

# YJ5900

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Bar Code Scanner

## User's Guide

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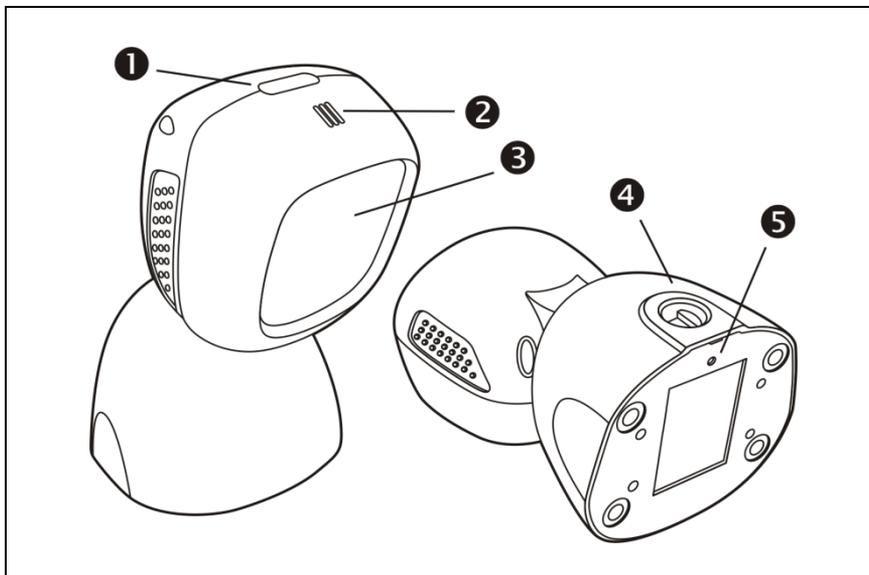
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# Introduction

## Components



| Item No. | Description                        |
|----------|------------------------------------|
| 1        | LED Indicator                      |
| 2        | Beeper                             |
| 3        | Red Output Window (Laser Aperture) |
| 4        | 10-Pin RJ45, Female Socket         |
| 5        | Pinhole for Cable Release          |

Figure 1. Scanner Components

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## Caution and Serial Number Labels

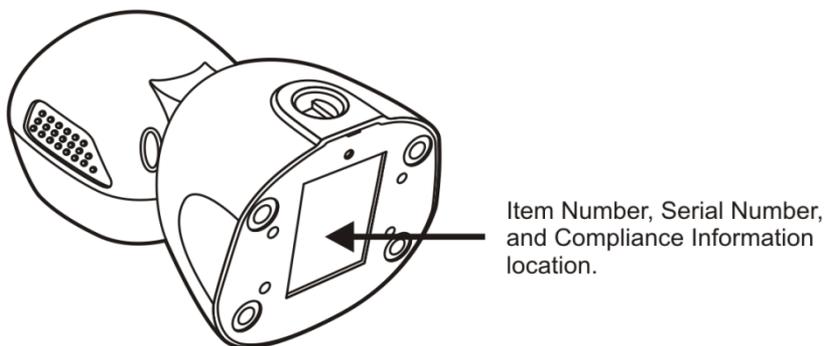


Figure 2. Label Location on the Bottom of the Scanner

**Caution:** To maintain compliance with applicable standards, all circuits connected to the imager must meet the requirements for SELV (Safety Extra Low Voltage) according to EN/IEC 60950-1.



To maintain compliance with standard EN/IEC 60950-1, the power source should meet applicable performance requirements for a limited power source. Product rating is 5V/500mA.

## Maintenance

Smudges and dirt on the unit's window can interfere with the unit's performance. If the window requires cleaning, use only a mild glass cleaner containing no ammonia. When cleaning the window, spray the cleaner onto a lint free, non-abrasive cleaning cloth then gently wipe the window clean.

If the unit's housing requires cleaning, use a mild cleaning agent that does not contain strong oxidizing chemicals. Strong cleaning agents may discolor or damage the unit's exterior.

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## Cable Installation and Removal

### Installation

1. Insert the cable's modular connector into the socket on the scanner.
2. Pull gently on the cable strain relief to ensure the cable is installed.

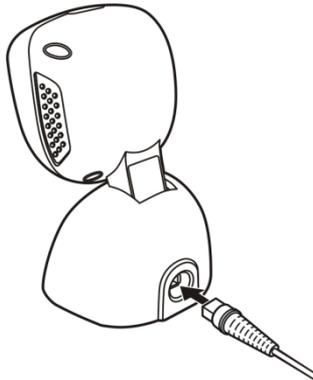


Figure 3

### Removal

Turn off power to the host system before removing the cable from the scanner.

1. Locate the small pinhole on the bottom of the scanner near the cable.
2. Bend an ordinary paper clip into the shape shown.
3. Insert the paper clip (or other small metallic pin) into the small pinhole. There will be a faint 'click' when the connector's lock releases.
4. Pull gently on the cable's strain relief to remove the cable.

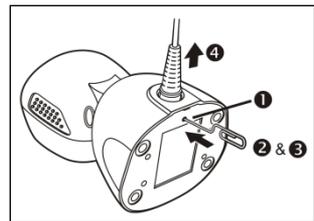


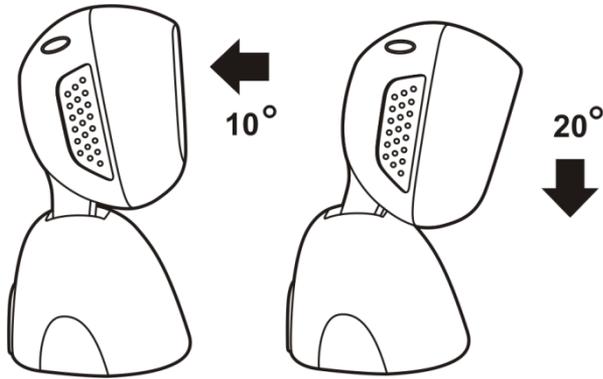
Figure 4



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## ***Change the Scanner Angle***

The scanner head can be tilted back 10 degrees or down 20 degrees.



*Figure 5*

# Scanner Operation

## ***Default Primary Scan Pattern***

The primary default scan pattern is omnidirectional and is active when the scanner starts.

## ***Audible Indicators***

When the scanner is operational, the scanner provides audible feedback to indicate the status of the scanner and the last scan. Eight settings are available for the tone of the beep (normal, six alternate tones and no tone).

### ***One Beep – On Power Up***

When the unit powers up, the green LED turns on, then the red LED flashes and the scanner beeps once. The red LED will remain on for the duration of the beep. The scanner is now ready to scan.

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

### ***Three Beeps – During Operation***

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

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

When using one-code-configuring, the scanner will beep three times: the current selected tone, followed by a short pause, a high tone, and a low tone. The single configuration bar code has successfully configured the scanner.

### ***Razzberry Tone***

This is a failure indicator. Refer to *Failure Modes* on page 7.

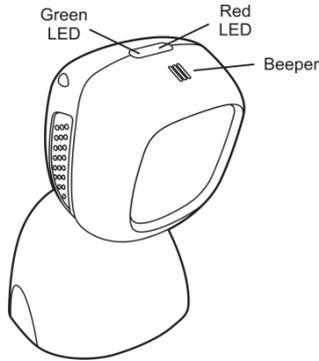
### ***Three Beeps – On Power Up***

This is a failure indicator. Refer to *Failure Modes* on page 7.

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## ***Visual Indicators***

The scanner is equipped with a red LED and green LED, which indicate the scanner's state and the status of the current scan respectively when the unit is in operation.



*Figure 6. LED Location*

### ***Green and Red LEDs Are Off***

The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer.

### ***Steady Green***

Steady green indicates the laser is active.

### ***Green Off and Single Red Flash***

When the scanner successfully reads a bar code, the red LED will flash and the scanner will beep once. If the red LED does not flash and the scanner does not beep once, the bar code has not been successfully read.

### ***Steady Green and Steady Red***

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

### ***Alternating Green and Red Flashes***

The scanner is in configuration mode. A razzberry tone indicates an invalid bar code has been scanned in this mode.

### ***Steady Red***

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

---

## **Failure Modes**

### *Flashing Green and One Razzberry Tone*

This indicates the scanner has experienced a laser subsystem failure. Return the unit for repair to an Authorized Service Center.

### *Flashing Green and Red with Two Razzberry Tones*

This indicates the scanner has experienced a motor failure. Return the unit for repair to an Authorized Service Center.

### *Continuous Razzberry Tone with no LEDs*

If, upon power up, the scanner emits a continuous razzberry tone, then the scanner has an experienced an electronic failure. Return the unit for repair to an Authorized Service Center.

### *Three Beeps – On Power Up*

If the scanner beeps three times on power up, then the non-volatile memory (NovRAM) that holds the scanner configuration has failed. You must return the unit for repair to an Authorized Service Center.

## **Normal Depth of Field by Bar Code Element Width**

| <b>Bar Code Element Width</b> |          | <b>Depth of Field</b>               |                                   |
|-------------------------------|----------|-------------------------------------|-----------------------------------|
|                               |          | <b>Start</b><br>(From Scanner Face) | <b>End</b><br>(From Scanner Face) |
| 0.13 mm                       | 5 mil    | 50 mm (2.0")                        | 100 mm (3.9")                     |
| 0.19 mm                       | 7.5 mil  | 40 mm (1.6")                        | 185 mm (7.3")                     |
| 0.26 mm                       | 10.4 mil | 20 mm (0.8")                        | 260 mm (10.2")                    |
| 0.33 mm                       | 13 mil   | 20 mm (0.8")                        | 310 mm (12.2")                    |

---

## IR Activation Range\*

Youjie YJ5900's default power save mode is *Laser OFF*. This power save mode turns the laser off after a configured period of non-use. Any movement detected by the IR in the activation area will cause the scanner to exit power save mode. The laser will automatically turn back on preparing the scanner for bar code recognition, decoding and transmission.

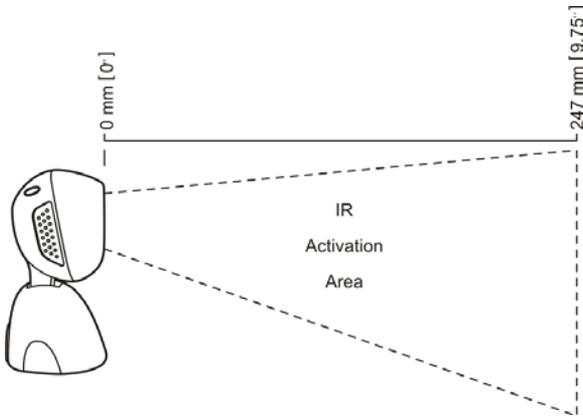


Figure 7. Normal IR Activation Range

\* All specifications are subject to change without notice.

# Troubleshooting Guide

The following guide is for reference purposes only. Contact a customer service representative to preserve the limited warranty terms.

| Symptoms   | Possible Causes   | Solution   |
|--|---|--|
| <i>All Interfaces</i>  |   |  |
| The unit has no LEDs, beep or motor spin.  | No power is being supplied to the unit.   | Check the transformer, the outlet and power strip. Make sure the cable is plugged into the unit.   |
| The unit has no LEDs and/or beeper.  | No power is being supplied to the unit from host.   | Some host systems cannot supply enough current to power the scanner. A power supply may be needed.   |
| At power up the unit beeps three times.  | There is a non-volatile RAM failure.  | Contact a customer service representative.   |
| At power up there is a continuous razz tone.   | There has been a diagnostic failure.  |  |
| At power up there is a razz tone and the green LED flashes.                          | There is a VLD failure.   |  |
| At power up the unit razzes twice and both LEDs flash.                               | There is a scanning mechanism failure.  |  |
| There are multiple scans upon presentation of code.                                  | The same symbol timeout is set too short.   | Adjust the same symbol timeout for a longer time increment.  |
| The unit scans a bar code, but locks up after the first scan (the red LED stays on.) | The scanner is configured to support some form of host handshaking but is not receiving the signal. | If the scanner is setup to support ACK/NAK, RTS/CTS, XON/XOFF, or D/E, verify the host cable and host are supporting the handshaking properly. |
| The unit powers up, but does not beep.   | The beeper may be disabled or no tone has been selected.  | Enable beeper and select a tone.   |

| Symptoms   | Possible Causes  | Solution  |
|--|--|---|
| The unit scans but the data transmitted to the host is incorrect.                  | The scanner's data format does not match the host system requirements.   | Verify the scanner's data format matches the format required by the host. Make sure the scanner is connected to the proper host port.                 |
| Scanner beeps at some bar codes and NOT for others of the same bar code symbology. | The bar code may have been printed incorrectly.  | Check if it is a check digit, character, or border problem.   |
|  | The scanner is not configured correctly for the type of bar code.  | Check if check digits are set properly.   |
|  | The minimum symbol length setting does not work with the bar code.   | Check if the correct minimum symbol length is set.  |
| The unit powers up, but does not scan and/or beep.                                 | The unit is trying to scan a particular symbology that is not enabled.   | UPC/EAN, Code 39, interleaved 2 of 5, Code 93, Code 128 and Codabar are enabled by default. Verify the type of bar code being read has been selected. |
|  | The bar code being scanned does not satisfy the configured criteria for character length lock or minimum length. | Verify the bar code being scanned falls into the configured criteria.<br><br><i>The scanner defaults to a minimum of four-character bar code.</i>     |

| Symptoms  | Possible Causes  | Solution  |
|---|--|---|
| <i>RS232 Only</i>   |  |   |
| The unit powers up OK and scans OK but does not communicate properly to the host. | The com port at the host is not working or is not configured properly. | Check to make sure the baud rate and parity of the scanner and the communication port match and that the program is looking for RS232 data. |
|   | The cable is not connected to the proper com port.                     |   |
|   | The com port is not operating properly.                                |   |
| The host is receiving data but the data does not look correct.                    | The scanner and host may not be configured for the same interface.     | Check that the scanner and the host are configured for the same interface.  |
| Characters are being dropped.   | The intercharacter delay needs to be added to the transmitted output.  | Add some intercharacter delay to the transmitted output by scanning an Intercharacter bar code on page 23.                                  |



# Design Specifications

## Operational

|                        |  |                           |
|------------------------|--|---------------------------|
| Normal Depth of Field: | 20 mm – 310 mm (0.8" – 12.2")  | 0.33 mm (13 mil) Bar Code |
| <i>Omni Scan</i>       |  |                           |
| Scan Speed:            | 1650 scan lines per second   |                           |
| Scan Pattern:          | 20   |                           |
| Motor Speed:           | 5000 RPM   |                           |
| Minimum Bar Width:     | 0.127 mm (5 mil)   |                           |
| Decode Capability:     | Reads standard 1D and GS1 DataBar symbologies.   |                           |
| System Interfaces:     | USB, RS232   |                           |
| Print Contrast:        | 35% minimum reflectance difference   |                           |
| No. Characters Read:   | Up to 80 data characters. The maximum number will vary based on symbology and density. |                           |
| Beeper Operation:      | 7 tones or no beep   |                           |
| Indicators (LED):      | Red = good read, decoding  |                           |
|                        | Green = laser on, ready to scan  |                           |
| <i>Embedded Laser</i>  |  |                           |
| Max Optical Power:     | 10 mW  |                           |
| Wavelength:            | 640 – 660 nm   |                           |
| Min Beam Divergence:   | 6°   |                           |

*Specifications subject to change without notice.*

---

## ***Mechanical***

|         |                 |
|---------|-----------------|
| Width:  | 87 mm (3.4")    |
| Depth:  | 98 mm (3.8")    |
| Height: | 169 mm (6.6")   |
| Weight: | 382 g (13.5 oz) |

## ***Electrical***

|                  |                       |                       |
|------------------|-----------------------|-----------------------|
| Input Voltage:   | 5VDC $\pm$ 0.5V       |                       |
| Power:           | Operating:            | 2 W                   |
|                  | Standby:              | 1.25 W                |
| Current:         | Operating:            | 400 mA average @ 5VDC |
|                  | Standby:              | 250 mA average @ 5VDC |
| DC Transformers: | Class II; 5.2VDC @ 1A |                       |

## ***Environmental***

|              |   |                                |
|--------------|---|--------------------------------|
| Temperature: | Operating:                                  | -20°C to 40°C (-4°F to 104°F)  |
|              | Storage:                                    | -40°C to 60°C (-40°F to 140°F) |
| Humidity:    | 5% to 95% relative humidity, non-condensing |                                |
| Ventilation: | None required                               |                                |

## ***Adapter***

|         |                           |
|---------|---------------------------|
| Input:  | 100-240VAC, 50-60Hz, 0.3A |
| Output: | 5VDC, 1A                  |
| Model:  | 3A-052WP05                |

---

## Scanner Pinout Connections

The scanner interfaces terminate to a 10-pin modular socket.

| USB Serial, Limited RS232 |                       | RS232C and Light Pen Emulation |                       |
|---------------------------|-----------------------|--------------------------------|-----------------------|
| Pin                       | Function              | Pin                            | Function              |
| 1                         | Ground                | 1                              | Ground                |
| 2                         | RS232 Transmit Output | 2                              | RS232 Transmit Output |
| 3                         | RS232 Receive Input   | 3                              | RS232 Receive Input   |
| 4                         | RTS Output            | 4                              | RTS Output            |
| 5                         | CTS Input             | 5                              | CTS Input             |
| 6                         | USB D+                | 6                              | DTR Input/LTPN Source |
| 7                         | V USB                 | 7                              | Reserved              |
| 8                         | USB D-                | 8                              | LTPN Data             |
| 9                         | +5VDC                 | 9                              | +5VDC                 |
| 10                        | Shield Ground         | 10                             | Shield Ground         |



# Configuration Introduction

Your new scanner has been factory configured with a set of default parameters. Since many host systems have unique formats and protocol requirements, a wide range of configurable features that may be selected using this bar code based configuration tool are provided. Once the configuration is completed, the scanner stores the settings in nonvolatile memory (NOVRAM). NOVRAM saves the settings when the power is off.

*Note: Bar code descriptions marked with an asterisk ( \* ) define a feature that is a factory default.*

## Bar Code Configuration Method

All features can be enabled or disabled using the Multi-Code Method.

### Multi-Code Method

1. Power up the scanner.
2. Scan the *Enter/Exit Configuration Mode* bar code (3 beeps).
3. Scan the bar code for the desired feature (1 beep). Multiple features can be enabled/disabled before scanning the enter/exit configuration mode bar code.
4. Scan the *Enter/Exit Configuration Mode* bar code (3 beeps) and save the new configuration. To abort a configuration change, power off the scanner before scanning the *Enter/Exit* code.

### Enter/Exit Configuration Mode



---

## ***Returning to Factory Defaults***

Scan the *Recall Defaults* bar code to erase all previous settings and return the scanner to its factory default communication protocol.

### **Recall Defaults**



# Code Types and Decode Rules

Bar code descriptions marked with an asterisk ( \* ) define a feature that is a factory default.

## 2 of 5 Codes

ITF Symbol Length Lock 1



To specify a first ITF symbol length lock, scan this bar code and the appropriate code byte sequence located on page 35.

ITF Symbol Length Lock 2



To specify a second ITF symbol length lock, scan this bar code and the appropriate code byte sequence located on page 35.

ITF Minimum Symbol Length



To specify a minimum number of ITF characters to be decoded, scan the appropriate code byte sequence located on page 35.

---

## Code 39

\* Normal C39  
Aggressiveness



Increased C39  
Aggressiveness



## Additional Decode Features

Minimum Symbol Length



Single-line default is 3.  
Combine this code with  
the proper code bytes (on  
page 35), to specify the  
minimum number of  
characters in all non-  
UPC/EAN bar codes.

Symbol Length Lock



Combine this code with  
the proper code bytes, to  
lock the bar code's length  
into place.

# Supplements

Enable Bookland (979)  
Supplement Required



\* Disable Bookland (979)  
Supplement Required



Enable Bookland (978)  
Supplement Required



\* Disable Bookland (978)  
Supplement Required



Enable 977 (2 Digit)  
Supplement Required



\* Disable 977 (2 Digit)  
Supplement Required



The scanner will require a 2 digit supplement to be scanned when an EAN-13 code begins with 977.

---

Enable ISBN Check Digit  
Transmission



Disable ISBN Check Digit  
Transmission



Enable Bookland to ISBN  
Conversion



\* Disable Bookland to  
ISBN Conversion



# Scanner Operation

## Redundant Scans

\* 0 Redundant Scans



Requires 1 good decode for a *good scan*.

1 Redundant Scan



Requires 2 consecutive decodes of the same bar code data for a *good scan*.

## Data Transmission Delays

Use these codes to select the amount of delay between sending data characters from the scanner to the host. This helps prevent the scanner from overflowing host-input buffers.

\* 1 msec Intercharacter Delay



10 msec Intercharacter Delay



---

25 msec Intercharacter  
Delay



Variable msec  
Intercharacter Delay



Scan this bar code and a sequence of code bytes on page 35 to set the delay between characters sent to the host system (range from 1 to 255 msec.).

---

## ***Beeper Tone***

Scan a Beeper Tone bar code to change the beeper tone from the default Normal Tone.

\* Normal Tone



No Beep



Optional Tone 1



Optional Tone 2



Optional Tone 3



Optional Tone 4



Optional Tone 5



Optional Tone 6





# Prefixes/Suffixes

Scan the Enter Configuration Mode bar code before trying to set these features (see the Multi-Code Method on page 17.)

## User Configurable Prefixes, All Data

Configurable Prefix  
Character #1



A prefix ID can be added and assigned for data transmission. Use this code with a code byte sequence, on page 35, which represents the desired character.

Configurable Prefix  
Character #2



Assigns a second configurable prefix character.

## Standard Prefix Characters

Enable STX Prefix



\* Disable STX Prefix



---

## Standard Suffix Characters

### \* Enable CR Suffix

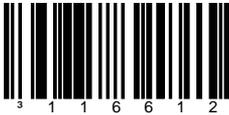


The scanner transmits a carriage return after each bar code.

### Disable CR Suffix



### \* Enable LF Suffix



The scanner transmits a line feed after each bar code. *Disabled when keyboard wedge defaults are loaded.*

### Disable LF Suffix



### Enable Tab Suffix



The scanner will transmit a TAB (ASCII 09H) after each bar code.

### \* Disable Tab Suffix



---

Enable ETX Suffix



The scanner will transmit  
End of TeXt (ASCII 03H)  
after the bar code date.

\* Disable ETX Suffix



Enable UPC Suffix ID



The scanner will transmit a  
suffix after any UPC/EAN  
bar code. The suffixes are  
A (UPC-A), E (UPC-E), F  
(EAN-13) and F (EAN-8).

\* Disable UPC Suffix ID



Enable NCR Suffix  
Character



---

## User Configurable Suffixes, All Data

*Note: Scan the Enter/Exit Configuration mode code before trying to set this feature. Refer to Multi-Code Method on page 17.*

Configurable Suffix  
Character #1



A suffix ID can be added and assigned for data transmission. Use this code with a 3 code byte sequence, on page 35, which represents the desired character.

Configurable Suffix  
Character #2



Assigns a second configurable suffix character.

# Code Formatting

## UPC/EAN Formatting

\* Transmit UPC-A Check  
Digit



Do Not Transmit UPC-A  
Check Digit



Transmit UPC-E Check  
Digit



\* Do Not Transmit UPC-E  
Check Digit



Expand UPC-E to 12  
Digits



\* Do Not Expand UPC-E  
to 12 Digits



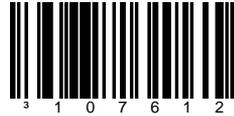
Expand UPC-E bar codes  
to the 12 digit equivalent,  
UPC-A bar codes.

---

\* Send Number System on Expanded UPC E



Do Not Send Number System on Expanded UPC E



Enable GTIN Formatting



\* Disable GTIN Formatting



Convert UPC-A to EAN-13



\* Do Not Convert UPC-A to EAN-13



The scanner converts UPC-A to EAN-13 by transmitting a leading zero before the bar code.

---

Transmit Lead Zero on  
UPC-E



This option will transmit a zero before each UPC-E bar code.

Do Not Transmit Lead  
Zero on UPC-E



Convert EAN-8 to EAN-13



The scanner will transmit five zeros before the bar code to convert EAN-8 to EAN-13.

\* Do Not Convert EAN-8 to  
EAN-13



| ASCII (HEX) | ASCII Control | Extended Key             |
|-------------|---------------|--------------------------|
| 00H         | Null          | Numeric Keypad + (Plus)  |
| 01H         | SOH           | Num Lock                 |
| 02H         | STX           | Down Arrow               |
| 03H         | ETX           | Numeric Keypad - (Minus) |
| 04H         | EOT           | Insert                   |
| 05h         | ENQ           | Delete                   |
| 06H         | ACK           | System Request           |
| 07H         | BEL           | ➔ (Right Arrow)          |
| 08H         | BS            | ➤ (Left Arrow)           |
| 09H         | TAB           | Tab                      |
| 0AH         | LF            | Caps Lock                |
| 0BH         | VT            | Shift Tab                |
| 0CH         | FF            | Left Alt                 |
| 0DH         | CR            | Enter                    |
| 0EH         | SO            | Left Control             |
| 0FH         | SI            | Up Arrow                 |
| 10H         | DLE           | F1                       |
| 11H         | DC1           | F2                       |
| 12H         | DC2           | F3                       |
| 13H         | DC3           | F4                       |
| 14H         | DC4           | F5                       |
| 15H         | NAK           | F6                       |
| 16H         | SYN           | F7                       |
| 17H         | ETB           | F8                       |
| 18H         | CAN           | F9                       |
| 19H         | EM            | F10                      |
| 1AH         | SUB           | Home                     |
| 1BH         | ESC           | Esc                      |
| 1CH         | FS            | Page Up                  |
| 1DH         | GS            | Page Down                |
| 1EH         | RS            | Print Screen             |
| 1FH         | US            | End                      |

# Code Bytes Usage

The scanner must be in Configuration Mode for the features requiring code bytes for configuration. The Enter/Exit Configuration Mode bar code must be scanned before starting the configuration cycle. User configurable prefix/suffix characters can then be saved by scanning the 3 digit decimal equivalent of the ASCII character into the appropriate character location with the code byte bar codes.

**Example:** To add an asterisk (\*) as a Prefix, scan the bar codes.

1. *Enter/Exit Configuration Mode* (3 beeps)
2. *Configurable Prefix #1* (1 beep)
3. *Code Byte 0* (1 beep)
4. *Code Byte 4* (2 beeps)
5. *Code Byte 2* (3 beeps)
6. *Enter/Exit Configuration Mode* (3 beeps)

## Code Bytes 0–9

Code Byte 0



Code Byte 1



Code Byte 2



Code Byte 3

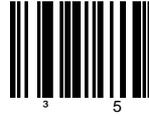


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Code Byte 4



Code Byte 5



Code Byte 6



Code Byte 7



Code Byte 8



Code Byte 9



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## Reserved Codes

Enable Reserved Code



Disable Reserved Code



## Code Type Table

| Code Byte | Code Types                 |
|-----------|----------------------------|
| 004       | UPC-A                      |
| 002       | UPC-E                      |
| 003       | EAN-8                      |
| 005       | EAN-13                     |
| 080       | Code 39                    |
| 081       | Codabar                    |
| 082       | Interleaved 2 of 5         |
| 083       | Code 128                   |
| 084       | Code 93                    |
| 091       | MSI Plessey                |
| 092       | Code 11                    |
| 093       | Airline 2 of 5 (15 digits) |
| 094       | Matrix 2 of 5              |
| 095       | Telepen                    |
| 096       | UK Plessey                 |
| 099       | TRI-OPTIC                  |
| 098       | Standard 2 of 5            |
| 097       | Airline (13 digits)        |

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## ASCII Reference Table

| HEX Value | Decimal Value/<br>Code Byte Value | Character | Control<br>Keyboard Eqv |
|-----------|-----------------------------------|-----------|-------------------------|
| 00        | 000                               | NUL       | @                       |
| 01        | 001                               | SOH       | A                       |
| 02        | 002                               | STX       | B                       |
| 03        | 003                               | ETX       | C                       |
| 04        | 004                               | EOT       | D                       |
| 05        | 005                               | ENQ       | E                       |
| 06        | 006                               | ACK       | F                       |
| 07        | 007                               | BEL       | G                       |
| 08        | 008                               | BS        | H                       |
| 09        | 009                               | HT        | I                       |
| 0A        | 010                               | LF        | J                       |
| 0B        | 011                               | VT        | K                       |
| 0C        | 012                               | FF        | L                       |
| 0D        | 013                               | CR        | M                       |
| 0E        | 014                               | SO        | N                       |
| 0F        | 015                               | SI        | O                       |
| 10        | 016                               | DLE       | P                       |
| 11        | 017                               | DC1       | Q                       |
| 12        | 018                               | DC2       | R                       |
| 13        | 019                               | DC3       | S                       |
| 14        | 020                               | DC4       | T                       |
| 15        | 021                               | NAK       | U                       |
| 16        | 022                               | SYN       | V                       |
| 17        | 023                               | ETB       | W                       |
| 18        | 024                               | CAN       | X                       |
| 19        | 025                               | EM        | Y                       |
| 1A        | 026                               | SUB       | Z                       |
| 1B        | 027                               | ESC       | [                       |
| 1C        | 028                               | FS        | \                       |

| HEX Value | Decimal Value/<br>Code Byte Value | Character | Control<br>Keyboard Eqv |
|-----------|-----------------------------------|-----------|-------------------------|
| 1D        | 029                               | GS        | ^                       |
| 1E        | 030                               | RS        | _                       |
| 1F        | 031                               | US        | space,blank             |
| 20        | 032                               | SP        |                         |
| 21        | 033                               | !         |                         |
| 22        | 034                               | "         |                         |
| 23        | 035                               | #         |                         |
| 24        | 036                               | \$        |                         |
| 25        | 037                               | %         |                         |
| 26        | 038                               | &         |                         |
| 27        | 039                               | '         | apostrophe              |
| 28        | 040                               | (         |                         |
| 29        | 041                               | )         |                         |
| 2A        | 042                               | *         |                         |
| 2B        | 043                               | +         |                         |
| 2C        | 044                               | ,         | comma                   |
| 2D        | 045                               | -         | minus                   |
| 2E        | 046                               | .         | period                  |
| 2F        | 047                               | /         |                         |
| 30        | 048                               | 0         | number zero             |
| 31        | 049                               | 1         | number one              |
| 32        | 050                               | 2         |                         |
| 33        | 051                               | 3         |                         |
| 34        | 052                               | 4         |                         |
| 35        | 053                               | 5         |                         |
| 36        | 054                               | 6         |                         |
| 37        | 055                               | 7         |                         |
| 38        | 056                               | 8         |                         |
| 39        | 057                               | 9         |                         |
| 3A        | 058                               | :         |                         |
| 3B        | 059                               | ;         |                         |

| HEX Value | Decimal Value/<br>Code Byte Value | Character | Control Keyboard<br>Eqv |
|-----------|-----------------------------------|-----------|-------------------------|
| 3C        | 060                               | <         | less than               |
| 3D        | 061                               | =         |                         |
| 3E        | 062                               | >         | greater than            |
| 3F        | 063                               | ?         |                         |
| 40        | 064                               | @         | shift P                 |
| 41        | 065                               | A         |                         |
| 42        | 066                               | B         |                         |
| 43        | 067                               | C         |                         |
| 44        | 068                               | D         |                         |
| 45        | 069                               | E         |                         |
| 46        | 070                               | F         |                         |
| 47        | 071                               | G         |                         |
| 48        | 072                               | H         |                         |
| 49        | 073                               | I         | letter I                |
| 4A        | 074                               | J         |                         |
| 4B        | 075                               | K         |                         |
| 4C        | 076                               | L         |                         |
| 4D        | 077                               | M         |                         |
| 4E        | 078                               | N         |                         |
| 4F        | 079                               | O         | letter O                |
| 50        | 080                               | P         |                         |
| 51        | 081                               | Q         |                         |
| 52        | 082                               | R         |                         |
| 53        | 083                               | S         |                         |
| 54        | 084                               | T         |                         |
| 55        | 085                               | U         |                         |
| 56        | 086                               | V         |                         |
| 57        | 087                               | W         |                         |
| 58        | 088                               | X         |                         |
| 59        | 089                               | Y         |                         |

| HEX Value | Decimal Value/<br>Code Byte Value | Character | Control Keyboard<br>Eqv |
|-----------|-----------------------------------|-----------|-------------------------|
| 5A        | 090                               | Z         |                         |
| 5B        | 091                               | [         | shift K                 |
| 5C        | 092                               | \         | shift L                 |
| 5D        | 093                               | ]         | shift M                 |
| 5E        | 094                               | ^         | à,shift N               |
| 5F        | 095                               | _         | ♣, shift O, underscore  |
| 60        | 096                               | ‘         | accent grave            |
| 61        | 097                               | a         |                         |
| 62        | 098                               | b         |                         |
| 63        | 099                               | c         |                         |
| 64        | 100                               | d         |                         |
| 65        | 101                               | e         |                         |
| 66        | 102                               | f         |                         |
| 67        | 103                               | g         |                         |
| 68        | 104                               | h         |                         |
| 69        | 105                               | i         |                         |
| 6A        | 106                               | j         |                         |
| 6B        | 107                               | k         |                         |
| 6C        | 108                               | l         |                         |
| 6D        | 109                               | m         |                         |
| 6E        | 110                               | n         |                         |
| 6F        | 111                               | o         |                         |
| 70        | 112                               | p         |                         |
| 71        | 113                               | q         |                         |
| 72        | 114                               | r         |                         |
| 73        | 115                               | s         |                         |
| 74        | 116                               | t         |                         |
| 75        | 117                               | u         |                         |
| 76        | 118                               | v         |                         |
| 77        | 119                               | w         |                         |
| 78        | 120                               | x         |                         |

| HEX Value | Decimal Value/<br>Code Byte Value | Character | Control<br>Keyboard Eqv |
|-----------|-----------------------------------|-----------|-------------------------|
| 79        | 121                               | y         |                         |
| 7A        | 122                               | z         |                         |
| 7B        | 123                               | {         |                         |
| 7C        | 124                               |           | vertical slash          |
| 7D        | 125                               | }         | alt mode                |
| 7E        | 126                               | ~         | (alt mode)              |
| 7F        | 127                               | DEL       | delete, rubout          |

## ***Extended Key Code Reference Table***

| Key                  | At Scan<br>Code | PS2 Scan<br>Code | 3151 | Prefix/Suffix Value<br>Hex = Decimal |
|----------------------|-----------------|------------------|------|--------------------------------------|
| ↑                    | 75H             | 48H              | 63H  | 80H = 128                            |
| ↓                    | 72H             | 50H              | 60H  | 81H = 129                            |
| →                    | 74H             | 4DH              | 6AH  | 82H = 130                            |
| ←                    | 6BH             | 4BH              | 61H  | 83H = 131                            |
| Insert               | 70H             | 52H              | 67H  | 84H = 132                            |
| Delete               | 71H             | 53H              | 64H  | 85H = 133                            |
| Home                 | 6CH             | 47H              | 6EH  | 86H = 134                            |
| End                  | 69H             | 4FH              | 00H  | 87H = 135                            |
| Page Up              | 7DH             | 49H              | 00H  | 88H = 136                            |
| Page Down            | 7AH             | 51H              | 00H  | 89H = 137                            |
| Right Alt            | 11H             | 38H              | 00H  | 8AH = 138                            |
| Right Ctrl           | 14H             | 1DH              | 39H  | 8BH = 139                            |
| Reserved             | 00H             | 00H              | 00H  | 8CH = 140                            |
| Reserved             | 00H             | 00H              | 00H  | 8DH = 141                            |
| Numeric Keypad Enter | 5AH             | 1CH              | 79H  | 8EH = 142                            |
| Numeric Keypad/      | 4AH             | 35H              | 00H  | 8FH = 143                            |
| F1                   | 05H             | 3BH              | 07H  | 90H = 144                            |
| F2                   | 06H             | 3CH              | 0FH  | 91H = 145                            |
| F3                   | 04H             | 3DH              | 17H  | 92H = 146                            |
| F4                   | 0CH             | 3EH              | 1FH  | 93H = 147                            |
| F5                   | 03H             | 3FH              | 27H  | 94H = 148                            |
| F6                   | 0BH             | 40H              | 2FH  | 95H = 149                            |
| F7                   | 83H             | 41H              | 37H  | 96H = 150                            |

| Key                      | At Scan Code | PS2 Scan Code | 3151 | Prefix/Suffix Value<br>Hex = Decimal |
|--------------------------|--------------|---------------|------|--------------------------------------|
| F8                       | 0AH          | 42H           | 3FH  | 97H = 151                            |
| F9                       | 01H          | 43H           | 47H  | 98H = 152                            |
| F10                      | 09H          | 44H           | 4FH  | 99H = 153                            |
| F11                      | 78H          | 57H           | 56H  | 9AH = 154                            |
| F12                      | 07H          | 58H           | 5EH  | 9BH = 155                            |
| Numeric +                | 79H          | 4EH           | 00H  | 9CH = 156                            |
| Numeric -                | 7BH          | 4AH           | 7CH  | 9DH = 157                            |
| Numeric *                | 7CH          | 37H           | 00H  | 9EH = 158                            |
| Caps Lock                | 58H          | 3AH           | 14H  | 9FH = 159                            |
| Num Lock                 | 77H          | 45H           | 00H  | A0H = 160                            |
| Left alt                 | 11H          | 38H           | 00H  | A1H = 161                            |
| Left Ctrl                | 14H          | 1DH           | 11H  | A2H = 162                            |
| Left Shift               | 12H          | 2AH           | 12H  | A3H = 163                            |
| Right Shift              | 59H          | 36H           | 59H  | A4H = 164                            |
| Print Screen             | Multiple     | 00H           | 00H  | A5H = 165                            |
| Tab                      | ODH          | OFH           | 0DH  | A6H = 166                            |
| Shift Tab                | 8DH          | 8FH           | 65H  | A7H = 167                            |
| Enter                    | 5AH          | 1CH           | 5AH  | A8H = 168                            |
| ESC                      | 76H          | 01H           | 08H  | A9H = 169                            |
| Left ALT Make            | 11H          | 36H           | 00H  | AAH = 170                            |
| Left ALT Break           | 11H          | B6H           | 00H  | ABH = 171                            |
| Left CTRL Make           | 14H          | 1DH           | 00H  | ACH = 172                            |
| Left CTRL Break          | 14H          | 9DH           | 00H  | ADH = 173                            |
| *Left ALT + 1 character  | 11H          | 36H           | 00H  | AEH = 174                            |
| *Left Ctrl + 1 character | 14H          | 1DH           | 00H  | AFH = 175                            |
| *Send                    |              |               | 58H  | C0H = 192                            |
| Clear                    |              |               | 6FH  | C1H = 193                            |
| Jump                     |              |               | 76H  | C2H = 194                            |
| Send Line                |              |               | 7EH  | C3H = 195                            |
| Erase EOF                |              |               | 6DH  | C4H = 196                            |
| Send - Make Only         |              |               | 58H  | C5H = 197                            |

\* Example:

1st Configurable Prefix = 174

2nd Configurable Prefix = 065

Scanner will transmit <left ALT Make> "A" <Left ALT Break>





# ***Technical Assistance***

Contact information for technical support, product service, and repair can be found at [www.youjjeaidc.com](http://www.youjjeaidc.com).

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