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- *DSVII-SC*® is a registered trademark of *Datastrip*.
- *Windows* and *WinCE* are registered trademarks of Microsoft Corporation.
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Revision History:

1.00	5/25/2004	Preliminary Draft
1.10	2/16/2006	Revisions to Regulatory Statements
1.11	4/26/2006	Added DS AC Adapter and Linecord Req'mt.

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1 Overview

The DSVII-SC® (Figure 1) is a portable, handheld computer specifically designed for security, law enforcement, border control and positive I.D. verification applications. It features the ability to interface with both contact and Contactless SmartCard and wireless networking. An integrated fingerprint sensor enables biometric verification of identity. Please refer to the following for general specifications:

- Integrated 500 DPI fingerprint sensor.
- Color LCD display, 3.5" (88.9mm) diagonal measure. LED backlighting.
- Integrated Smart Card (ISO-7816) card reader.
- Integrated Contactless Smart Card reader (ISO-14443A/B).
- Built-in Windows-CE.net-4.2 operating system.
- CPU: 198MHz Hitachi SH4 processor.
- Memory: 64Mbytes SDRAM, 128Mbytes FLASH.
- One external Type-I/II Compact Flash slot.
- One RS-232 serial port (full handshaking control signals).
- One 10/100BaseT Ethernet port.
- Two USB-1.1 "host" ports, for an external keyboard, mouse or other peripherals.
- Internal, replaceable dual Lithium-Ion battery pack, external DC-power & charging jack.

Figure 1: DSVII-SC®



2 Unpacking & Inventory

Referring to Figure 2, carefully open the shipping box and use the following checklist to verify the contents. Please note that there is a variation in the models of some of the items depending on the battery supplied and the country of destination. Therefore, Figure-2 may not correspond exactly to the shipping box contents.

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Inventory:

- DSVII-SC® (one Li-Ion battery already installed).
- External 110/220VAC power adapter.
- AC-mains power cord for external power adapter. (Plug depends on country of destination)
- Documentation, including: User Manual (on CD), Release Notes, End User License Agreement, and Quick-Reference Guide.

Figure 2: Shipping Box Contents



+ Please retain the shipping box in the event you need to return your product for service.

3 Initial Setup

- Each unit is shipped with one Li-Ion battery installed, though disconnected. To enable the battery, you will need to remove the rear cover and plug the battery connector into the mating connector on the DSVII-SC®.
- The battery is shipped fully charged, however, there is a small amount of self-discharge even when the battery is disconnected. It is **highly recommended** that you fully charge the internal battery before use to maximize operating time before recharging is required. The unit will operate when connected via an external power supply regardless of the state of the internal battery.
- The DSVII-SC® contains an integrated charging circuit. No external charger for batteries is provided nor required.

✚ Please refer to Section 7, “Battery Charging and Replacement”, for additional instructions and safety information.

4 Approved Uses

✘ The DSVII-SC® is **NOT APPROVED** for use in any life-support capacity, or applications where lives may be put at risk.

5 Third Party Software

The software packaged loaded into each DSVII-SC® may contain software modules (for example: WindowsCE.net-4.2, fingerprint-matching algorithms, image-compression algorithms, etc.) which are licensed from 3rd-party developers. These modules are licensed as-is. As such, *Datastrip* makes no representation, neither expressed nor implied, about the reliability, performance or suitability of these licensed software components.

6 Operation

Startup Sequence:

- To begin operation, depress and hold the power button on the front of the DSVII-SC® unit.
- Release the button when a single beep is heard.
- Two additional beeps acknowledge that power has been activated. The keypad and LCD backlights will turn on.
- The on-board firmware performs self-tests prior to loading WinCE and the application software.

7 Battery Charging and Replacement

The DSVII-SC® has internal space for up to two Li-Ion battery packs. Each pack provides 3000mAh of capacity. The unit can be operated with none, one, or two batteries installed. One battery is standard.

Under normal operating conditions, the battery does not need to be removed. The DSVII-SC® has an internal charging circuit that can maintain a proper charge on the batteries whenever the unit is connected to the external power supply.

The batteries may be replaced by opening a battery-access cover on the rear of the DSVII-SC®. A slotted screwdriver or almost any coin can be used to operate the ¼ turn fasteners holding the battery compartment cover in place.

When replacing the battery, ensure that the battery contacts are aligned with the battery terminals inside the unit. Replace the battery cover and tighten the screw (**do not over-tighten**). Incorrect battery installation will render the unit inoperable until the battery is properly re-installed.

- ✦ **Note: The charging time for a fully discharged battery will be approximately 2 hours (or 4 hours for two batteries).**

DSVII-SC® Battery



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Once the cover is removed, unplug either battery by squeezing the connector at the end of the battery cable. This will unlock the connector allowing it to be withdrawn.

Note the battery contacts within the battery compartment. Ensure that these contacts are aligned with the battery's contacts when replacing the battery:

N

CAUTION! Use **ONLY** approved replacement batteries and power adapters as provided by Datastrip.

N

CAUTION! Battery has a risk of **FIRE, EXPLOSION** or **BURNS**. **DO NOT:** short-circuit the battery terminals; crush, puncture, disassemble or otherwise damage the battery's case; operate, charge or store the battery at temperatures above 100°C; incinerate or immerse in water.

+

DISPOSAL: Always consult and obey all international, federal, provincial/state, and local hazardous waste disposal laws. Certain jurisdictions require recycling of this spent product.

8 Cleaning

The LCD screen and fingerprint sensor may need periodic cleaning to ensure continued performance. Use only the Datastrip-approved cleaning-kit, to remove dirt, oils, grease, dust and foreign matter.

To clean the LCD display or fingerprint sensor:

Make sure the DSVII-SC®

- Power is OFF.
- Unplug the unit from any external power source.
- Using the cleaning wipes from the cleaning kit, wipe the surface of the LCD screen and fingerprint sensor. Allow the cleaning solvent to dry completely

9 Troubleshooting

- **UNIT DOES NOT POWER UP** – The battery may be not plugged in, or is completely discharged. Open the battery access cover and verify that at least one battery is properly installed. Additionally, use the external AC power adapter to operate the unit and simultaneously charge the battery. **Please refer to Section 7 Battery Charging and Replacement on Page 7.**
- **Unit generates a single “error” beep tone, and the power LED flashes RED once.** – This is an indication that the internal battery is very low, and does not have sufficient charge to run the unit at all. Plug in the AC power adapter to charge the battery.

10 Hardware Specifications

- **Physical:**
 - Weight: Under 3 lbs. 5 oz. (1.375 Kg), including internal battery.
 - Overall size: 11.5" x 5.5" x 2.1" (293.3mm x 139.4mm x 53.3mm).
- **Integrated Fingerprint Sensor:**
 - Solid-state capacitive technology sensor. Approximately 500 DPI resolution.
- **Display:**
 - Type: High-brightness color LCD display panel, 240H x 320V (pixels) resolution.
 - Size: 3.5" (88.9 mm) diagonal measure.
 - Backlight: White LED backlight. Adjustable.
- **Built-in Software:**
 - Operating System: Windows-CE.net-4.2, stored on an internal FLASH memory CF card.
 - File Storage: Internal FLASH memory CF card.
- **Processor:** Hitachi SH4 processor, 66 MHz bus, 198 MHz core speed.
- **Memory:**
 - 64Mbytes SDRAM.
 - 32Mbytes boot-FLASH.
 - 128Mbytes internal FLASH memory CF card (standard).
- **Expansion Slots:**
 - One external Type-I/II Compact Flash slot.
 - Compatible with networking, ATA-Flash storage cards, and other peripherals.
- **Serial Interfaces:**
 - One RS-232 serial port (full handshaking control signals).
- **USB:** Two USB-1.1 "host" ports, for an external keyboard, mouse or other peripherals.
- **Smart Card:**
 - Integrated Smart Card slot, compatible with ISO-7816 (6-contact) type cards.
 - Integrated Contactless (ISO-14443-A/B) transceiver.
- **Keypad:**
 - F1 through F4, Power.
 - Rubber-membrane, green LED backlight (adjustable).
- **Speaker:** Integrated 23mm diameter speaker.
- **Power Source:**
 - Internal, user-replaceable dual Lithium-Ion battery packs, rated at 7.4 VDC @ 3000 mAH each.
 - External DC-power & charging jack. Input = 12-24VDC range, 2 Amps max.
- **AC Power adapter:**
 - 100-240 VAC, 50/60 Hz universal input.
 - 12 VDC @ 2.5 Amps maximum output.
- **Environmental:**
 - Temperature: +5°C to +40°C (operating), -25°C to +75°C (storage).
 - Humidity: 95% RH, non-condensing at +40°C.

11 Hardware Features

11.1 Keypad

The DSVII-SC® comes equipped with an intuitive 4-function keypad, shown at right. The keys are vertically aligned along the left side of the LCD display, enabling application software to position virtual “buttons” appropriately. These keys are programmed as WinCE standard “F1” through “F4” keys, though this can be changed by a registry setting.



Below the function keys is the power switch. You must depress and hold it until a single beep is heard, then immediately release it for an additional two beeps. Holding the button too long will cause an “error” type beep sound and the system will not be powered up or down, as the case may be. This procedure helps to guard against accidental activation or shutdown of the system.

11.2 Fingerprint Sensor, LCD & Indicators

The top of the front case features the fingerprint sensor (upper left) and LCD display. The LCD is color, and comes with white-LED backlighting that can be adjusted through a control-panel setting.

The power switch has a bi-color (red/green) backlight indicator, which identifies whether the system is on, charging, or running low on battery power.

11.3 Serial Ports

The DSVII-SC® has one external serial port available for interfacing to a host computer or other external equipment. Shown here is the I/O connector panel, which includes the serial port, USB ports, CF-slot (not visible) and 10/100 LAN port.



+ **NOTE:** For developers, establishing an “ActiveSync” serial connection with a host-PC will require a Datastrip serial-port cable plus a null-modem cable. These are available through Datastrip Inc., Datastrip Ltd, or your authorized Datastrip reseller. The serial cable and null-modem cable is supplied free with Datastrip2D SDK.

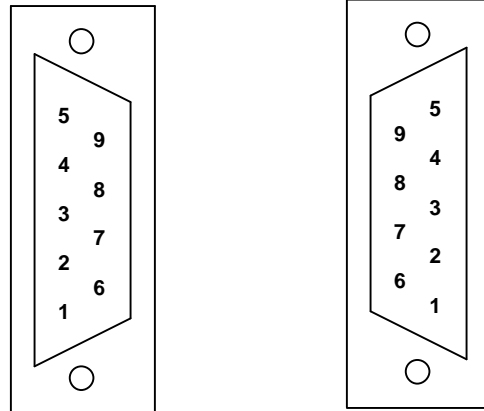
Serial port electrical specifications

- Signaling type: RS-232 compatible.
- Output signals: TXD, RTS, DTR.
- Input signals: RXD, CTS, DSR, DCD, RI.
- Interface chip: Maxim MAX3243 or equivalent.

If a specific application requires detailed knowledge of the interface drive capability, latch-up immunity, safety, or other signaling level information, please refer to manufacturer datasheets for the interface chips listed above.

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To connect the DSVII-SC® to an external device, use the DSVII-SC® Serial Interface Cable (optional). It is configured to look like a typical “COM:” port on a desktop-PC. The cable is pictured below:



Datastrip P/N 3008-xxxxx-xx
(This view is looking into the connector on the cable)

X **WARNING: External equipment should connect only to the 9D-Subminiature male connector – NEVER directly to the 9-pin connector on the DSVII-SC® unit.**

The following table details the signal configuration that exists when this cable is used on the COM1: port of the DSVII-SC®:

COM1: Signal Connections			
DSVII-SC® 9-Pin Connector	Signal Direction	9D-Sub Male Connector	RS-232 Signal Name
1	ç è	1	
2	ç	2	RXD
3	è	3	TXD
4		4	
5	ç è	5	Sig. Gnd
6		6	
7		7	
8		8	
9	ç	9	RI
Shell	ç è	Shell	Shield

11.4 External Compact Flash Slot

The DSVII-SC® has one Type-I/II Compact Flash slot. It is compatible with “ATA-Flash” storage cards, NE-2000-compatible network adapters, and various modem and serial interface devices.

11.5 USB Ports

The DSVII-SC® supports two standard USB ports (Ver-1.1), compatible with either low (1.5Mbps) or high (12Mbps) speed devices. These are “host” type ports, compatible with peripheral devices only (keyboard, mouse, etc.). DO NOT connect this directly to a USB port on a host-PC.

11.6 Smart Card Slot

The DSVII-SC® has an integrated Smart Card reader. It is compatible with contact-type SmartCard (ISO-7816, 6-contact style). Cards need to be inserted with the contacts facing UP.

In addition, there is an integrated Contactless SmartCard transceiver and antenna. The antenna is positioned in a place perpendicular to the LCD screen, on the same side of the unit as the SmartCard slot. The typical operating range is 0 to 3 cm.



12 Regulatory Compliance Statement

The DSVII-SC is in conformity with the requirements of the Low Voltage Directive (72/73/EEC), EMC directive (89/336/EEC) as amended by (93/68/EEC) and R&TTE Directive (1995/5/EC).

FCC Declaration:

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

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

Note: The DSVII-SC is fully compliant with the requirements of FCC Part 15 and the EU Low Voltage Directive (72/73/EEC) for Conducted Emissions only when used with the Datastrip-supplied External Power Supply (DS P/N 3090-01225-02) and External Power Supply AC Linecord (DS P/N 3008-60163-01).

13 Service & Support

Technical support is available through the following contacts:

Home page: www.datastrip.com for Datastrip corporate information
Tech Support: www.datastrip.com Extranet for tips, news, documentation and software downloads.

For customers inside North and South America:

Address: Datastrip, Inc.
211 Welsh Pool Road, Suite 100
Exton, PA 19341
E-mail: support@datastrip.net
Phone: (610) 594-6130
Fax: (610) 594-6065
Office Hours: 8:30 a.m. to 5:30 p.m. EST/EDT

For Customers outside North and South America:





Address: Datastrip Ltd.
Unit 7, Thame Park Business Centre
Wenman Road
Thame
Oxon
OX9 3XA
E-mail: support@datastrip.com
Phone: +44 (0) 1844 215668
Fax: +44 (0) 1844 215669
Licensing: +44 (0) 1844 215668
Office Hours: 0900 to 1730 GMT/BST.

- +** To return your DSVII-SC® for service, upgrade or repairs, please contact the tech-support department by email or telephone. An RMA will be issued, and should be clearly marked on the outside of your shipping carton. Please be certain to provide adequate shipping insurance to safeguard the contents. For international shipments, please include a declaration of value, or other relevant legal documents that are required for shipment of this type of equipment.
- +** Please use the original shipping carton and packing materials whenever possible.
- +** Please ensure you send your package PREPAID or it will not be accepted. Do not ship collect. Datastrip will return all RMA equipment shipping-prepaid as well. Failure to follow this requirement will result in LENGTHY delays while your package is held by Customs.
- +** For parts, supplies and accessories, place your order through your authorized Datastrip reseller, or by contacting Datastrip Limited.



Datastrip thanks you for purchasing this DSVII-SC®. If you have any comments, suggestions, questions or problems we would like to hear from you.

14 Available Parts, Supplies and Accessories

The following replacement parts and supplies are available through the technical-support contacts given above, or through your authorized Datastrip reseller:

Description	Datastrip P/N
DSVII-SC® Serial Interface Cable: 	3008-00005-01
Battery Pack, Lithium-Ion, Polymer Gel, 7.4V, 3000 mAH 	3091-03000-01
DSVII-SC® External Power Supply: (Universal 90-240VAC 50/60Hz input) 	3090-01225-02
External power supply AC line-cord: (USA): 	3008-60162-02

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Description	Datastrip P/N
<p>Battery Compartment Cover and Endcap Screws and Retaining Clips</p> 	<p>Stud 2010-55022 Wash 7246-57038-017 Wash 7200-62050-060</p>
<p>Cleaning Kit:</p> 	<p>2000-82001</p>

Please contact Datastrip Ltd or an authorized reseller for a complete list of options and accessories, pricing and availability information.
DSVII-SC®