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SC 5000 Series PINpad

Installation Guide

VeriFone Part Number 22459, Revision B

SC 5000 Series PINpad Installation Guide

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VeriFone Part Number 22459, Revision B

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PREFACE

This guide is the primary source of information for setting up and installing SC 5000 Series PINpad units.

Audience

This guide provides simple descriptions of SC 5000 Series PINpad features, as well as basic information for anyone installing and configuring SC 5000 Series PINpad devices.

Organization

This guide is organized as follows:

Chapter 1, Overview. Provides an overview of the SC 5000 Series PINpad series of units.

Chapter 2, Setup. Explains setup and installation of SC 5000 Series PINpad units. This chapter tells how to select a location and establish connections with other devices.

Chapter 3, Specifications. Discusses power requirements and dimensions of SC 5000 Series PINpad units.

Chapter 4, Maintenance and Cleaning. Explains maintenance of SC 5000 Series PINpad units.

Chapter 5, Service and Support. Provides information on contacting your VeriFone representative or service provider and information on how to order accessories or documentation from VeriFone.

Chapter 6, Troubleshooting Guidelines. Provides troubleshooting guidelines should you encounter a problem in terminal installation and configuration.

Related Documentation

To learn more about SC 5000 Series PINpad units, refer to the following set of documents:

- 22458, *SC 5000 Series PINpad Series Quick Installation Guide*
- 22460, *SC 5000 Series PINpad Certifications and Regulations*
- 22463, *SC 5000 Series PINpad Programmer's Manual*
- 22461, *SC 5000 Series PINpad Reference Manual*
- 22591, *SC 5000 Series PINpad Series Mounting Adapter Guide*
- 22590, *SC 5000 Series PINpad Series Power Supply Guide*

Guide Conventions

Various conventions are used to help you quickly identify special formatting. Table 1 describes these conventions and provides examples of their use.

Table 1 Document Conventions

Convention	Meaning	Example
Blue	Text in blue indicates terms that are cross references.	See Guide Conventions.
Italics	Italic typeface indicates book titles or emphasis.	You *must* not use this unit underwater.
NOTE	The pencil icon is used to highlight important information.	RS232-type devices do not work on the SC 5000 Series PINpad communication port.
CAUTION	The caution symbol indicates hardware or software failure, or loss of data.	The unit is not waterproof or dustproof, and is intended for indoor use only.
WARNING	The lighting symbol is used as a warning when bodily injury might occur.	Due to risk of shock do not use the terminal near water.

Overview

This chapter provides a brief description of VeriFone's SC 5000 Series PINpad series of devices.

SC 5000 Series PINpad

The SC 5000 Series PINpad unit is a PIN pad with an integrated smart card reader for connection to either VeriFone transaction terminals or third party electronic point of sale systems, offering advanced security and smart card processing capabilities.

The SC 5000 Series PINpad series supports both symmetric encryption algorithms (DES, 3DES, and AES) and asymmetric encryption (RSA). This device internally manages simultaneous multiple keys through either Master Session- or DUKPT-based processes, and offers high performance smart card processing, as well as support for the new generation of 3-volt cards.

The SC 5000 Series PINpad unit is a programmable device, allowing a custom or EMV-approved transaction application to run from the VISA PED-compliant PIN pad, either to meet local regulatory requirements or relieve the ECR or terminal of this task.

The SC 5000 Series PINpad series' sleek and stylish ergonomic design offers power and performance in a smart card- or MSR-integrated PIN pad device.

NOTE

VeriFone ships variants of the SC 5000 Series PINpad unit for different markets. Your unit may have a different configuration. The following devices may or may not be present: a display backlight, a magnetic stripe reader, and/or zero, two, or four MSAM cardholders. However, the basic processes described in this guide remain the same, regardless of configuration.

Features At a Glance

- Delivers **power** and **usability** in a **convenient** hand-held design.
- Securely supports and runs **payment** and **value-added applications**.
- Offers **unsurpassed performance** on **EMV** smart card transactions.
- **Security** architecture meets specifications for PIN-entry devices (PED) and sophisticated **file authentication**.

The SC 5000 Series PINpad series provides the right combination of features and functions in a sleek, stylish device that fits in the palm of your hand. This includes a magnetic stripe card reader, smart card reader, and integrated PIN pad.

Features and Benefits

Exceptional Ease of Use

- Bold, ergonomic design is sleek, stylish, and lightweight for conveniently handing the unit to the consumer for PIN entry or other input.
- Intuitive telco-style interface and large, colored control keys simplify training and reduce support requests.
- Highly readable display handles multiple languages for global applications.

Critical Security Protection

- Incorporates tamper-detection circuitry to resist unauthorized intrusion and supports a broad spectrum of software-based security features.
- Integrated security modules simultaneously support sophisticated encryption (AES, DES, 3DES, RSA) and key management schemes, including single and 3DES Master Session, single, and 3DES Derived.

Strong Feature Set

- Ensures uncompromising reliability from VeriFone, the worldwide leader in e-payment.
- Primary smart card reader support for synchronous and asynchronous smart cards.
- Support for international character sets and Unicode standard.
- The SC 5000 Series PINpad series of units have received EMV Level 1 approval for smart card solutions.
- VeriShield security architecture provides sophisticated file authentication to prevent execution of unauthorized software on SC 5000 Series PINpad units.

Extended PIN pad Capabilities

- Removable privacy shield.
- Display backlighting for use in low-light or high-glare environments.
- Triple-track, high-coercivity card reader handles most magnetic stripe cards.
- Up to four Security Access Modules (SAMs) safeguard sensitive financial data and support multiple smart card schemes.

CHAPTER 2

Setup

This chapter describes the setup procedure for SC 5000 Series PINpad units, in the following sections:

- Select Location
- Unpack Shipping Carton
- Examine SC 5000 Series PINpad Features
- Cable Connections
- Smart Card Reader Use
- Magnetic Card Reader Use

Select Location

Use the following guidelines to select a location for the SC 5000 Series PINpad unit.

Ease of Use

- Select a location convenient for both merchant and cardholder.
- Select a flat support surface, such as a countertop or table.
- Select a location near a power outlet and the terminal, ECR, or computer connected to the SC 5000 Series PINpad unit. For safety, do not string cables or cords across a walkway.

Environmental Factors

- Do not use the unit where there is high heat, dust, humidity, moisture, or caustic chemicals or oils.
- Keep the unit away from direct sunlight and anything that radiates heat, such as a stove or a motor.
- Do not use the SC 5000 Series PINpad unit outdoors.

CAUTION

The SC 5000 Series PINpad unit is not waterproof or dustproof, and is intended for indoor use only. Any damage to the unit from exposure to rain or dust can void any warranty.

Electrical Considerations

- Avoid using this product during electrical storms.
- Avoid locations near electrical appliances or other devices that cause excessive voltage fluctuations or emit electrical noise (for example, air conditioners, electric motors, neon signs, high-frequency or magnetic security devices, or computer equipment).
- Do not use the SC 5000 Series PINpad unit near water or in moist conditions.

WARNING

Due to risk of shock or damage, do not use the SC 5000 Series PINpad unit near water, including a bathtub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.

Unpack Shipping Carton

Open the shipping carton and carefully inspect its contents for possible tampering or shipping damage. The SC 5000 Series PINpad device is a secure product and any tampering can cause it to cease to function or to operate in an insecure manner.

1. Remove and inspect the contents of the shipping carton. Since the SC 5000 Series PINpad unit ships in multiple configurations, the carton can include:
   - SC 5000 Series PINpad unit
   - Data cable
   - Power adapter
   - Power adapter patch cable
   - Power pack
   - Power cord
   - ECR cable
   - Privacy shield
2. Remove all plastic wrapping from the unit and components.
3. Remove the clear protective film from the display.
4. Save the shipping carton and packing material for future repacking or moving of the device.

WARNING

Do not use a unit that has been tampered with or otherwise damaged.

The SC 5000 Series PINpad unit comes equipped with tamper-evident labels. If a label or component appears damaged, please notify the shipping company and your VeriFone representative or service provider immediately.

Examine SC 5000 Series PINpad Features

Before you continue the installation process, notice the following features of the SC 5000 Series PINpad unit (see Figure 1):

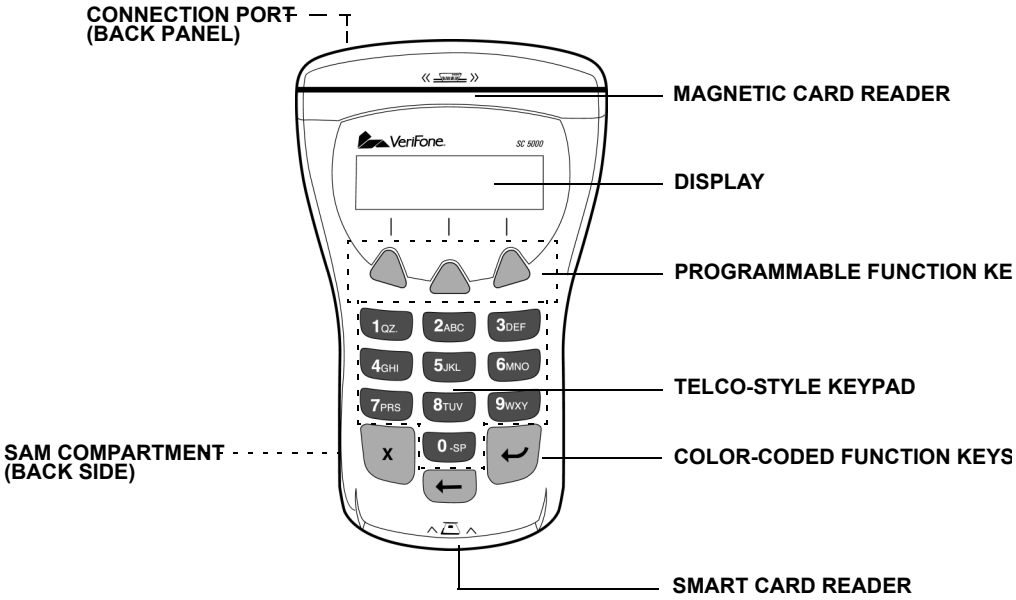
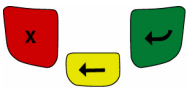


Figure 1 SC 5000 Series PINpad Features

The SC 5000 Series PINpad unit includes the following features:

- A **display**.
- Three types of keys:
  - A 10-key, **telco-style keypad**.
  - Three unlabeled, **programmable function keys** above the keypad.
  - Three **color-coded function keys** below the keypad (icons at right, left-to-right: CANCEL, BACKSPACE, ENTER).



- A **magnetic card reader**, built into the top side. An icon shows the proper swipe direction, with the stripe facing up and outward, away from the keypad.
- A **smart card reader**, built into the unit's front side. An icon indicates the proper card position and insertion direction.
- A **SAM (security access module) compartment**, built into the back side of the unit. The SC 5000 Series PINpad unit contains micromodule-size SAM (MSAM) cardholders to support multiple stored-value card programs or other merchant card requirements.

NOTE

VeriFone ships variants of the SC 5000 Series PINpad unit for different markets. Your unit may have a different configuration. The following devices may or may not be present: a backlight, a magnetic stripe reader, and/or zero, two, or four MSAM cardholders. However, the basic processes described in this guide remain the same, regardless of the configuration.

Install/Replace MSAM Cards

You may need to install one or more micromodule-size security access module (MSAM) cards or replace old cards.

CAUTION

Observe standard precautions for handling electrostatically sensitive devices. Electrostatic discharges can damage this equipment. VeriFone recommends using a grounded anti-static wrist strap.

To change or install MSAMs

1. Remove the data cable from the back of the unit.
2. Place the SC 5000 Series PINpad unit facedown on a soft, clean surface to protect the lens from scratches.
3. Remove the locking screw(s), if present, and remove the MSAM compartment door(s) (Figure 2).
   The MSAM cardholders are now accessible. Each cardholder consists of a slot inboard of a numbered tray.

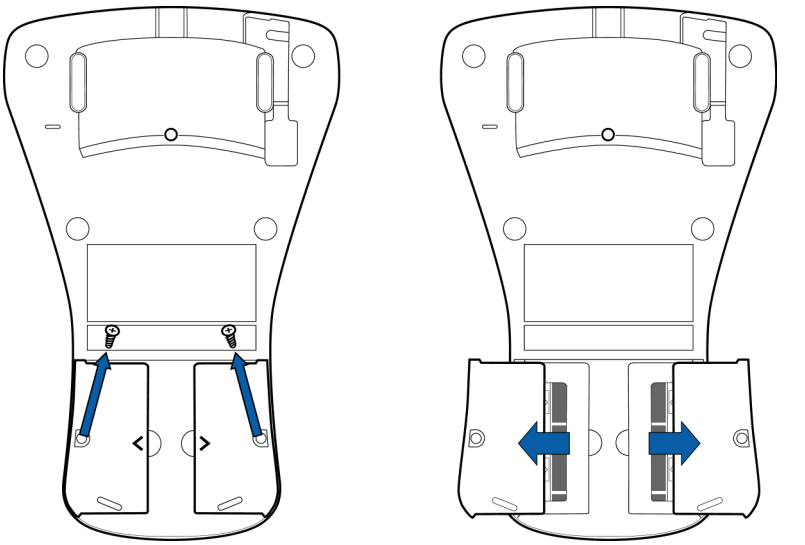


Figure 2 MSAM Compartment Door and Locking Screw

4. Remove any previously installed MSAM card by sliding the card out, away from the SC 5000 Series PINpad unit's center line.

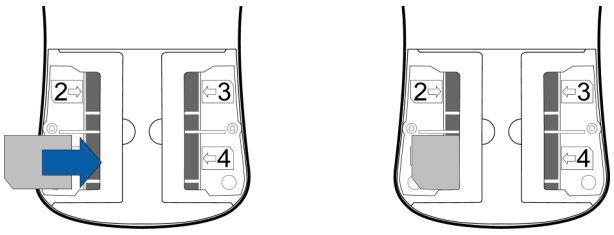


Figure 3 MSAM Insertion

5 Install an MSAM card by aligning the card to match the embossed number and carefully sliding it into the slots until fully inserted.

NOTE

Before inserting the MSAM card, position it as shown in Figure 3, with the card's gold contacts facing away from you, toward the unit. The cardholder slot in the SC 5000 Series PINpad unit has a set of contacts. The MSAM card has a notch on one corner to ensure that it fits into the connector base in only one way; the SC 5000 Series PINpad unit has a matching notch cast into the backside of the MSAM compartment door to ensure the MSAM card is positioned correctly when the cover is closed.

6 Replace the MSAM compartment door and reinstall the locking screw(s) (see Figure 2).

Options

Different markets receive different variants of the SC 5000 Series PINpad series, with different backlight, magnetic stripe reader, and MSAM cardholder configurations. Additionally, these variants can be ordered with different options.

Contact your VeriFone representative, see Accessories and Documentation, or visit the online store at www.verifone.com for more information about these options.

Mounting Adapter

Figure 4 shows how to use a mounting adapter.

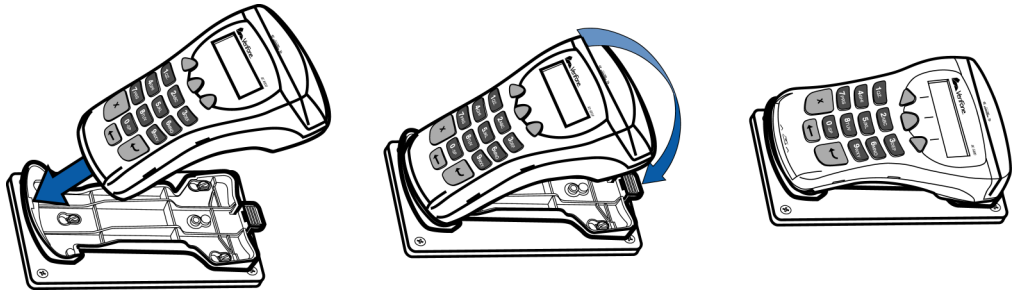


Figure 4 Mounting Adapter Installation

Privacy Shield

Figure 5 shows an example of an installed privacy shield.

Figure 5 Installed Privacy Shield

Cable Connections

The SC 5000 Series PINpad unit has three general cabling scenarios, depending on what the SC 5000 Series PINpad unit connects to:

- Terminal, Non-Backlit
- Terminal, Backlit
- ECR/PC

CAUTION

Using an incorrectly rated power supply can damage the unit or cause it not to work properly. Use only VFN# CPS11220-3A (see Specifications for detailed power supply specifications).

Terminal, Non-Backlit

If the SC 5000 Series PINpad unit does not use a display backlight and connects to a terminal, use the configuration shown in Figure 6, with the appropriate data cable (see Accessories and Documentation for data cable details).

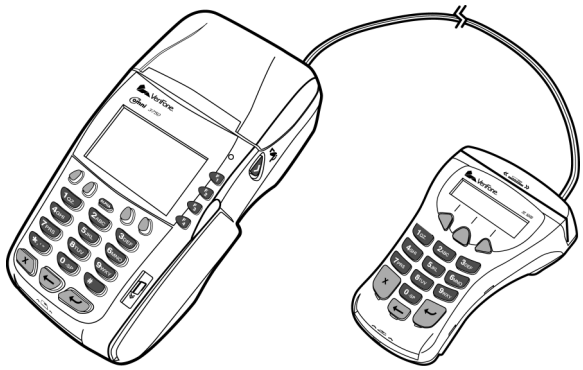


Figure 6 Cable Setup: Non-Backlit Unit Used with a Terminal

Terminal, Backlit

If the SC 5000 Series PINpad unit uses a display backlight and connects to a terminal, use the configuration shown in Figure 7, with power adapter patch cable 07042-xx, power supply CPS11220-3A, and power adapter 22479-01, as well as a power supply cord and data cable (see Accessories and Documentation for details).

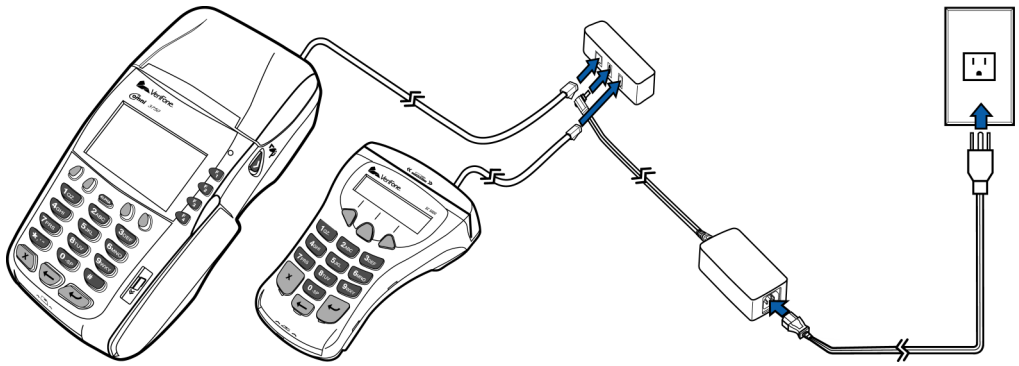


Figure 7 Cable Setup: Backlit Unit Used with a Terminal

ECR/PC

If the SC 5000 Series PINpad unit is connected to an electronic cash register (ECR) or personal computer (PC), use the configuration shown in Figure 8, with the PC/ECR adapter 02308-xx and power supply CPS11220-3A, as well as a power supply cord (see Accessories and Documentation for details).

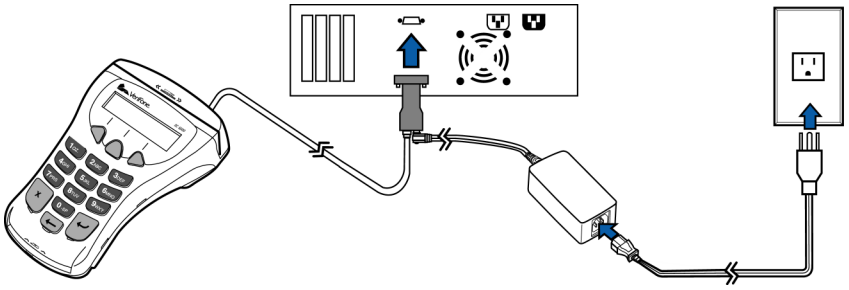


Figure 8 Cable Setup: Unit Used with a PC or ECR

Use the above configuration regardless of whether there is a display backlight.

Power Supply

Not all SC 5000 Series PINpad configurations and device contexts require use of a power supply, however, VeriFone ships power supplies with SC 5000 Series PINpad units that require them.

The SC4xx/SC5xx power supply (CPS049512-1B) cannot provide sufficient power for all use conditions specified for the SC 5000 Series PINpad unit. When upgrading from an SC4xx/SC5xx unit to the SC 5000 Series PINpad unit, use the power supply included with the SC 5000 Series PINpad unit.

If you have changed the context in which the SC 5000 Series PINpad unit must work or have questions about whether a power supply should be used, contact your VeriFone representative.

CAUTION

Using an incorrectly rated power supply can damage the unit or cause it not to work properly. Use only VFN# CPS11220-3A (see Specifications for detailed power supply specifications).

Before connecting a power supply, disconnect the power pack cord from the power outlet.

Make all SC 5000 Series PINpad and terminal, ECR, or PC connections before reconnecting the power pack cord into a wall outlet or surge protector.

WARNING

Do not plug the power pack into an outdoor outlet or operate the SC 5000 Series PINpad unit outdoors. Also, disconnecting power during a transaction can cause transaction data files not yet stored in memory to be lost.

NOTE

To protect against possible damage caused by lightning strikes and electrical surges, VeriFone recommends installing a power surge protector.

When the SC 5000 Series PINpad unit has power and an application is loaded, the application starts after the initial VeriFone copyright screen and displays a unique copyright screen. If no application is loaded, **DOWNLOAD NEEDED** appears on the display after the initial VeriFone copyright screen.

Smart Card Reader Use

The smart card transaction procedure can vary depending on the application. Verify the proper procedure with your application provider before performing a smart card transaction.

To Conduct a Smart Card Transaction

1. Position a smart card with the gold contacts facing upward (see Figure 9).
2. Insert it into the smart card reader slot in a smooth, continuous motion until it seats firmly.
3. Remove the card when the display indicates the transaction is completed.

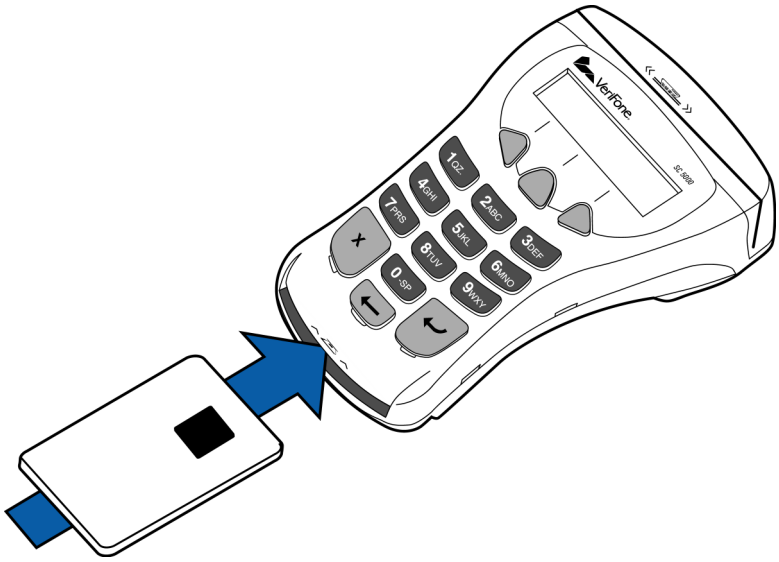


Figure 9 Smart Card Reader Use

CAUTION

Leave the smart card in the card reader until the transaction is completed. Premature removal can void the transaction.

Magnetic Card Reader Use

To Conduct a Credit/Debit Card Transaction

1. Position a magnetic card with the stripe facing up and outward, away from the keypad.
2. Swipe it through the magnetic card reader (see Figure 10).

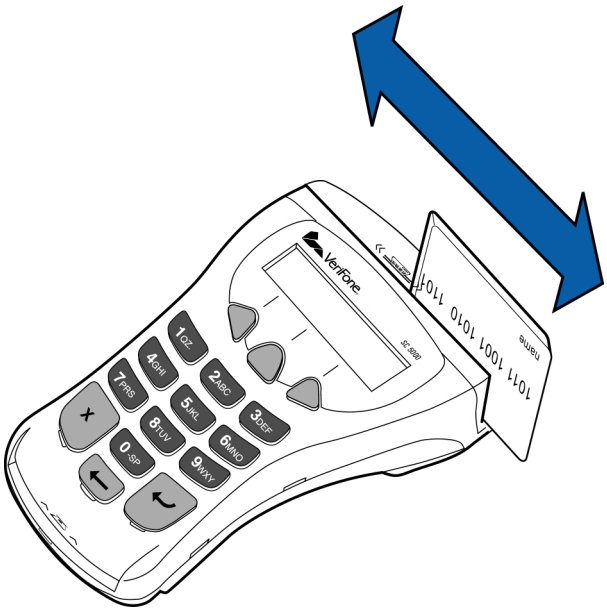


Figure 10 Magnetic Card Reader Use

Specifications

This chapter discusses power requirements, dimensions, and other specifications of the SC 5000 Series PINpad unit.

Unit Power Requirements

Either 7-20 V DC or 8-20 V DC; 3700 mW

NOTE

Early production SC 5000 Series PINpad units need a minimum of 8V DC; late production units require a minimum of 7V DC. Refer to the information label on the bottom of the unit (see Figure 11) to verify the voltage requirements for your specific SC 5000 device.

Power Pack

CPS11220-3A
UL, ITE listed, Class 2, switching power supply
PS, 24.0 V DC UNIVERSAL 40W

Temperature

- Operating temperature: 0° to 40° C (32° to 104° F)
- Storage temperature: -10° to 50° C (14° to 122° F)

Humidity

- Relative humidity: 15% to 95%; no condensation

External Dimensions

- Length: 158 mm (6.2 in)
- Width: 99 mm (3.9 in)
- Depth: 52 mm (2.0 in)

Weight

Unit weight: 360 gms (12 oz.)

Shipping weight: 936 g (33 oz.)

The shipping weight includes: shipping carton, unit, power pack and cord, one *SC 5000 Series PINpad Certifications and Regulations*, and one *SC 5000 Series PINpad Quick Installation Guide*.

Maintenance and Cleaning

SC 5000 Series PINpad units have no user-serviceable parts.

To clean the unit, use a clean cloth slightly dampened with water and a drop or two of mild soap. For stubborn stains, use alcohol or an alcohol-based cleaner. For best results, use a Verifone Cleaning Kit (refer to the Accessories and Documentation section).

CAUTION

Never use thinner, trichloroethylene, or ketone-based solvents – they can deteriorate plastic or rubber parts.

Do not spray cleaners or other solutions directly onto the keypad or display.

Do not attempt to clean the card readers. Doing so can void any warranty. For card reader service, contact your VeriFone distributor or service provider.

Service and Support

For SC 5000 Series PINpad problems, contact your local VeriFone representative or service provider.

For SC 5000 Series PINpad product service and repair information:

- USA – VeriFone Service and Support Group, 1-800-834-4366, Monday - Friday, 8 A.M. - 8 P.M., eastern time.
- International – Contact your VeriFone representative

Service Returns

Before returning SC 5000 Series PINpad unit(s) to VeriFone, you must obtain a Merchandise Return Authorization (MRA) number. The following procedure describes how to return one or more SC 5000 Series PINpad units for repair or replacement (U.S. customers only).

NOTE

International customers, please contact your local VeriFone representative for assistance with your service, return, or replacement.

1. Gather the following information from the printed labels (see Figure 11) on the bottom of *each* SC 5000 Series PINpad unit to be returned:
   - Product ID, including the model and part number. For example, “m108-xxx-xx” and “PTID xxxxxxxx.”
   - Serial number (S/N xxx-xxx-xxx)
2. Within the United States, call VeriFone toll-free at 1-800-834-4366.
3. Select the MRA option from the automated message. The MRA department is open Monday–Friday, 8 A.M.–8 P.M., eastern time.
4. Give the MRA representative the information gathered in Step 1.
   If the list of serial numbers is long, you can fax the list, along with the information gathered in Step 1, to the MRA department at 1-727-953-4172 (U.S.).
   - Please address the fax clearly to the attention of the “VeriFone MRA Dept.”
   - Include a telephone number where you can be reached and your fax number.
   - You will be issued MRA number(s) and the fax will be returned to you.

NOTE

One MRA number must be issued for each SC 5000 Series PINpad unit you return to VeriFone, even if you are returning several of the same model.

5 Describe the problem(s) and provide the shipping address where the repaired or replacement unit must be returned.

6 Keep a record of the following items:

- Assigned MRA number(s).
- VeriFone serial number assigned to the SC 5000 Series PINpad unit(s) you are returning for service or repair (serial numbers are located on the bottom of the unit (see Figure 11).
- Shipping documentation, such as air bill numbers used to trace the shipment.
- Model(s) returned (model numbers are located on the VeriFone label on the bottom of the SC 5000 Series PINpad unit).

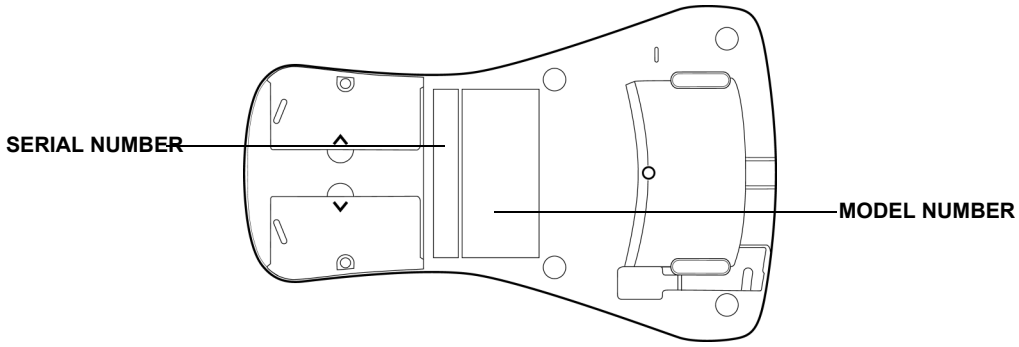


Figure 11 Information Label on Unit Bottom

Accessories and Documentation

VeriFone produces accessories and documentation for the SC 5000 Series PINpad unit. When ordering, please refer to the part number in the left column.

VeriFone Online Store at *www.store.verifone.com*

- USA – VeriFone Customer Development Center, 1-800-834-4366, Monday - Friday, 7 A.M. - 8 P.M., eastern time
- International – Contact your VeriFone representative

Supplementary Hardware

22473-01	Mounting adapter
22237-01	Privacy shield

Data Cables	07042-xx	Connects SC 5000 Series PINpad unit to Omni 3200, Omni 33xx, or Omni 37xx terminals (Mod-10).
	10441-xx	Connects SC 5000 Series PINpad unit to Omni 395 terminal (DIN).
	03197-xx	Connects SC 5000 Series PINpad unit to Omni 470 terminal (mini-DIN).
	Various others, depending on what they connect to: contact your local VeriFone representative or service provider to identify the best cable for your needs.	
PC/ECR Adapter	02308-xx	Connects SC 5000 Series PINpad units to an ECR or PC (DB-9), and provides input port for power supply.
Power Adapter Patch Cable	07042-xx	Connects backlit SC 5000 Series PINpad units to the power adapter when used without an ECR or PC.
Power Adapter	22479-01	Connector box for backlit units used without an ECR or PC.
Power Supply	Power packs are optional, except in certain instances (see Power Supply).	
	22589-01	Assembly: CPS11220-3A DC power pack (universal) 22458 *SC 5000 Series PINpad Series Quick Installation Guide*
Power Cord	07152-xx	United States of America
	Various others, by country: contact your local VeriFone representative or service provider to identify the best power cord for your needs.	
Cleaning Kit	02746-01	VeriFone Cleaning Kit
Documentation	22458	*SC 5000 Series PINpad Series Quick Installation Guide*
	22460	*SC 5000 Series PINpad Certifications and Regulations*
	22463	*SC 5000 Series PINpad Programmer's Manual*
	22462	*SC 5000 Series PINpad Service Guide*
	22461	*SC 5000 Series PINpad Reference Manual*
	22591	*SC 5000 Series PINpad Series Mounting Adapter Guide*
	22590	*SC 5000 Series PINpad Series Power Supply Guide*

Troubleshooting Guidelines

This chapter lists typical examples of malfunction you may encounter while operating your SC 5000 Series PINpad unit and steps you can take to resolve them.

The troubleshooting guidelines provided in the following section are included to assist successful installation and configuration of SC 5000 Series PINpad units. If you are having problems operating your SC 5000 Series PINpad unit, please read through these troubleshooting examples. If the problem persists even after performing the outlined guidelines or if the problem is not described, contact your local VeriFone representative for assistance.

NOTE

The SC 5000 Series PINpad unit comes equipped with tamper-evident labels. The SC 5000 Series PINpad unit contains no user-serviceable parts. Do not, under any circumstance, attempt to disassemble the unit. Perform only those adjustments or repairs specified in this guide. For all other services, contact your local VeriFone service provider. Service conducted by parties other than authorized VeriFone representatives may void any warranty.

CAUTION

Not all units require use of a power supply.

Using an incorrectly rated power supply may damage the unit or cause it not to work properly. Before troubleshooting, ensure that the power supply used to power the unit matches the requirements specified on the back of the unit (see Specifications for detailed power supply specifications). If not, obtain the appropriately rated power supply before continuing with troubleshooting.

Blank Display

When the SC 5000 Series PINpad unit display does not show correct or clearly readable information:

- Check all power and cable connections.
- If the problem persists, contact your local VeriFone service provider.

Keypad Does Not Respond

If the keypad does not respond properly:

- Check the display. If it displays the wrong character or nothing at all when you press a key, follow the steps outlined in Transactions Fail To Process.
- If pressing a function key does not perform the expected action, refer to the user documentation for that application to ensure you are entering data correctly.
- If the problem persists, contact your local VeriFone representative.

Transactions Fail To Process

There are several possible reasons why the unit may not be processing transactions. Use the following steps to troubleshoot failures.

Check Magnetic Card Reader

- Perform a test transaction using one or more different magnetic stripe cards to ensure the problem is not a defective card.
- Ensure that you are swiping cards properly (see Magnetic Card Reader Use).
- Process a transaction manually using the keypad instead of the card reader. If the manual transaction works, the problem may be a defective card reader.
- If the problem persists, contact your local VeriFone representative.

Check Smart Card Reader

- Perform a test transaction using several different smart cards to ensure the problem is not a defective card.
- Ensure that the card is inserted correctly (see Smart Card Reader Use).
- Ensure the MSAM cards are properly inserted in the cardholders and the cardholders are properly secured (see Install/Replace MSAM Cards).
- If the problem persists, contact your local VeriFone representative.

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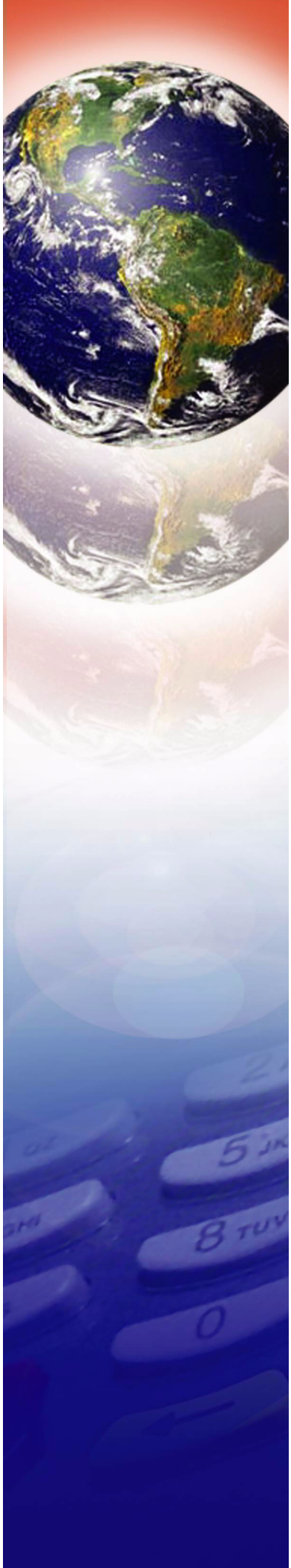

SC 5000 Series PINpad

Installation Guide

VeriFone Part Number 22459, Revision B