error. Bar code data was not received by the host.</td>
</tr>
<tr>
<td>Fast warble</td>
<td>A programming parameter was entered successfully.</td>
</tr>
</tbody>
</table>

LED Indicators

<table>
<thead>
<tr>
<th>LED</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Scanner is on.</td>
</tr>
<tr>
<td>Green</td>
<td>A bar code is successfully decoded.</td>
</tr>
</tbody>
</table>

Set All Defaults
Scan this bar code to return all parameters to their default values.
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>No red LED or nothing happens when you attempt to scan.</td>
<td>No power to the scanner.</td>
<td>Check the system power. Confirm that the correct host interface cable is used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Power supply not plugged in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check for loose cable connections.</td>
</tr>
<tr>
<td>Scanner cannot read the bar code.</td>
<td>Interface/power cables are loose.</td>
<td>Check for loose cable connections.</td>
</tr>
<tr>
<td></td>
<td>Scanner is not programmed for the correct bar code type.</td>
<td>Ensure the scanner is programmed to read the type of bar code to be scanned. Try scanning other bar codes and other bar code types.</td>
</tr>
<tr>
<td></td>
<td>Incorrect communication parameters.</td>
<td>Check that the communication parameters (baud rate, parity, stop bits, etc.) are set properly.</td>
</tr>
<tr>
<td></td>
<td>Bar code symbol is unreadable.</td>
<td>Check the symbol to ensure it is not defaced. Try scanning similar symbols of the same code type.</td>
</tr>
<tr>
<td></td>
<td>Inappropriately hot environment.</td>
<td>Remove the scanner from the hot environment and allow it to cool down.</td>
</tr>
<tr>
<td>Laser activates, followed by a beep sequence.</td>
<td>Beeper is configured.</td>
<td>See <em>Beeper Indications on page 7</em> for beeper indication descriptions.</td>
</tr>
<tr>
<td>Problem</td>
<td>Possible Cause</td>
<td>Possible Solutions</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Scanner does not function.</td>
<td>Accidentally scanned Host Trigger, Level Trigger, or Pulse Trigger from</td>
<td><strong>Zebra MSXX04 Non-Imager Models:</strong>  Download the SSI Demonstration Utility for</td>
</tr>
<tr>
<td></td>
<td><em>Triggering Options on page 5.</em></td>
<td>MiniScan from <em><a href="http://www.zebra.com/support">www.zebra.com/support</a></em>. Use the utility to change the Trigger Mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>parameter 138 (8Ah) to the value 04h (Continuous Mode) via SSI.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternatively, use the utility's soft trigger button to activate the scanner,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and scan the Continuous option of the Trigger Mode parameter.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Zebra MSXX07 Non-Imager Models:</strong>  Cycle power to the scanner. As the laser</td>
</tr>
<tr>
<td></td>
<td></td>
<td>briefly appears after power up, scan Continuous on page 6.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>All Models:</strong>  Connect an interface cable which has an external trigger jack,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a push button trigger cable, and a power supply to the scanner. You can purchase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>these cables from Zebra, or make a similar one using the scanner’s pinouts as a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reference. See your Zebra MiniScan model’s Integration Guide for pinouts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using a momentary switch, short the scanner’s trigger line to ground to activate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the laser, then scan Continuous on page 6.</td>
</tr>
</tbody>
</table>
Regulatory Information

This guide applies to the MiniScan Family of Scanners.

All Zebra devices are designed to be compliant with rules and regulations in locations they are sold and will be labeled as required.

Any changes or modifications to Zebra equipment, not expressly approved by Zebra, could void the user's authority to operate the equipment.

Laser Devices

COMPLIES WITH 21CFR1040.10 AND 1040.11

The laser classification is marked on one of the labels on the device as required.

Class 1 Laser devices are not considered to be hazardous when used for their intended purpose.

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

Class 2 laser scanners use a low power, visible light diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a Class 2 laser is not known to be harmful.
Power Supply

Use ONLY a Zebra approved Nationally Recognized Test Laboratory (NRTL) Certified ITE (LPS/SELV) power supply with electrical ratings: Output 5 VDC, min 0.850 A, with a maximum ambient temperature of at least 40° C. Use of alternative power supply will invalidate any approvals given to this unit and may be dangerous.

In accordance with IEC60825-1 and IEC/EN 60825-1, the following information is provided to the user:
Radio Frequency Interference Requirements

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
• Consult the dealer or an experienced radio/TV technician for help.
• This device must be used with a properly shielded cable as specified in the product integration guide

Radio Frequency Interference Requirements - Canada
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Marking and European Economic Area (EEA)
Statement of Compliance
Zebra hereby declares that this device is in compliance with all the applicable Directives, 2004/108/EC, 2006/95/EC and 2011/65/EU. A Declaration of Conformity may be obtained from www.zebra.com/doc.

限用物質含有情況標示聲明書

<table>
<thead>
<tr>
<th>単元 Unit</th>
<th>限用物質及其化學符號 Restricted substances and its chemical symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>鉛 (Pb)</td>
</tr>
<tr>
<td>印刷電路板及電子組件</td>
<td>O</td>
</tr>
<tr>
<td>金屬零件</td>
<td>-</td>
</tr>
<tr>
<td>電纜及電纜組件</td>
<td>-</td>
</tr>
<tr>
<td>塑料和聚合物零件</td>
<td>O</td>
</tr>
<tr>
<td>光學與光學元件</td>
<td>O</td>
</tr>
</tbody>
</table>

備考1. “超出0.1 wt%”及“超出0.01 wt%”係指限用物質之百分比含量超出百分比含量基準值。
備考2. “O”係指該項限用物質之百分比含量未超出百分比含量基準值。
備考3. “-”係指該項限用物質為排除項目。
Note 1: “Exceeding 0.1 wt%” and “exceeding 0.01 wt%” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.
Note 2: “O” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.
Note 3: “-” indicates that the restricted substance corresponds to the exemption.
Waste Electrical and Electronic Equipment (WEEE)

English: For EU Customers: All products at the end of their life must be returned to Zebra for recycling. For information on how to return product, please go to: www.zebra.com/weee.

Bulgarian: За клиенти от ЕС: След края на полезния им живот всички продукти трябва да се връщат на Zebra за рециклиране. За информация относно връщането на продукти, моля отидете на адрес: www.zebra.com/weee.


Ελληνικά: Για πελάτες στην Ε.Ε.: Όλα τα προϊόντα, στο τέλος της διάρκειας ζωής τους, πρέπει να επιστρέφονται στην Zebra για ανακύκλωση. Για περισσότερες πληροφορίες σχετικά με την επιστροφή ενός προϊόντος, επισκεφθείτε τη διεύθυνση www.zebra.com/weee στο Διαδίκτυο.


Español: Para clientes en la Unión Europea: todos los productos deberán entregarse a Zebra al final de su ciclo de vida para que sean reciclados. Si desea más información sobre cómo devolver un producto, visite: www.zebra.com/weee.


Italiano: per i clienti dell’UE: tutti i prodotti che sono giunti al termine del rispettivo ciclo di vita devono essere restituiti a Zebra al fine di consentirne il riciclaggio. Per informazioni sulle modalità di restituzione, visitare il seguente sito Web: www.zebra.com/weee.


Service Information

If you have a problem using the equipment, contact your facility’s Technical or Systems Support. If there is a problem with the equipment, they will contact Zebra Support at: www.zebra.com/support.

For the latest version of this guide go to: www.zebra.com/support.