

SYMBOL LS4278 Hand Scanner Service Guide for U-Scan

**Version: North American Version
Document Update number: V2
Date: August 18, 2006**

U-SCAN[®]

Document Updates

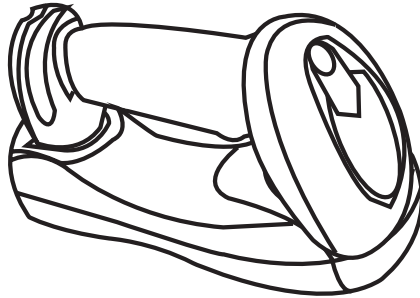
Version 2:

- Added emphasis that the bar code on the base of the Hand Scanner must absolutely be scanned as the second step in the sequence and not at any other time.
- Added the “Beep at Decode Time” bar code to the programming sequence.
- Added the DLL to the “Technical Specifications” section.

Version 1:

- Document creation.

SYMBOL LS4278 Hand Scanner



Features:

- 650 nm laser diode
- 50Hz scan element frequency
- Decode rate of 200 decodes per second
- Minimum radio range 33' (10 m), 50' (15 m) in typical warehouse environment

Technical Specifications

Environmental

- Operating temperature: 32°F - 122°F (0°C to 50°C)
- Charging temperature: 32°F - 104°F (0°C to 40°C) nominal, 41°F to 95°F (5°C to 35°C) ideal
- Storage temperature: -40°F to 158°F (-40°C to 70°C)
- Relative humidity: 5 to 95% non-condensing

Power Requirements

- 4.75 - 14.0 V dc

NOTE: *The LS4278 can be powered through an external power supply or through the communication cable (host power). Currently, an external power supply is used for U-Scan.*

Battery Specifications

- 720maH NiMH - (3) AAA
- Number of scans per full charge: 32,000+ at 1 scan/second
- Charge time for fully discharged battery: less than 3 hours for systems with external power supply OR approximately 4.5 hours for systems powered through the host (communication cable)

NOTE: *Under typical conditions (4000 scans a day), the battery fully charges within 1 hour.*

Communication

- RS-232 to Edgeport

NOTE: *A USB model of the device is also available. This model is not currently used for U-Scan.*

DLL

- **SYMBOL_DIRECT.DLL**

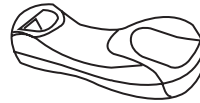
Components of the SYMBOL LS4278 Hand Scanner

The SYMBOL LS4278 is made up of the following components:

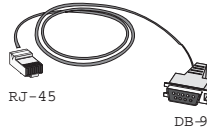
- SYMBOL LS4278 Hand Scanner
- RJ-45 to DB-9 female communication cable
- DB-9 male to DB-25 female adapter (not shown)
- Power supply adapter



LS4278 Hand Scanner



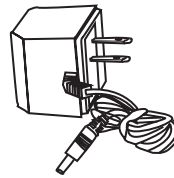
Charging Base



RJ-45

DB-9

Communication Cable



Power Supply Adapter

LS4278 Common Problems and Solutions

This section provides basic steps for resolving common problems. Refer to "Troubleshooting the SYMBOL LS4278 Hand Scanner" on page 7 for the full troubleshooting procedures.

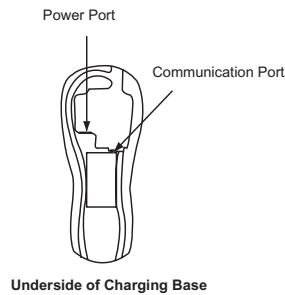
Issue	Possible Cause(s)	Solution
A laser beam does not appear when you pull the trigger.	<ul style="list-style-type: none"> • No power to the scanner. • Cable connections are loose. 	<ul style="list-style-type: none"> • Ensure that the power cables are connected to the charging base and to the power bar. • Ensure that the communication cable is connected to the charging base and to the Edgeport. • Ensure that the cap on the battery chamber is secure. • If the issue is not resolved, contact your support center.
Scanner emits five long low beeps after a bar code is read.	<ul style="list-style-type: none"> • Conversion or format error was detected. • The scanner's conversion parameters are not properly configured. 	<ul style="list-style-type: none"> • Reprogram the Hand Scanner. Refer to "LS4278 Bar Code Programming Sequence" on page 15. • If the issue is not resolved, contact your support center.
Scanner reads the bar code, but does not transmit the data to the host.	<ul style="list-style-type: none"> • Communication cable is disconnected. • Hand Scanner is not paired to the base. • Hand Scanner has lost connection to the host. • Hand Scanner is not programmed properly. 	<ul style="list-style-type: none"> • Ensure that the communication cable is securely connected to the charging base and to the Edgeport. • If the issue is not resolved, scan the bar code on the charging base to pair the Hand Scanner to the base. • If the issue is not resolved, refer to "Reset the Hand Scanner" on page 8 to attempt to restore connection to the host. • If the issue is not resolved, refer to "LS4278 Bar Code Programming Sequence" on page 15.

Issue	Possible Cause(s)	Solution
Scanner emits the laser, but does not read the bar code.	<ul style="list-style-type: none"> • Bar code is unreadable. • Distance between scanner and bar code is incorrect. • Scanner is not aimed at the proper angle to read the bar code. • Scanner is not programmed to read that type of bar code. 	<ul style="list-style-type: none"> • Try scanning another bar code. The item may have a bad bar code. • Move the scanner closer to or further from the bar code and try to scan the bar code again. • Try aiming the Hand Scanner at different angles. • If the issue is not resolved, refer to "LS4278 Bar Code Programming Sequence" on page 15. • If the issue is not resolved, contact your support center.

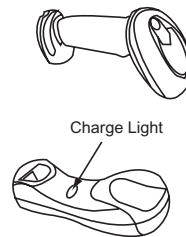
Troubleshooting the SYMBOL LS4278 Hand Scanner

1. Check the Power

- 1 Ensure that the power cable is connected to the base of the Hand Scanner.



- 2 Ensure that the power cable is connected to the power bar.
- 3 Ensure that the laser works.
- 4 Ensure that the charge light comes on when the Hand Scanner is placed on the base.



2. Inspect the Communication Cable

- 1 Ensure that the communication cable is connected to the base.
- 2 Ensure that the communication cable is connected to port 3 on the Edgeport.

3. Pair the Hand Scanner to the Base

Scan the bar code on the Hand Scanner charging base.

Troubleshooting the SYMBOL LS4278 Hand Scanner (*Cont'd*)

4. Reset the Hand Scanner

NOTE: *You must follow the steps in exact order given below.*

- 1 Disconnect the power cable from the underside of the charging base.
- 2 Disconnect the communication cable from the underside of the charging base.
- 3 Wait three seconds, then reconnect the communication cable.
- 4 Reconnect the power cable.
- 5 Scan the bar code on the base of the Hand Scanner.

5. Reprogram the Hand Scanner

Scan the bar codes in "LS4278 Bar Code Programming Sequence" on page 15.

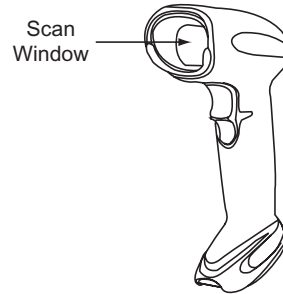
Additional Information for the LS4278 Hand Scanner

This section contains the following information:

- [Cleaning and Maintenance](#) (page 10): Tips for cleaning the LS4278.
- [LED Indications](#) (page 11): Table describing the LED status.
- [Beeper Indications](#) (page 12): Troubleshooting table describing beeper sequences.

Cleaning and Maintenance

- 1 If dirt particles are visible on the scan window, use a cloth dampened with water to clean the window.
- 2 Prepare a solution of one-part glass cleaner (or ammonia) and one-part water.
- 3 Spray the solution onto a lint-free cloth or cleaning pad.
- 4 Wipe the scan window with the cloth.

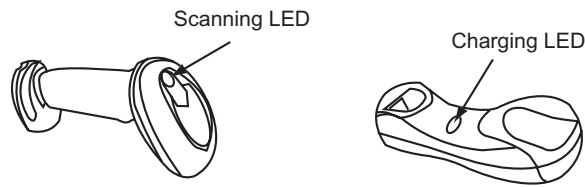


NOTE: Do **NOT** spray the cleaning solution directly onto the device.

Do **NOT** use abrasive cleaning material or products or harsh chemicals.

LED Indications

The LS4278 has two LEDs: a scanning LED and a charging LED.



LED Status	Indication	Action
Scanning LED		
Green flash	<ul style="list-style-type: none"> • Bar code successfully read. 	<ul style="list-style-type: none"> • No action required.
Charging LED		
Green - Slow continuous flash	<ul style="list-style-type: none"> • Non-critical battery temperature fault. Battery above or below normal operating temperature. 	<ul style="list-style-type: none"> • Stop using the Hand Scanner until the battery temperature normalizes. • Move the Hand Scanner to a location that is within normal operating temperature. The Hand Scanner can be placed on the charging base.
Green - Fast continuous flash	<ul style="list-style-type: none"> • Scanner is charging. 	<ul style="list-style-type: none"> • No action is required.
Green - Solid	<ul style="list-style-type: none"> • Scanner is fully charged. 	<ul style="list-style-type: none"> • No action is required.
Amber - continuous flash	<ul style="list-style-type: none"> • Critical battery temperature fault. 	<ul style="list-style-type: none"> • Stop using the Hand Scanner until the battery temperature normalizes. • Move the Hand Scanner to a location that is within normal operating temperature. The Hand Scanner can be placed on the charging base.

Beeper Indications

Beeper Tone or Sequence	Possible Cause(s)	Solution
Low - medium - high beeps	<ul style="list-style-type: none"> Power up 	<ul style="list-style-type: none"> No action is required.
High beep	<ul style="list-style-type: none"> Hand Scanner successfully read a bar code. 	<ul style="list-style-type: none"> No action is required.
Four high beeps when you release the trigger	<ul style="list-style-type: none"> Hand Scanner requires charging. 	<ul style="list-style-type: none"> Set the Hand Scanner in the charging base to charge. Ensure that the power cable is connected to the base and to the power bar.
Low - high - low	<ul style="list-style-type: none"> Advanced Data Format (ADF) transmit error. 	<ul style="list-style-type: none"> Refer to "LS4278 Bar Code Programming Sequence" on page 15. If the issue is not resolved, contact your support center.
Low - high - low - high beep sequence	<ul style="list-style-type: none"> Out of memory. Hand Scanner cannot store a new bar code. 	<ul style="list-style-type: none"> Refer to "LS4278 Bar Code Programming Sequence" on page 15. If the issue is not resolved, contact your support center.
Long low - long high beeps	<ul style="list-style-type: none"> Input error, incorrect bar code or Cancel bar code was scanned. Page timeout; remote device (base) is out of range or not powered. 	<ul style="list-style-type: none"> Move the scanner back into range of the charging base. Press the trigger to try to reconnect to the base. Scan the bar code on the base to pair the Hand Scanner to the base. If the issue is not resolved, refer to "LS4278 Bar Code Programming Sequence" on page 15. If the issue is not resolved, contact your support center.

Beeper Tone or Sequence	Possible Cause(s)	Solution
Long low - long high - long low - long high beeps	<ul style="list-style-type: none"> • Out of host parameter storage space. • Out of memory for ADF rules. 	<ul style="list-style-type: none"> • Refer to "LS4278 Bar Code Programming Sequence" on page 15. • If the issue is not resolved, contact your support center.
High - high - high - low beeps	<ul style="list-style-type: none"> • RS-232 receive error. 	<ul style="list-style-type: none"> • Host was reset. Normally, no action is required. • If the beeping continues, refer to "LS4278 Bar Code Programming Sequence" on page 15.
High - low beeps	<ul style="list-style-type: none"> • The scanner is buffering Code 39 data. • Keyboard parameter selected. • Hand Scanner is out of range of base. 	<ul style="list-style-type: none"> • Normal if the Hand Scanner is buffering Code 39 data. • If a keyboard parameter is selected, enter the value using the bar code keypad. • If the issue is not resolved, ensure that the power cable is connected to the base and to the power bar. • If the issue is not resolved, move the Hand Scanner closer to base. • If the issue is not resolved, scan the bar code on the base.
Three long high beeps	<ul style="list-style-type: none"> • Code 39 buffer is full. • Store may be using unsupported bar code formats. 	<ul style="list-style-type: none"> • Contact your support center

Beeper Tone or Sequence	Possible Cause(s)	Solution
Four long low beeps	<ul style="list-style-type: none"> • Data was not received by base. • The Hand Scanner may be out of range of the base or not paired to the base. • A transmission error was detected in a scanned symbol. The Hand Scanner may not be properly configured. 	<ul style="list-style-type: none"> • Data may have been received by the host. Check the Attendant Station receipt screen to see if the bar code scanned. • If the bar code was not scanned, try scanning the bar code again. • Move the Hand Scanner closer to the base. • If the issue is not resolved, scan the bar code on the base. • If the issue is not resolved, refer to "LS4278 Bar Code Programming Sequence" on page 15.
Five low long beeps.	<ul style="list-style-type: none"> • Conversion or format error. 	<ul style="list-style-type: none"> • Refer to "LS4278 Bar Code Programming Sequence" on page 15. • If the issue is not resolved, contact your support center.

LS4278 Bar Code Programming Sequence

Default Parameters: Set All Defaults



Scan the bar code on the Hand Scanner charging base. The Hand Scanner will not recognize certain programming bar codes if this is not done at this point.

DO NOT SCAN THE BAR CODE ON THE BASE BEFORE YOU SCAN THE “SET ALL DEFAULTS” BAR CODE OR AT ANY OTHER POINT IN THIS SEQUENCE. If you accidentally scan the bar code on the base at the wrong time, scan the “Set All Defaults” bar code to begin the sequence again.

Transmit Check Digit: Do Not Transmit UPC-A Check Digit



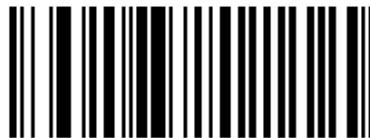
Transmit CheckDigit: Do Not Transmit UPC-E Check Digit



Type Is EAN-8



Symbol Code ID Character



Scan Suffix



1



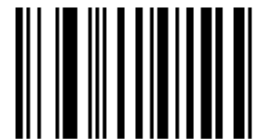
0



1



3



Scan Options



Data Suffix



Enter



7-Bit ASCII Format



7-Bit

Rules for UPC-E

Begin New Rule



UPC-E



Skip Ahead 1 Character



Send E



Send All Data That Remains



Send Enter Key



Save Rule



Rules for EAN-8

Begin New Rule



EAN-8



Skip Ahead 1 Character



Send G



Send All Data That Remains



Send Enter Key



Save Rule



Rules for EAN-13

Begin New Rule



EAN-13



Skip Ahead 1 Character



Send F



Send All Data That Remains



Send Enter Key



Beep at Decode Time



Beep At Decode Time

Save Rule



