Chapter 1 User's Guide

Scanning Made Easy

The LS 5300 series of scanners bring easy, hands-free scanning to your point-of-sale system.

- The **LS 5300** mounts either in or on the counter, and lets you "scan from above" or "scan from the side" in either a landscape or portrait position.
- The **LS 5400** is designed for in-counter mounting within a harsh supermarket environment.

(All scanners in the series are identical electrically, and provide the same reliable scanning capabilities. Therefore, all references to the LS 5300 in this manual will apply to the entire series, unless otherwise noted.)

Just pass an item's bar code symbol past the scanner window and the item number is quickly sent to your host system. The LS 5300 is compact, easy to install, and fits most checkstand designs.

The LS 5300 scanner will decode UPC/EAN, UPC/EAN Supplementals, Code 39, Code 39 Full ASCII, I 2 of 5, Code 128, and Codabar.

In most instances, changing host systems is as easy as scanning the appropriate bar code, and changing the cable.

An input port (*RS-232*) is provided to support a hand-held laser scanner* or an auxiliary RS-232C device.

**Only certain types of hand-held scanners are supported. Contact your Symbol representative for more information.*

Unpacking

Remove the LS 5300 from its packing and inspect it for damage. The following items should be included with the shipment:

- Scanner
- Power supply (if applicable)*
- Host interface cable*
- Mounting stand(s) or cradle(s) (if applicable)

*Some host terminals (e.g., IBM 46xx Series) can supply power to the LS 5300. In those cases, an external power supply is not required. See your Symbol representative for more information.

If the scanner was damaged in transit, call the *Symbol Support Center* at the telephone number on page 1-16. **KEEP THE PACKING**. It is the approved shipping container and should be used if you ever need to return your equipment for servicing.

Connecting Your LS 5300

Connect one end of the host interface cable into the **Host** port on the LS 5300, and the other into the appropriate port on your terminal.

If your configuration requires an external power supply, plug the power supply into the **Power** jack on the LS 5300. Connect the power plug into an appropriate outlet.

If your host terminal is an IBM 46xx series, and is supplying power, do not use an external power supply.

Accessories

Scratch Resistant Glass - To install, remove the window and bezel assembly from the scanner by gently prying the removal latch with a small flathead screwdriver. Install the scratch resistant glass and bezel assembly.

An RS-232C port is provided for those applications requiring more flexibility. This port will accommodate:

- An intelligent hand-held laser scanner (see page 1-1)
- An external beeper
- Miscellaneous RS-232C devices (e.g. magstripe reader, check reader)

Contact your Symbol representative for specific information.

Mounting

The LS 5300 can be positioned either in or on the counter in either a portrait or landscape position. The LS 5400 is designed for in-counter mounting only. For information on installing these units in the counter, refer to the instructions packed with the scanner.

Turning the Scanner On

The LS 5300 has no On / Off switch. When you plug it in, it's ready to decode. Scan beams are emitted as shown below by the dotted area.

- Present a bar code to the scanner, and move it in a sweeping motion, as illustrated by the arrows.
- The bar code should be parallel to the scanner, or slightly skewed in the direction of the arrows.
- The scanner will beep when a bar code has successfully been decoded. A complete list of *Beeper Definitions* begins on page 1-11.

If there is no activity for a half-hour (or a programmable time-out period), the scanner will go into a very low duty cycle operation. The red and green LEDs will both be lit to indicate the scanner is in a "sleep" mode.

To reactivate the scanner, pass an item's bar code symbol past the scanner window. The red LED will extinguish, and the scanner will operate in normal mode.

LS 5300 Indicators

LEDs

The green LED will light whenever the scanner is ready to decode a bar code.

The green and red LEDs will both light to indicate that the scanner has gone into a very low duty cycle operation. To reactivate the scanner, pass an item's bar code symbol past the scanner window.

If the red LED blinks continuously, contact the *Symbol Support Center* at the phone number on page 1-16.

Beeper

The LS 5300 has an internal beeper to signal a good decode, or provide other information (see *Beeper Definitions* beginning on page 1-11). You can also connect an external beeper to the Host port or to the Aux Serial port. Any or all of these beepers is enabled or disabled through the use of bar code menus. Additionally, the volume and tone of the beepers can be changed by scanning the appropriate bar codes.

Programming

You can custom tailor the performance and operation of the LS 5300 with a series of bar code menus. Refer to the *Default Table* beginning on page 2-5 for a list of the factory-programmed defaults. *Even if the defaults suit all your needs, you must still select a host type.* A table of *Beeper Definitions* applicable to programming is located on page 1-12.

Scanning Sequence Examples

In most cases you need only scan one bar code to set a specific parameter. For example, if you want to set the baud rate to 9600, simply scan the **9600** bar code listed under **BAUD RATE**. The scanner will issue a warble tone, signifying a successful parameter entry.

If you want to enable or disable prefixes and suffixes, or customize the data transmission format, you will have to scan several bar codes.

Errors While Scanning

Don't worry if you make an error during a scanning sequence. Merely scan **CANCEL** and reenter the correct parameter.

Setting Parameters

If the default values suit your requirements, all you need to do is scan a **Host Type**. See the *Default Table*. Parameters other than default values can be set by scanning appropriate bar codes.

Host Types and Options

To communicate properly with your host terminal, a **Host Type** must be selected. If you are using a Synapse Smart Cable, a programming sheet containing a host bar code is packaged with the cable. Select your host type using that bar code.

Code Types & Options

Enable or disable host-supported code types and options such as UPC or EAN supplementals and selectable code lengths.

Custom Tailoring

Customize any combination of the following parameters to suit your specific environment or application requirements.

- Scanning Range
- Beeper tone
- Beeper Frequency

Custom Tailoring (Contd)

- **Decode Time-out** or "Time-out period between successive decodes of identical bar codes". This time-out minimizes the chances of reading a single item more than once during a scanning attempt. Generally speaking, a minimal time-out period is best in a high throughput environment (e.g. supermarket). A longer time-out period may be preferred in a lower throughput environment.
- **Decode Session Time-out**. This parameter applies to the primary scanner, and refers to the length of time decode processing continues during a scan attempt.
- **Power down** or "sleep" mode. You can select how long the scanner remains on during periods of inactivity.

Decode Options

- **Reject Predecode Block**. Added security against accidental misdecodes caused by an operator bringing similar but not identical items into the scanners field of view simultaneously. When enabled, the scanner will reject a bar code which contains a block similar to the last decoded bar code.
- **Accept Predecode Block**. Allows the scanner to decode any bar code regardless of the item last decoded.
- **Security Levels**. Provides increasing levels of security against misdecoding out of spec bar codes. Increasing levels of security will adversely affect the aggressiveness of the scanner.

Data Transmission Formats

- The options listed below modify the data (bar code or serial) prior to transmission into a host-compatible format.
  - Transmit Check Digits
  - Preambles
  - Prefix, Suffix values
  - Transmit Code ID character
  - Ignore unknown characters
  - Transmit "NO DECODE" message

RS-232 Port Auxiliary Options

Serial RS-232 data can be modified to meet host requirements. *Beeper Definitions* are found in the table on page 1-12.

Programming Utilities

This section contains numeric bar codes used to quantify certain options, application specific bar codes, **Enter** and **Cancel** bar codes.

Beeper Definitions

Standard Use

Beeper Sequence	Indication
1 Beep - short high tone	A bar code symbol was decoded, or serial data was received.
3 Beeps - short high tone	Power-on reset. Occurs immediately after the unit is turned on or after a system reset, indicating the system software is working properly. If three beeps occur during normal operation, it is due to a reset; any work in progress is lost. If this occurs often, contact the Symbol Support Center.
4 Beeps - long high tone	A format or transmission error has been detected in the serial data or in a scanned symbol. The data is ignored. This will occur if a unit is not properly configured. Check option settings.
5 Beeps - long high tone	Data conversion error.

Parameter Menu Scanning

Beeper Sequence	Indication
1 Beep- lo/hi tone	Input error, incorrect bar code or "Cancel" scanned, wrong entry, incorrect bar code programming sequence; remain in program mode.
1 Beep- hi/lo tone	Keyboard parameter selected. Enter value using bar code keypad.
1 Beep- hi/lo/hi/lo tone	Successful program exit with change in the parameter setting.

Serial Communication

Beeper Sequence	Indication
1 Beep - short high tone	Serial communication was successfully received, then transmitted to the host.
4 Beeps - short high tone	Serial communications error.

What If...

Nothing happens when you follow the operating instructions.

You Should

- Check that the scanner is plugged into an AC outlet.
- Make sure the scanner is connected to the point-of-sale register.
- Be sure that you've scanned a host type.
- Check for loose cable connections.
- Make certain the code type you're trying to decode is enabled, and that it is supported by your host.
- Check the symbol to make sure it is of suitable quality (not damaged).
- Try scanning similar symbols of the same code type.
- Be sure you're using the proper power supply.

Note: If after performing these checks the symbol still does not scan, contact your distributor or call the *Symbol Support Center*. See page 1-16 for the telephone number.

Maintenance

Cleaning the exit window is the only maintenance required. A dirty window may affect scanning accuracy.

- Do not allow any abrasive material to touch the window.
- Remove any dirt particles with a damp cloth.
- Wipe the window using a tissue moistened with ammonia / water.

Factory Service

Before calling the Support Center with a problem, have the model number and several of your bar code symbols at hand. You will find the model number on the label at the rear of the unit.

Call the Support Center from a phone near the scanning equipment so that the service person can try to talk you through the problem. If the equipment is found to be working properly and the problem is symbol readability, Support will request samples of your bar codes for analysis at our plant.

If the problem cannot be solved over the phone, you may need to return your equipment for servicing. If that is necessary, the center will give specific directions.

Note: Symbol Technologies is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty. If the original shipping container was not kept, contact Symbol to have another sent to you.

Symbol Support Center

In the U.S.A, for service information, warranty information or technical assistance call:

SYMBOL SUPPORT CENTER
1-800-653-5350

If you purchased your Symbol product from a Symbol Business Partner, contact that Business Partner for service.

Canada

Mississauga, Ontario

Canadian Headquarters
(905) 629-7226

Europe

Wokingham, England

European Headquarters
01734-771-222 (Inside UK)
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Asia

Singapore

Symbol Technologies Asia, Inc.
337-6588 (Inside Singapore)
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Technical Specifications

ITEM	DESCRIPTION
Power Requirements	+12V, +5.1VDC Consumes 7 watts nominal
Scanner System	15-line, 3-direction dynamic cross pattern
Angular Orientation	
Yaw	-45° to +45°
Pitch	0° to 90°
Roll	360°
Decode Depth of Field	Adjustable, maximum working distance is 8 in. (20.3 cm) on 100% UPC symbol
Print Contrast Minimum	30% absolute dark / light reflectance differential, measured at 675 nm.
Ambient Light Immunity	
Fluorescent	450 ft. candles 4844 lux
Incandescent	450 ft. candles 4844 lux
Mercury Vapor	450 ft. candles 4844 lux
Sodium Vapor	450 ft. candles 4844 lux

ITEM	DESCRIPTION	
Operating Temperature	32° to 104°F	0° to 40°C
Operating Humidity	5% to 95% non-condensing	
Storage Temperature	-40° to 140°F	-40° to 60°C
Storage Humidity	10% to 90% non-condensing	
Weight	4 lbs 7 oz.	2 kg
Depth	4.5 in.	11.5 cm
Length	9.75 in.	25 cm
Width	6.87 in.	17.6 cm
Cable Length	6 ft.	183 cm