PSC®

VS800 Scanner

User's Guide

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Disclaimer

Reasonable measures have been taken to ensure that all information contained in this manual is complete and accurate. However, PSC reserves the right to change any specification at any time without prior notice.

Table of Contents

Introduction

The VS800™ scanner from PSC® delivers high performance, full-functioned bar code scanning in a small housing to save counter space. The product, with its rugged industrialized enclosure, is designed for durability, prolonged life, and low maintenance costs. With the multiple mounting options, operators can adjust the scanner to create a convenient, comfortable, and productive work environment.

The VS800™ scanner's design minimizes the need for user training and accepts "presentation" and "sweep" scanning. The aggressive, omnidirectional scan pattern minimizes the need to adjust or orient individual items. The scanner is virtually maintenance free. Periodic cleaning of the scanner and the scan window is all that's required.

Figure 1. VS800 Scanner

About this Guide

This User's Guide provides basic instructions on the setup, operation, and care of the VS800 scanner. It is assumed that the user has a background and a familiarity with bar code scanning.

Operational Modes

The VS800 scanner has three operational modes:

Selftest Mode

The VS800 scanner automatically performs a Selftest on initial power-up. The Selftest checks the functionality of the internal circuits. If no problem is found, the scanner displays a single bright flash of the LED light, and sounds four beeps. It then transitions into the Operational Mode. Other tones indicate if a problem was detected – see the Troubleshooting section for details on possible causes and solutions.

Operational Mode

This is the scanner's normal operating mode. In this mode the scanner is ready to read bar code labels and transmit data to the host POS Terminal.

Sleep Mode

After a prolonged period of inactivity, the laser and the motor turn off to save power and prolong component life. Pressing the switch or passing an object in front of the scanner, causes the scanner to "wake-up." The laser and motor timeout periods are programmable using the special bar code labels found in the PSC *Duet/VS800 Programming Guide* (Part Number R44-1740).

Controls and Indicators

Visual Indicator

The Light Emitting Diode (LED) provides a visual indicator of the various system operations (reference Figure 2):

- On Dim – scanner is operational and ready to scan.

- Flashes once brightly after reading a bar code – indicates a "good" scan. Usually accompanied by a single tone from the speaker.

- Flashes from dim to bright once per second – indicates the scanner is in the Sleep Mode due to an extended time of inactivity.

- Flashes repeatedly accompanied by a series of tones – indicates a failure has occurred. If the scanner exhibits this behavior or behaves erratically, contact your service personnel.

Audible Indicator

A Speaker produces an audible indicator of scanner operation:

- Normal – A single tone indicates the scanner read a "good" bar code.

- Passed Selftest – A series of four tones when power is first applied indicates the scanner has passed the Selftest.

- Error Tone – A series of tones sound to alert the operator of a possible system or component failure. (Refer to *Troubleshooting* section).

## Switch Button

Pressing the Switch momentarily "wakes up" the scanner if it is in the Sleep Mode.

Motion Sensor

Located inside the Front Scan Window, the motion sensor detects a change in ambient light levels caused by moving an item in front of the scanner, and wakes up the scanner if it is in Sleep Mode. Figure 2, below, shows the indicators, controls, and connectors of the VS800 scanner.

Figure 2. Controls, Indicators and Connectors
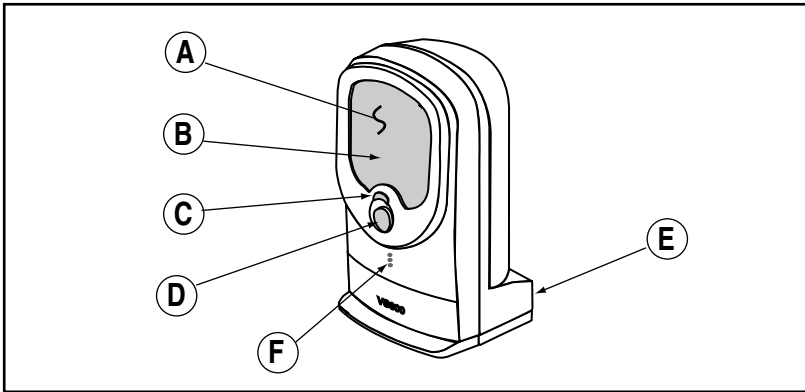
A. **Scan Window**
B. **Motion Sensor (Inside)**
C. **Visual Indicator (LED)**
D. **Switch**

E. **Interface/DC Power cable connector**
F. **Speaker**

Interface Connector

This connector provides the link between the scanner and the host terminal. It transmits bar code data and, depending on your host system configuration, can also supply DC power to the scanner from the host Terminal (Power-Off-Terminal).

DC Power Connector

The optional AC/DC power adapter provides DC Power to the scanner, either via a special DC wire extending out of the Interface cable, or via a special DC connector on the Interface Connector.

The type of DC connector used depends on your host terminal's configuration.

Unpacking

Before you open the VS800 scanner shipping carton, inspect the exterior of the carton for damage. If the carton is torn or crushed, carefully open and inspect the contents to ensure that no damage has occurred. Notify your carrier immediately if you think that there has been any damage.

Figure 3. Package Contents
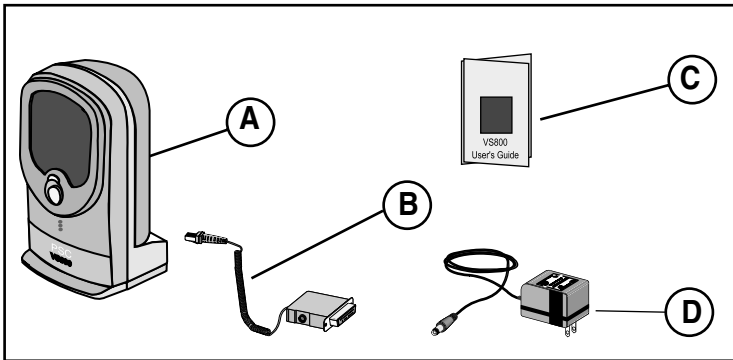
A. VS800 Scanner

B. Interface Cable[1] (Optional)

C. User's Guide (This manual)

D. AC/DC Power Adapter[1]

[1] Your hardware may vary from illustration based on your POS Terminal.

If anything is missing or the wrong interface cable has been included with your scanner, contact your dealer/distributor or call your local PSC office.

Installation

The scanner can be mounted in an optimal position for comfort and increased efficiency. Figure 4, below, shows the mounting options available for the VS800 scanner. Installation instructions are packaged with the optional mounting hardware.

Figure 4. Mounting Options for the VS8000 Scanner
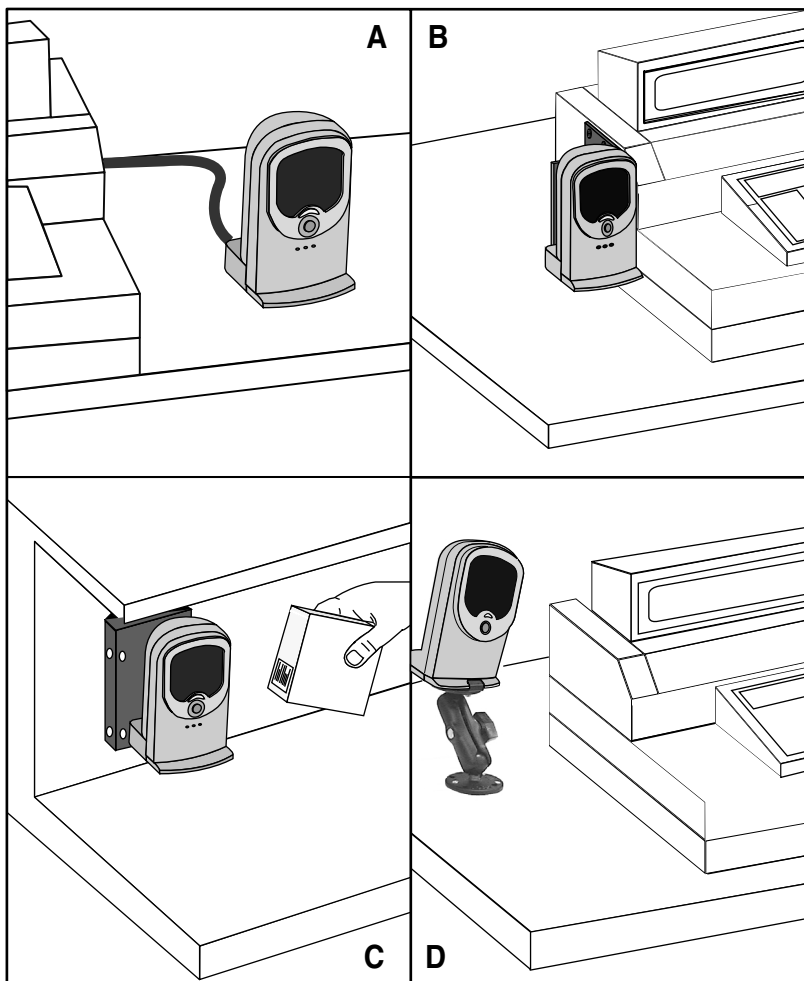
A. Countertop	**B. Side of POS Terminal**
C. Under a Shelf	**D. Left or Right of POS**

Your VS800 support hardware may differ from the illustration depending on your POS environment.

Connecting the Scanner

The VS800 scanner connects to the host POS terminal via an interface cable. The cable connects to the scanner with a modular connector and to the host terminal with the connector required by the host (RS-232, OCIA, Keyboard Wedge, Wand or IBM POS). Figure 5 shows how to connect the scanner to the store host terminal. The type of DC power connector depends on your existing store host terminal.

DC power to the scanner is supplied by one of two methods:

1. From the host terminal (Power-Off-Terminal) through a single cable that carries both data and DC power.

2. From an optional AC/DC power adapter that provides DC power, either through the side of the connector to the POS System, or through a branch in the Y-cable connection.

> **DANGER**

Never work on equipment, connect or disconnect signal cables during periods of lighting activity.

Always power-down (switch off) all equipment prior to connecting cables.

Power-Off-Terminal (P.O.T.)

1. Connect the interface cable to the scanner.

2. Connect the other end of the interface cable to the host terminal.

AC/DC power supply (if required)

1. Connect the interface cable to the scanner.

2. Connect the DC barrel plug into the side of the connector at the POS end of the cable, or into the DC connector of the power branch of the Y-cable.

3. Connect the interface cable to the host terminal.

4. Plug the AC/DC power adapter into a functional AC outlet.

Power-Up Procedure

The system power-up procedure may vary depending on the requirements of your Point-of-Sale (POS) system. Check with your system supervisor and/or refer to the terminal operator's manual for proper power-down and power-up procedures for your system.

Figure 5. Connecting the Scanner to the Host Terminal
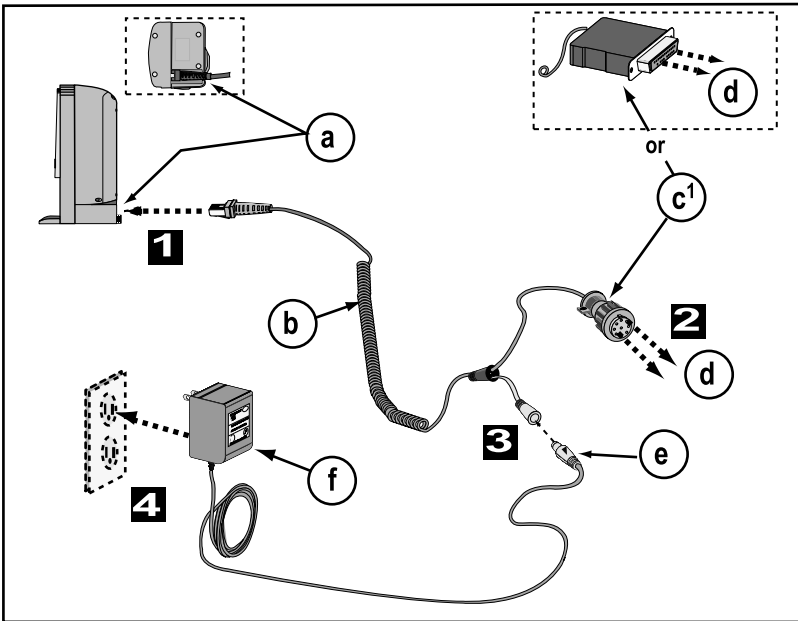
a. **Interface Connector**
b. **Interface Cable**
c. **Host Terminal Connector[1]**
d. **To Host Terminal**
e. **DC Power Connector**
f. **AC/DC Power Adapter**

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[1] Your Host Terminal Connector may vary from the illustration.

Verifying Scanner Operation

Power-up

Power-up the system. The scanner will automatically run a Power-Up Selftest.

Passes Selftest

The scanner should emit four successive tones indicating that it has passed the Power-Up Selftest routine. The LED indicator lamp flashes brightly once. The LED then transitions to a dim condition, (or Off if so programmed) indicating the scanner is ready for operation. Scan a few items to verify that data is properly communicated between the scanner and your POS terminal.

Fails Selftest

If the scanner powers-up, but the LED lamp begins flashing and the speaker repeats a series of error tones, or the scanner does not read bar codes, or behaves erratically, go to the section titled *Troubleshooting.*

How To Scan

The VS800 is ready to scan a bar code when the LED light is on dim[1] (Operational Mode) or the LED is flashing slowly (Sleep Mode). The scanner's specially designed scan pattern minimizes the need for the operator to orient the item for scanning.

Scan Volume and Scan Depth

As shown in Figure 6, the scan volume extends approximately eight inches (20 cm) in front of the scan window. The optimal scanning distance is at the center of the scan volume, or approximately four inches (10 cm) from the window. The scanner can read bar codes either in the sweep or presentation mode to accommodate different user styles. (See Figures 7 and 8).

Figure 6. Scan Volume and Scan Depth
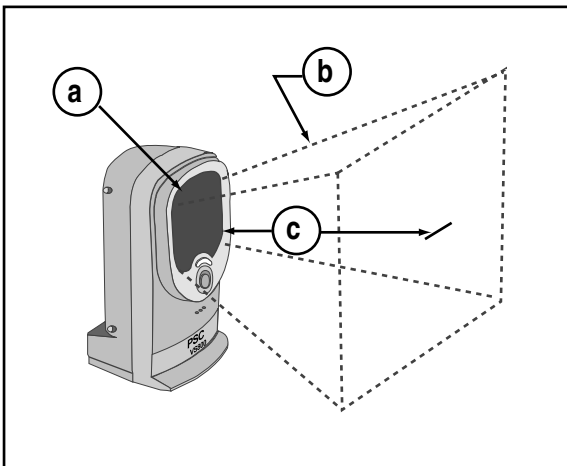
a. **Scan Window**
b. **Scan Volume**

c. **Scan Depth (8 inches 20 cm)**

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1.   Unless the LED is programmed to the Off condition by using special programming labels found in the Duet/VS800 Programming Guide (R44-1740).

Sweep Scanning

To perform a sweep scan, move (sweep) the product, with the bar code facing the front window, laterally through the scan volume.

Figure 7. Sweep Scanning
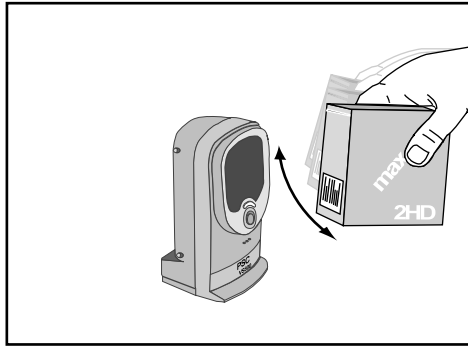
Presentation Scanning

For optimum scanning performance, face the bar code towards the center of the front scanner window. Move the product with the bar code towards the scanner, as shown in Figure 8.

Figure 8. Presentation Scanning

Customizing Your Scanner's Operation

Customizing or programming a scanner provides maximum flexibility and allows a single scanner to serve many installation environments. Since the VS800 scanner supports a variety of interfaces, configurations and bar code symbologies, it may be necessary to customize your scanner to meet the specific requirements of your retail environment. Customizing the scanner is done by scanning special bar codes which change the way the scanner operates.

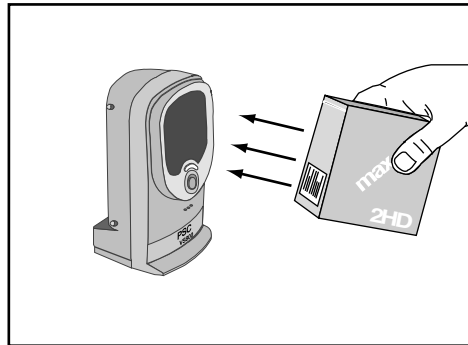If the scanner does not read bar codes and/or transmit data the way you need it to, contact your dealer or distributor for more programming options.

Changing The Volume

There are three possible volume settings. Each time you scan the bar code below, the scanner's volume changes to the next higher level. If the current volume is the highest selection, the volume changes to the lowest setting. If the scanner is powered off or reset, this setting returns to the factory default and will need to be set again to your desired setting. For permanent volume change, see the *Duet/VS800 Scanner Programming Guide*, (P/N: R44-1740).

Increment Volume

Other Programmable Features

The table below shows some of the major features that may be changed using the Duet/VS800 Scanner Programming Guide.

Symbology Activation/Deactivation

UPC/EAN/JAN:
- UPC-A and UPC-E   **Add ons**
- EAN-8 and EAN-13   – UPC P2 and UPC P5
- Jan-8 and JAN -13   – Code 128
- UPC-A with EDGE™ stitching[1]

Industrial Codes:
- Interleaved 2 of 5   – Code 128
- Code 39 (variable length)   – Codabar
- Code 39 (fixed length label stitching)
- MSI/Plessey

Other Features:
- two label read
- Autodiscriminate UPC EDGE™ with Add-ons and 5 Industrial codes.

Communication Interface Activation/Deactivation

Single Interfaces:
- Wand Emulation   – OCIA
- RS-232   – IBM 46xx
- Keyboard Wedge

Dual Interfaces:
- RS-232 and IBM 46xx   – RS-232 and OCIA
- RS-232 and Keyboard-Wedge

Triple Interfaces:
- RS-232, IBM 46xx, and Keyboard-Wedge

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1. This optional feature is not available on all models. Contact your PSC dealer or distributor for more information.

Programmable Scanner Features

User Indicators Parameters:
       – Speaker Volume Selection
       – Speaker Tone Pitch
       – Speaker Tone Length

Sleep Mode:
       – Motor Timeout
       – Laser Timeout

Other programmable features include

– Supplemental labels   – Label ID prefixes
– Two label configuration   – Coupon Processing

Contact PSC for more information on these programmable features.

Routine Maintenance

The VS800 scanner's rugged design requires little maintenance. Routine maintenance consists of cleaning the scanner and Scan Window periodically.

Cleaning the Scan Window

Regular cleaning of the window surface of the scanner reduces residue buildup and helps ensure the system's highest performance.

WARNING

DO NOT USE ALCOHOL, PETROLEUM, ACETONE, ABRASIVE CLEANER OR ABRASIVE PADS. THEY WILL HARM OR SCRATCH THE SURFACE.
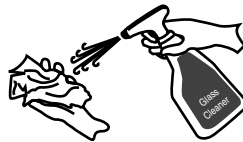

Use these procedures for cleaning the scan window.

NOTE

The scan window is a high quality, optical grade plastic. Use a soft lens cloth and non-abrasive cleaner to avoid scratching.

1. Spray the cleaner on a soft, lint-free cloth and gently clean the window surface.

2. Completely wipe the window dry with a soft, lint-free cloth.

Specifications

Physical Specifications

Scanner

Height = 5.90" (15.0 cm)
Width = 3.50" (8.9 cm)
Depth = 3.00" (7.6 cm)
Weight = 12.0 oz. (311g)

AC/DC Power Adapter

Height = 2.80" (7.0 cm)
Width = 2.10" (5.3 cm)
Depth = 2.75" (7.0 cm)
Weight = 10.0 oz. (290g)

Environmental Specifications

	Operating	Storage
Temperature	0^0 C to + 40^0 C 32^0 F to 104^0 F	-40^0C to + 70^0 C -40^0 F to 158^0 F
Humidity	5-95 % (non condensing)	5-95% (non-condensing)
Ambient Light	200 foot candles Maximum (2153 Lux)	

Electrical Specifications

Scanner Input Power Specifications

Operational voltage	4.7 to 14 volts
DC Power Consumption	3.00 watts max. (single interface)
Input Voltage Ripple	500mV DC Maximum

External AC to DC Power Adapters

Output: 12 VDC @ 600 mA

Power-Off-Terminal

If the host terminal supplies the power, the host must provide power compatible with the Input Power Specification. For example, a 12V system must provide at least 250 mA (3 Watts).

WARNING

Use only AC/DC Power Adapters approved by PSC for the VS800 scanner. Use of other power adapters may cause damage to the product which is not covered by the factory warranty.

NOTE: Specifications subject to change without notice.

AC to DC Power Adapters

The AC to DC power adapters available for the VS800 scanner are listed in the table below. Power Adapters for other countries are available.

Country	Voltage	Frequency
Australia	240	50 HZ
Canada	120	60 HZ
France	220	50 HZ
Germany	220	50 HZ
Italy	220	50 HZ
United States	120	60 HZ
Japan	100	50 HZ
Mexico	120	60 HZ
Scandinavia	220	50 HZ
Spain	220	50 HZ
United Kingdom	240	50 HZ

Laser Safety Information

The VS800 scanner requirements for laser safety are based on IEC Standard Publication 825-1:1993 and EN60825-1:1996 (Europe), CDRH 21CFR, Part 1040 (United States and Canada), and AS 2211:1997 (Australia).

- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light, and void the factory warranty.

- Do not attempt to open or otherwise service any component in the optics cavity. Opening or servicing any part of the optics cavity by unauthorized personnel may violate laser safety regulation, and will void the factory warranty. The optics system is a factoryonly repair item.

Troubleshooting

If the scanner does not work after following the previous instructions, refer to the chart below for possible problems and how to fix them.

Problem	Possible Causes/Solutions
The scanner fails to power-up. The LED is not lit and no tones are emitted.	The interface cable is loose or not plugged into the POS Terminal. Verify that the interface cable is connected to the POS Terminal Connector. Verify that the scanner interface is compatible with the POS Terminal. If the scanner uses an external power adapter, verify that the power adapter is plugged into a functional AC outlet. Make sure the DC connector is attached to the DC Y-Conector, or into the DC receptacle on the interface cable. If the scanner is still not functional, try testing using a known good PSC approved power adapter. If the scanner is provided power by the host terminal, move the scanner to a known good terminal and test. If the scanner still does not power up, contact your system support personnel.
The LED flashes brightly, and multiple tones are emitted.	This condition indicates that the scanner may have an internal malfunction. Contact your system support personnel.
The scanner does not read the bar code properly or behaves erratically.	Verify that the scan window is free of dirt and smudges. Check the bar code quality, i.e., torn, faded, or wrinkled.

Regulatory Agency Information

FCC Statements

This device complies with Part 15 of the FCC rules and the Radio Interference Regulation of the Canadian Department of Communications for a Class A computing device. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found compliant with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

The electrical socket for this product must be located near the scanner and be readily accessible to the operator.

- This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

- Cet appareil numerique de la classe A respecte toutes les exigences du Reglement sur le material broilleur du Canada.

Scanner Labeling

This illustration shows label placement ONLY. For actual regulatory, patent and other applicable information, view the labels on the product itself, or call your nearest sales or service office.
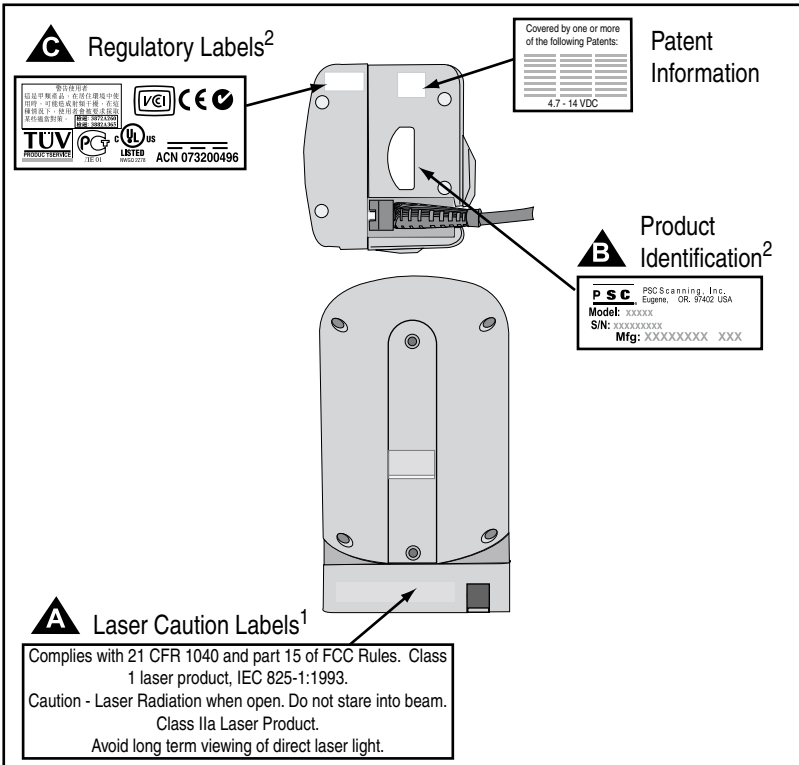
A. Laser Caution Labels   **C.   Regulatory Labels**
B. Product Identification

1. These labels are molded into the exterior of the scanner enclosure.
2. These labels are affixed to the exterior of the scanner enclosure.

WARNING

Unauthorized removal of labels from the scanner voids the warranty.

Standard Warranty

PSC warrants to Customer that PSC's products will be free from defects in materials and workmanship for a period of one year from product shipment.

In order to obtain service under this Warranty, Customer must notify PSC of the claimed defect before the expiration of the Warranty period and obtain from PSC a return authorization number for return of the product to designated PSC service center. If PSC determines Customer's claim is valid, PSC will repair or replace product without additional charge for parts and labor. Customer shall be responsible for packaging and shipping the product to the designated PSC service center, with shipping charges prepaid. PSC shall pay for the return of the product to Customer if the shipment is to a location within the country in which the PSC service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

Warranty is subject to the limitations and exclusions set forth below. Warranty set forth above is in lieu of any other warranties, expressed or implied, including merchantability and fitness.

Exclusions

Warranty coverage shall not apply to any claimed defect, failure or damage which PSC determines was caused by: improper use of product; tampering or unauthorized repair attempts; failure to provide product maintenance, including but not limited to cleaning of the scan window(s) in accordance with product manual; installation or service of product by other than PSC representatives; use of product with any other instrument, equipment or apparatus; modification or alteration of product. External cables and replacement of scan windows due to scratching, stains or other degradation will not be covered under the Warranty. Products returned for service must be accompanied by the original external power supplies for performance of service.

Limitations of Liability

PSC repair or replacement of defective product as set forth above is the customer's sole and exclusive remedy on account of claims of breach of warranty or product defect. Under no circumstances will PSC be liable to customer or any third party for any lost profits, or any incidental, consequential indirect, special or contingent damages regardless of whether PSC had advance notice of the possibility of such damages.

Assignment

Customer may not assign or otherwise transfer its rights or obligations under Warranty except to a purchaser or transferee of product. No attempted assignment or transfer in violation of this provision shall be valid or binding upon PSC.

Risk of Loss

Customer shall bear risk of loss or damage for product in transit to PSC. PSC shall assume risk of loss or damage for product in PSC's possession or product being returned to Customer by PSC, except such loss or damage as may be caused by the negligence of Customer, its agents or employees. In the absence of specific written instructions for the return of product to Customer, PSC will select the carrier, but PSC shall not thereby assume any liability in connection with the return shipment.

NOTES

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DECLARATION OF CONFORMITY

PSC hereby declares that the equipment specified below has been tested and found compliant to the following Directives and standards.

Directives:	**EMC 89 / /336 / EEC** **Low Voltage 73 /23 /EEC**
Standards:	**EN55022-B EN60825-1** **EN50082-1 EN60950**
Equipment Type:	**Bar code Scanning Equipment**
Product:	**VS800^{TM} Scanner**

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Printed on recycled paper

PRINTED WITH
SOY INK

R44-2000 (Rev.C)

Printed in USA (12/99)