VX 685/VX 690

Installation Guide

VX 685/VX 690 Installation Guide
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Specifications

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Troubleshooting Guidelines

This guide is the primary source of information for setting up and installing the terminal.

Audience

This guide is useful to anyone installing and configuring the terminal.

Organization

This guide is organized as follows:

Chapter 1, Terminal Overview. Provides an overview of the terminal.

Chapter 2, Setup. Explains setup and installation of the terminal, selecting a location, and establishing connections with other devices.

Chapter 3, Specifications. Discusses power requirements and dimensions of the terminal.

Chapter 4, Maintenance and Cleaning. Explains maintenance of the terminal.

Chapter 5, Service and Support. Provides information on contacting your VeriFone service provider and information on how to order accessories or documentations 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 the terminal, refer to the following set of documents:

VX 690 Certifications and Regulations Sheet	VPN - DOC260-001-EN
VX 690 Quick Installation Guide	VPN - DOC260-002-EN
VX 685/VX 690 Reference Guide	VPN - DOC260-004-EN
Verix eVo Volume I: Operating System Programmers Manual	VPN - DOC00301
Verix eVo Volume II: Operating System and Communication Programmers Manual	VPN - DOC00302
Verix eVo Volume III: Operating System Programming Tools Reference Manual	VPN - DOC00303

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 VX 685/VX 690 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.

Acronym Definitions Acronyms are used in place of the full definition. Table 2 presents acronyms and their definitions.

Table 2   Acronym Definitions

Acronym	Definitions
3DES	Triple Data Encryption Standard
AES	Advanced Encryption Standard Algorithm
API	Application Programming Interface
ARM	Advanced RISC Machine
BBM	Battery Backed Memory
CAPK	Certification Authority Public Key
CBC	Cipher Block Chaining mode
DEA/DES	Data Encryption Algorithm/Standard
DUKPT	Derived Unique Key Per Transaction Method as defined in the VISA's POS Equipment Requirement: PIN processing and Data Authentication, International Version 1.0, August 1988
ECR	Electronic Cash Register
EMV	Joint Europay, MasterCard and Visa Standard
MAC	Message Authentication Code
MMU	Memory Management Unit
MSAM	Multiple Secure Access Module
OS	Operating System
PIN	Personal Identification Number
POS	Point-of-Sale
RFID	Radio Frequency Identification
SAM	Secure Access Module
SC	Smart Card (Integrated Chip Card)
SD	Secure Digital
SR	Ship Release
SRAM	Static Random Access Memory
UI	User Interface
USB	Universal Serial Bus

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Terminal Overview

The terminal is a portable, battery-powered device designed to fit comfortably during handheld consumer-facing applications. It features a colored 3.5" QVGA display, touch screen, and backlit spill-resistant keypad. It supports a variety of communications technologies including GPRS, 3G radio with GPS, and Wi-Fi/BT technology. Refer to Table 3 for a detailed list of features available on VX 685 and VX 690.

Figure 1   VX 685/VX 690 Terminal

Features and Benefits

The terminal focuses on optimizing cost structure and providing better form factor. It provides the right combination of features and functions in a sleek, ergonomic device that fits in the palm of your hand.

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.

- Large 3.5" QVGA display for boundless application possibilities and easy readability under various lighting conditions.

- Touchscreen for icon-based applications or electronic signature capture support.

- Intuitive telco-style keypad with large, colored control keys and interchangeably detects key presses from tactile keypad and the touchscreen.

- 40 mm diameter paper roll with a trouble-free, drop-in, "clam shell" loading and dual tear bar that allow receipts to be torn in any direction.

- Quiet and fast integrated thermal printer with a rear placement to maximize the user interface area.

- Unidirectional magnetic stripe card reader with an extended blade for optimal card reading.

Performance and Durability

- Fast transactions due to powerful 400 mHz ARM11 processor.

- High-capacity 3.7 V 2450 mAh Li-ion battery.

- Standard base for drop-and-go charging or optional full-featured base with spare battery charging.

- USB device and USB Host ports for connection to supported USB peripherals.

- Rounded corners and drop resistant to three feet on concrete floor to minimize breakage.

- 192 MB memory (128 MB flash, 64 MB RAM) with optional removable micro SD flash memory.

Security

- Incorporates tamper-detection circuitry to resist unauthorized intrusion and supports a broad spectrum of software-based security features.

- PCI 3.X approved for debit and other PIN-based transactions.

- EMV Level 1 Type Approval.

- Supports reliable security available including SSL, VeriShield file authentication, and VeriShield Protect to help prevent fraud and other intrusions.

Contactless Capability

- Advanced contactless architecture that future-proofs investment with a single contactless interface (SingleCI), SoftSAMs, and side-by-side application architecture.

- On-screen tap zone (CTLS logo) for optimized user experience.

- Contactless version accepts EMV and mag-stripe contactless payments as well as PIN-based transactions.

Communication Technology

- GPRS/3G/GPS: Long-range wireless payment for retailers that have no physical location limitations.

- Bluetooth®: Simple, plug-and-play installation for locations that need short-range wireless capability.

Differences Between VX 685 and VX 690 Terminals

VX 685 and VX 690 terminals are mostly identical and offer the same general benefits. It is important to know the differences in their intrinsic features.

Table 3   Features Comparison

Features	VX 685 GPRS	VX 690 3G/BT
Processor	400 MHz ARM 11	400 MHz ARM 11
OS	Verix OS	Verix OS
Memory	64 MB SDRAM/128 MB Flash	64 MB SDRAM/128 MB Flash
Display	3.5" QVGA	3.5" QVGA
Touchscreen	Resistive type	Capacitive Type
Radio	GPRS (Cinterion BGS2-W)	3G (Cinterion PHS8-P)
Bluetooth	NA	Yes
Wi-Fi	NA	Yes
GPS	NA	Yes
Magnetic card reader	Triple Track, bi-directional	Triple track, bi-directional
Smart card reader	ISO 7816, 1.8 V, 3 V, 5 V, synchronous and asynchronous cards	ISO 7816, 1.8 V, 3 V, 5 V, synchronous and asynchronous cards
SAM slots	2	2
SIM	Single	Dual
Micro SD	NA	Yes
Audio speaker	NA	Yes
USB integrated	1 Host/client	1 Host/client
Security	PCI 3.0	PCI 3.0
CTLS	NXP PN512 C2	NXP PN512 C2
Printer	30 lps	30 lps
Battery	3.7 V DC/2450 mAh	3.7 V DC/2450 mAh
Paper roll	40 mm	40 mm
Charger	5 V DC/2.2 A	5 V DC/2.2 A
Dimension (mm)	163 x 78 x 52	163 x 78 x 52

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Setup

This chapter describes the setup procedure for:

- Selecting a Location.
- Unpacking the Shipping Carton.
- Examining Terminal Features.
- Examining the Connection Port.
- Installing/Replacing Paper Roll.
- Installing/Replacing SIM Card.
- Installing/Replacing MSAM Cards.
- Installing/Replacing the Micro SD Card.
- Connecting Optional Devices.
- Battery Features.
- Connecting the Terminal to Power Source.
- Base Stations.
- Powering Up the Base.
- 3G, GPRS, and GPS Support.
- VX 690 Wi-Fi/BT Support.
- Using the Smart Card Reader.
- Using the Magnetic Card Reader.
- Performing a Contactless Smart Card Transaction.

Selecting a Location

Use the following guidelines to select a location for the terminal.

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, ECR, or computer connected to the terminal. 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 terminal outdoors.

CAUTION

The terminal 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 terminal near water or in moist conditions.

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

Unpacking the Shipping Carton

Open the shipping carton and carefully inspect its contents for possible tampering or shipping damage. The terminal is a secure product and any tampering can cause it to cease to function or to operate in an unsecured manner.

To Unpack the Shipping Carton

1 Remove and inspect the contents of the shipping carton. The terminal ships in multiple configurations, the carton may include all or any of the following:

• Terminal

• Power pack

• Paper roll

• Ethernet cable

• Telephone line cable

2 Remove all plastic wrapping from the terminal 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 damaged. The terminal comes equipped with tamper-evident labels. If a label or component appears damaged, please notify the shipping company and your VeriFone service provider immediately.

Examining Terminal Features

Before you continue with the installation process, familiarize yourself with the terminal features:

THERMAL PRINTER

QVGA DISPLAY/TOUCH SCREEN

MAGNETIC CARD READER

CANCEL KEY

CLEAR KEY

TELEPHONE-STYLE KEYPAD

ENTER KEY

SMART CARD READER
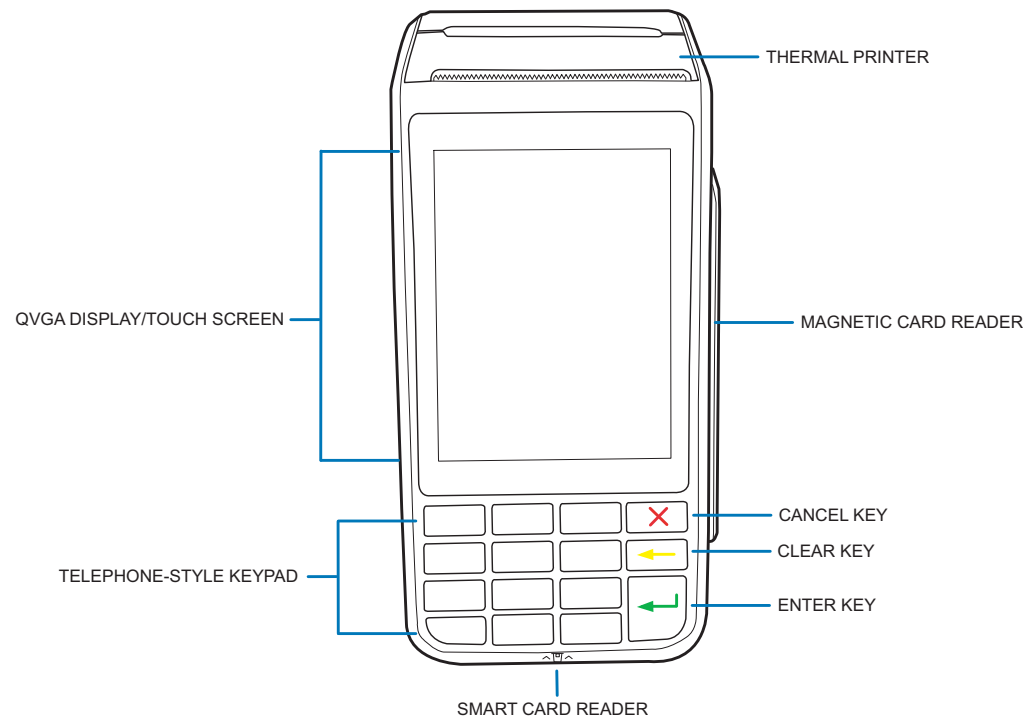
Figure 2   VX 685/VX 690 Features

Front Panel   The front panel offers the following features:

- A touchscreen display.

- A set of keys that include:

  - A 12-key, **telephone-style keypad** (keypads may vary in style).

  - Three **color-coded function keys** on the right side of the keypad (from top to bottom: CANCEL, CLEAR, ENTER).

- A **magnetic card reader**, built into the right side. An icon shows the proper swipe direction, with the stripe facing down and towards the keypad.

- A **smart card reader**, built into the unit's front side. An icon indicates the proper card position and insertion direction.

Examining the Connection Port

The terminal has one primary micro-USB port used for power and download.

Figure 3   Micro-USB Port on the Terminal

Installing/ Replacing Paper Roll

A fast, quiet thermal printer is built into the terminal. Before you can process transactions that require a receipt or record, you must install a roll of thermal-sensitive paper in the printer.

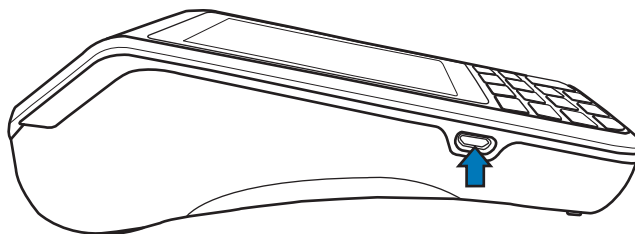The ITP uses a roll of single-ply, thermal-sensitive paper 40 mm in diameter. A pink out-of-paper indicator line appears on the edge of the paper approximately 18 inches before the end of the roll. After this line appears, there is enough paper remaining on the roll to conclude at least one transaction.

CAUTION

Poor-quality paper can jam the printer and create excessive paper dust. To order high-quality VeriFone paper, refer to Accessories and Documentation. Store thermal paper in a dry, dark area. Handle thermal paper carefully. Impact, friction, temperature, humidity, and oils affect the color and storage characteristics of the paper. Never load a roll of paper with folds, wrinkles, tears, or holes at the edges in the print area.

To Install/Replace a Paper Roll

1   Gently pull the latch located on the bottom of the terminal to unlock the paper.

2   Gently lift the printer cover up and back.

3   Remove any partial roll of paper in the printer tray.

4   Loosen the glued leading edge of the new roll of paper or remove the protective strip, if applicable. Unwind the paper roll past any glue residue.

5   Hold the roll so the paper feeds from the *bottom* of the roll when the terminal is inverted.

6 Drop the paper roll into the printer tray.
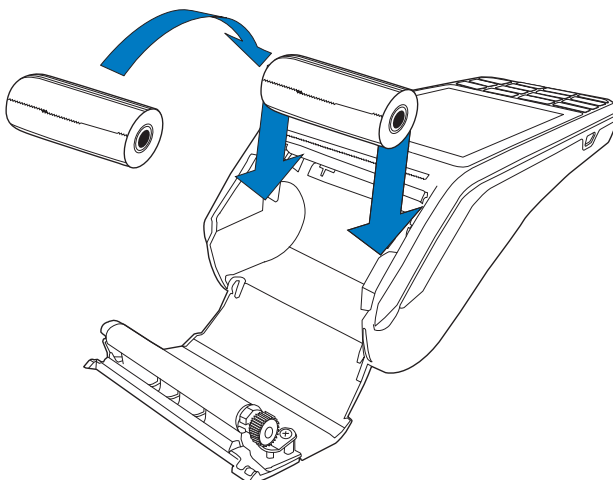
Figure 4   Installing Paper Roll Cover

CAUTION

To prevent damaging the print roller, always gently press down on the paper roll cover to close it.

**Installing/
Replacing SIM
Card**

VX 685 has a single SIM slot that enables communication to the network provider. VX 690 supports dual SIM. SIM slot 1 is preferred for single SIM use. When dual SIM is employed, it is ideal to use SIM cards from two different network providers. This allows the terminal to switch SIMs when it detects poor signal or no network.

*To Install/Replace a
SIM Card*

1 Turn off the terminal.

2 Place the terminal face down on a soft, clean surface to protect the lens from scratches.

3 Lift the battery pack to expose the SIM slots.

NOTE

Position the card's gold contacts facing away from you, toward the unit. The card slot in the terminal has a set of contacts. The SIM card has a notch on one corner to ensure that it fits into the connector base in only one way.

4 Align the card to match the embossed number and carefully sliding it into the slots until fully inserted.
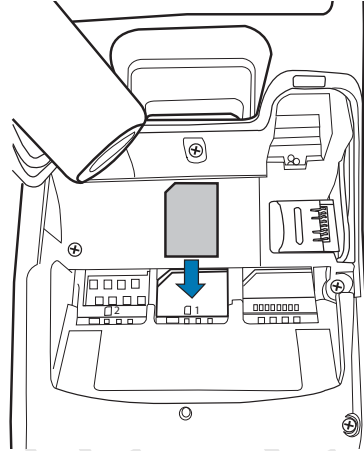
Figure 5   SIM Card Insertion

To replace, gently slide out the old SIM card before inserting a new SIM.

Installing/ Replacing MSAM Cards

You may need to install one or more multiple security access module (MSAM) cards or replace an old one.

CAUTION	Observe standard precautions in handling electrostatically sensitive devices. Electrostatic discharge can damage the equipment. VeriFone recommends using a grounded anti-static wrist strap.

To Install/Replace MSAM Cards

1 Power off the terminal.

2 Place the terminal face down on a soft, clean surface to protect the lens from scratches.

3 Remove the back cover of the unit.

4 Lift the battery pack to expose the SAM slots. The slots are loacted just below the micro SD card slot.
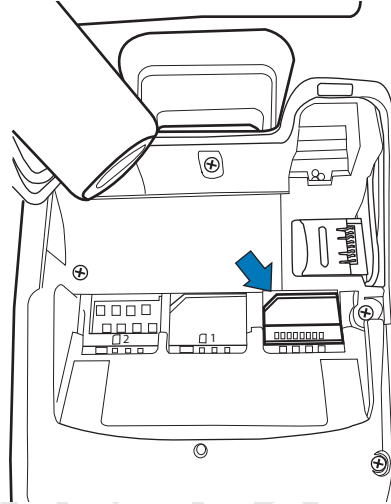
Figure 6   SAM Slots

| NOTE | Position the card's gold contacts facing away from you, toward the unit. The card slot in the terminal 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 terminal supports two SAM cards. |

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5 Carefully slide the cards one at a time into the slots until fully inserted.
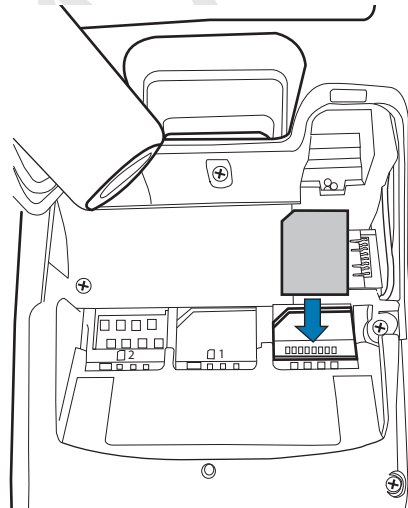
Figure 7   SAM Insertion

To replace, gently slide out the old SAM card before inserting a new one.

Installing/ Replacing the Micro SD Card

VX 690 supports micro SD for additional memory.

To Install/Replace Micro SD Card

1 Turn off the terminal.

2 Place the terminal face down on a soft, clean surface to protect the lens from scratches.

3 Lift the battery pack to expose the micro SD card slot.

4 Insert the micro SD card into its slot.

Figure 8   Inserting a Micro SD Card

To replace, gently slide out the old micro SD card, before inserting a new one.

Connecting Optional Devices

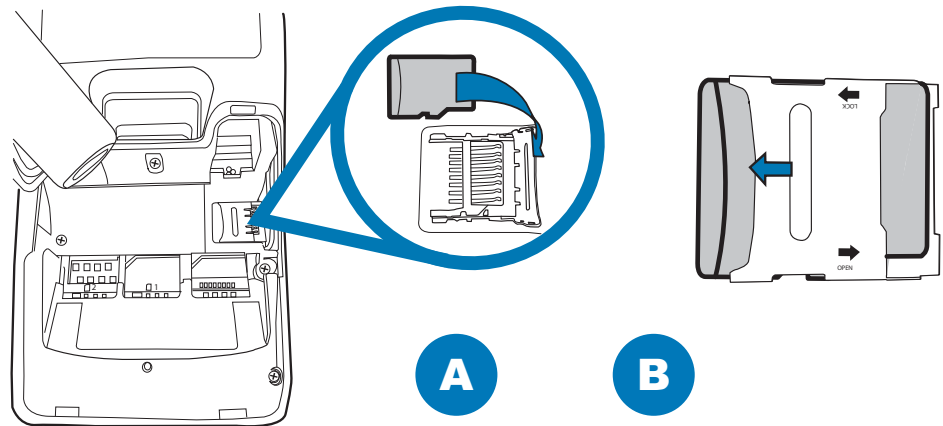The terminal supports peripheral devices designed for use with electronic point-of-sale system such as biometric scanner and barcode reader.

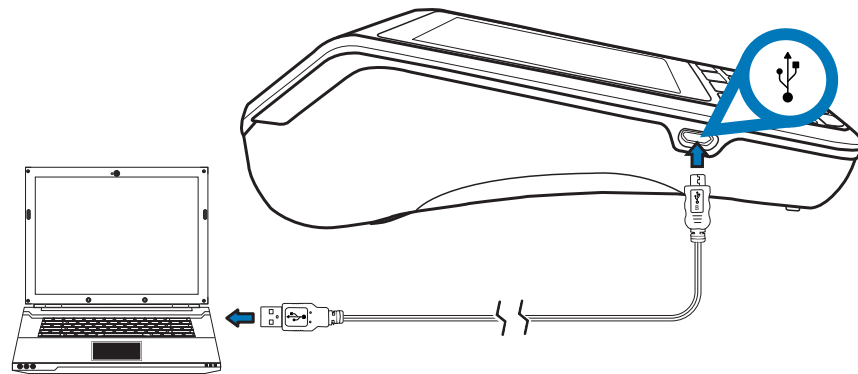| **CAUTION**	Before connecting any peripheral device, make sure that the terminal is not powered on. Reconnect the power cord only *after* you are finished connecting the peripheral device(s). For complete information about peripheral installation and use, refer to the user documentation supplied with those devices.

Figure 9   Connecting Peripheral Devices to the Terminal via the Micro-USB Port

Battery Features

The terminal uses a single cell, 2450 mAh Li-ion battery (see Accessories and Documentation for ordering information). The internal logic of the battery prevents both overcharging and undercharging—a fault condition where the battery level goes well below the minimum acceptable charge and the battery becomes unusable.

The battery has a safety circuit that prevents cell damage from overcharge, over-discharge, or overheating; and activates when the battery is left in an unused terminal for extended periods.

- The battery is not customer changeable and therefore should not be disconnected and removed.

- Li-ion batteries are not affected by shallow charging. When the terminal has no external power source or battery, the coin cell battery provides power to the security circuit.

- Disconnecting and removing the battery, as well as unplugging the terminal power pack, reduce the life of the coin cell battery, which does not recharge and must be replaced when drained.

- Conserve battery power by turning the terminal off when not in use.

- Keep the Li-ion battery inserted in the terminal and power up the terminal periodically to check the battery charge. Do not let the battery charge fall

below 10% for extended periods of time as this may permanently diminish the battery capacity. Recharge the battery by attaching the micro-USB end of the power pack to the terminal and plugging the other end of the power pack into a wall outlet.

Battery Life The terminal keeps track of the charging current going into the battery. The battery is considered healthy until its capacity is reduced to 70% of the theoretical capacity. It should be checked when the number of cycles exceeds 600 full cycles. `get_battery_value()` supports battery life:

* `int get_battery_value(BATTERYLIFE);`

* `int get_battery_value(BATTERYCYCLES);`

See *Verix eVo Volume I: Operating System Programmers Manual*, VPN - DOC00301 for more infomation.

Battery Behavior The terminal shifts to power pack mode and starts up automatically when the terminal is connected to a non-battery power source, regardless of the battery charge state.

Manual Startup

Hold the green key down for about 4 seconds until the terminal displays the startup screen. The time required to hold the green key down to power up the terminal is configurable (for more information, see the *VX 690 Reference Guide,* VPN DOC260-004-EN). The terminal lights up once power is on.

NOTE	The VeriFone copyright screen starts and displays a unique copyright screen once the terminal loads an application. However, **DOWNLOAD NEEDED** appears on screen after the initial VeriFone copyright screen if there is no available application in the terminal.

Manual Shutdown

Hold the red key down for about 4 seconds until the terminal displays the shutdown verification screen. The time required to hold the red key down to shut down the terminal is configurable (for more information, see the *VX 690 Reference Guide,* VPN DOC260-004-EN).

Connecting the Terminal to Power Source

The terminal is either powered by an external power pack or the single cell Li-ion rechargeable battery, which can be charged in the terminal by the AC/DC power pack through the micro-USB connector for VX 690 and pin connector for VX 685.

When you have finished installing the necessary cards and/or optional devices, you are ready to connect the terminal to the power source.

WARNING

Do not connect the terminal to the power supply until all peripherals are attached.

Using an incorrectly rated power supply can damage the unit or cause it not to work properly. Use only a power pack with P/N PWR260-001-XX-A. See Specifications for detailed power supply specifications.

Do not plug the power pack into an outdoor outlet or operate the terminal outdoors. Also, disconnecting power during a transaction can cause unstored data files 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 terminal has power and an application is loaded, the application starts after the initial VeriFone copyright screen. If no application is loaded, **DOWNLOAD NEEDED** appears on the display after the initial VeriFone copyright screen.

To Connect the VX 690 Terminal to the Power Source

1 Insert the micro-USB connector to the micro-USB port found on the side of the terminal.

2 Plug the AC power cord into a wall outlet or power surge protector.
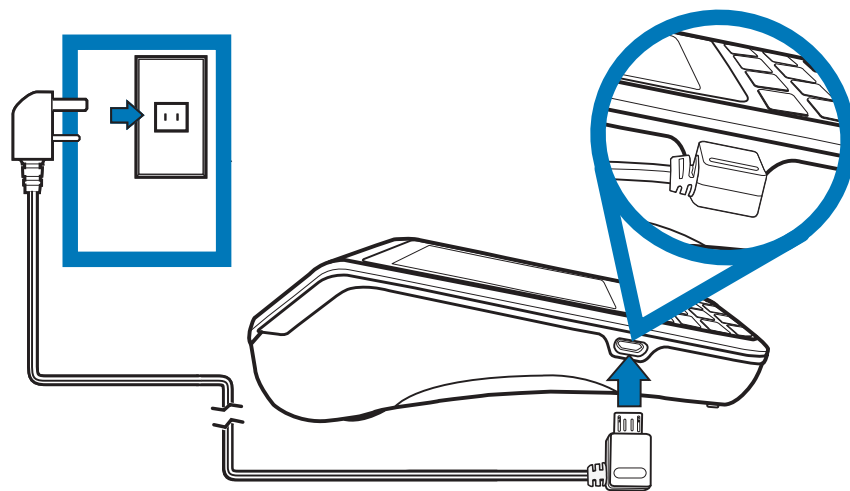
Figure 10   Connecting VX 690 to Power Source

To Connect the VX 685 Terminal to the Power Source

1 Insert the pin connector into the pin slot located at the back of the terminal.

2 Plug the AC power cord into a wall outlet or power surge protector.

Figure 11   Connecting VX 685 to Power Source

Base Stations

VeriFone ships variants of the base station for different markets. Your base may have a different configuration.

Charging Base

A charging base to charge the terminal and provide a docking station when the terminal is not in use. The base can be positioned on a countertop.
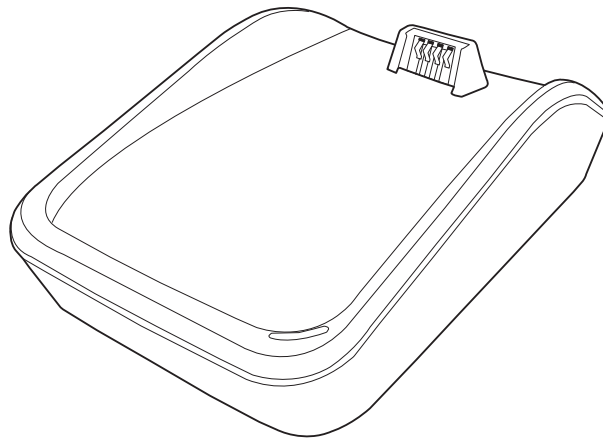
Figure 12   Charging Base

BT Base   A base that supports power, dial-up, Ethernet, powered RS-232, USB device connectivity, USB Host, and Bluetooth device.
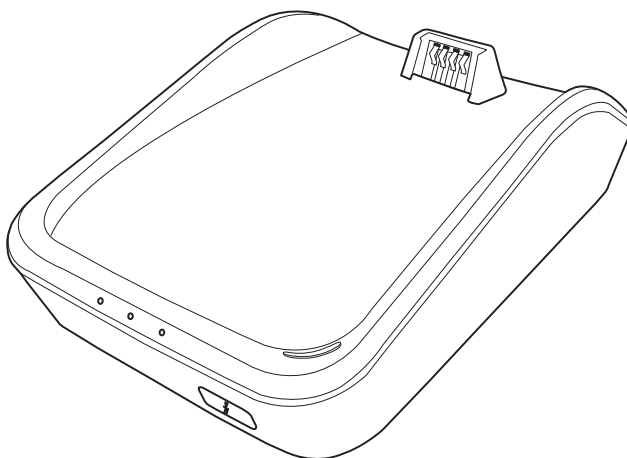
Figure 13   BT Base

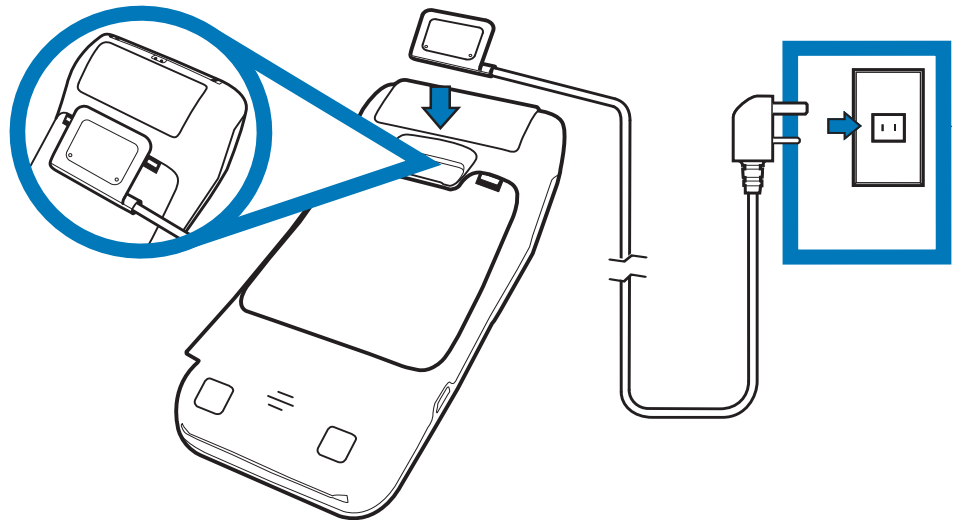Apart from charging the battery, it allows the terminal to use dial and Ethernet options, support peripheral devices, download/debug tasks, and conduct transactions over Bluetooth.

Docking the Terminal on the Base   The terminal can be placed on the base when not in use. This ensures continuous charging of the battery.
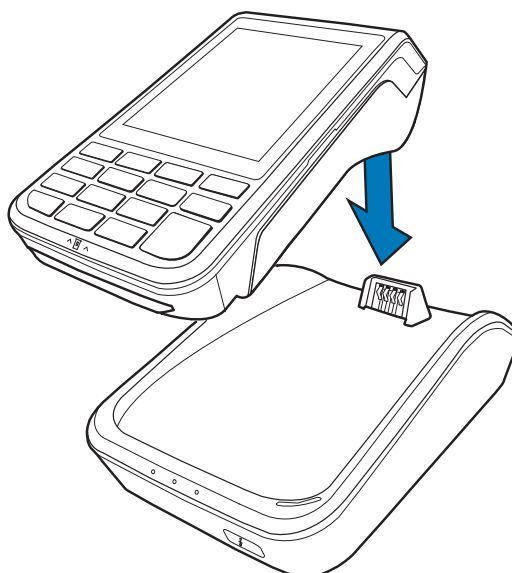
Figure 14   Docking the Terminal on the Base

To Dock the Terminal on the Base   **1**   Place the top portion of the terminal on the base. Ensure that the recess on the bottom of the terminal sits on top of the docking connector.

Undocking the Terminal The terminal can be taken from the base when in use. Gently lift the terminal from the base.

Figure 15   Undocking the Terminal from the Base

Creating Dial-up/ Ethernet Connections The terminal allows for dial-up and Ethernet connections for full back-up connectivity.

To Create a Dial-Up Connection

1   Connect the telephone cable to the communication port on the base.

2   Route the other end of the cable directly to a telephone wall jack. This is a direct connection and the line is dedicated to the terminal.
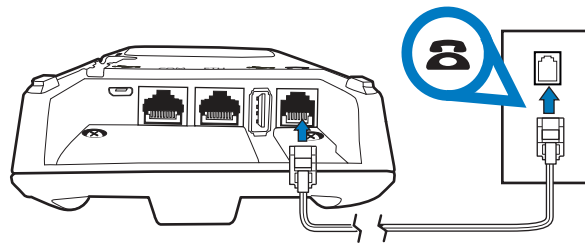
Figure 16   Direct Telephone Connection

To Create an Ethernet Connection

1   Connect the Ethernet cable to the port on the base.

2 Route the other end of the cable directly to a data wall jack (or router/hub).
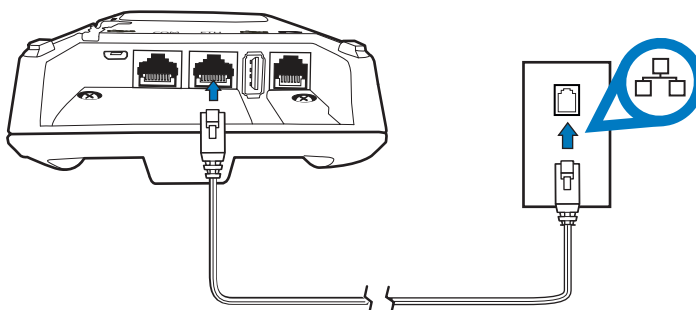
Figure 17   Ethernet Connection

Using the Powered Serial   The powered serial on the base can be used in debug options or downloading applications.

To Connect to the Powered Serial   **1** Connect the RS-232 cable to the COM port on the base.

2 Route the other end of the cable to the PC.
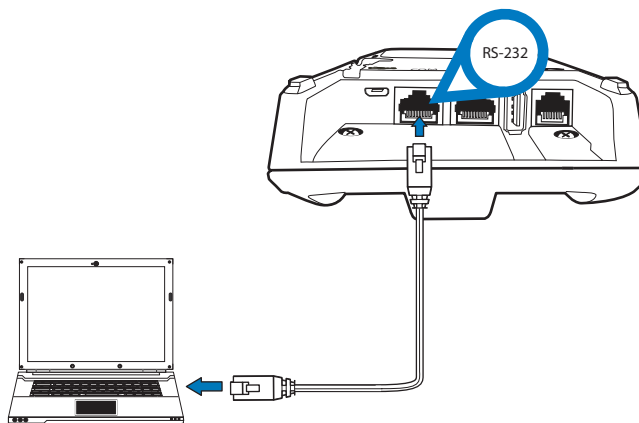
Figure 18   Connection to the COM Port

Connecting External Devices

The base supports peripheral devices such as electronic cash register, check reader, barcode reader, and biometric scanner through a serial connection. Micro-USB port is for PC connection and USB Host port is for USB flash drive.
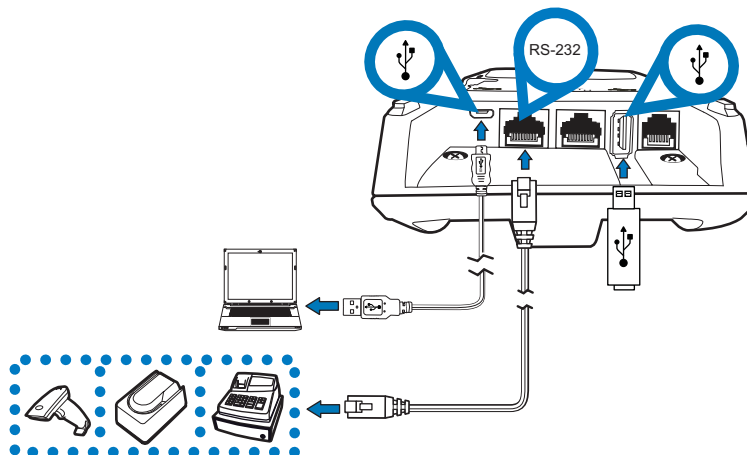
Figure 19   Connecting Peripheral Devices

CAUTION	Before connecting any peripheral device, remove the power cord from the terminal. Reconnect the power cord only *after* you are finished connecting the peripheral device(s).

To Connect Peripherals/External Devices

1 Connect the micro-USB/USB cable of the device to the micro-USB/USB port of the base.

2 For complete information about the peripheral installation and use, refer to the user documentation supplied with those devices.

Powering Up the Base

Use the procedure below to connect the terminal to a power source.
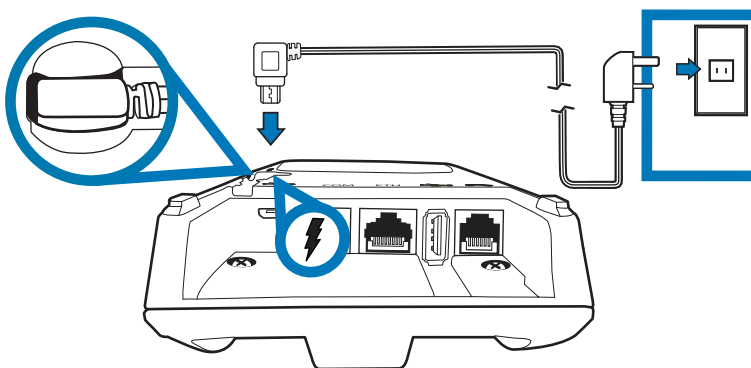
Figure 20   Connecting Terminal to Power Source

To Power Up the Base   1 Insert the micro-USB plug into the micro-USB port on the base.

2 Plug the AC power cord into a wall outlet or a power surge protector.

WARNING

Using an incorrectly rated power supply can damage the unit or cause it not to work properly. Use only a power pack with P/N PWR260-001-XX-A. See Specifications for detailed power supply specifications.

Do not plug the power pack into an outdoor outlet or operate the terminal outdoors. Also, disconnecting power during a transaction can cause unstored transaction data files to be lost.

3G, GPRS, and GPS Support

VX 690 uses the Cinterion PHS8-P radio module. This module provides wireless connectivity using HSPA+ technology. The PHS8-P radio module is optimized for high bandwidth and allows a downlink speed of 14.4 Mbps and an uplink speed of 5.7 Mbps.

GPS Receiver

The Cinterion PHS8-P radio module on VX 690 integrates a GPS receiver that offers the full performance of GPS/A-GPS technology, allowing customers to implement geo-fencing applications.

3G/GPRS

Allows for a wider range of communication for wireless transaction payment using the available operator-provided 3G infrastructure.

NOTE

VX 685 uses integrated Gemalto BGS2-W module to support GSM/GPRS radio features.

VX 690 Wi-Fi/BT Support

VX 690 Wi-Fi/BT integrated module uses Broadcomm BCM4330 chip, which provides SDIO interface for Wi-Fi and UART interface for Bluetooth. The module includes an integrated WLAN RF transceiver for Wireless LAN systems with advanced power management unit, and an integrated radio transceiver for Bluetooth wireless systems.

Bluetooth Support

VX 690 uses the Bluetooth base station. Up to seven devices can be registered with the same communications device, but only one transaction may be undertaken at a time. Do not pair more than three terminals with the base station. When more than three terminals are required, additional base stations must be suitably positioned on site to obtain maximum radio coverage.

NOTE

The terminal can only communicate to a base station to which it is paired.

The terminal and the Bluetooth base station are both Class 1 Bluetooth devices providing secure radio communication up to 100 meters, unobstructed. The terminal may be registered (paired) with more than one base station. It must be paired to secure the communication. Using the standard menu options provided in Verix Commserver, the terminal may easily be switched among paired devices.

Establishing Bluetooth Connections

To establish Bluetooth connections:

1 Ensure the terminal is paired with the Bluetooth AP Base Station not more than five meters away for initial pairing.

2 Bluetooth AP Base Station must be installed but powered OFF and terminal should be powered ON.

3 Follow the on-screen instructions provided with your application.

The Bluetooth Base relays wireless data received from the terminal via modem and then transmits back the response to the terminal.
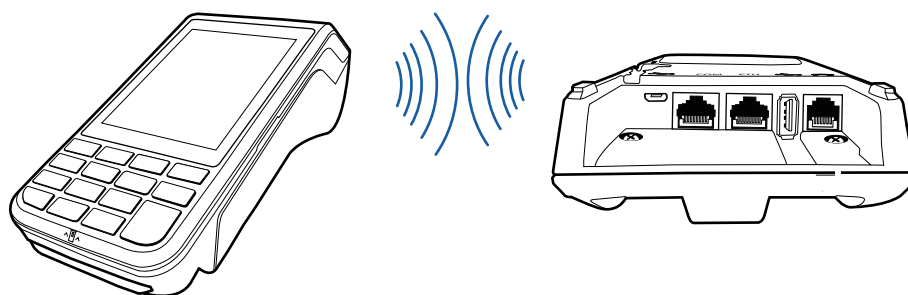
Figure 21   Terminal Communicating with a Bluetooth Access Point (AP) Base

To improve the range performance of the terminal, the Bluetooth AP Base Station should be placed in a position that services all of the card payment areas in your premises. The ideal placement is to position the base station within line of sight of all areas of card acceptance.

Searching for a Bluetooth AP Base Station

The first step towards establishing a connection between the Bluetooth version of the terminal and a Bluetooth AP Base Station is to search for the Bluetooth AP Base Station using the terminal.

To search for a Bluetooth AP Base Station using the terminal:

1 Power On the terminal. The Select Options menu is shown on the terminal display once the device is powered ON.

2 On the Network Control Panel, select Bluetooth. Click Bluetooth to access the Bluetooth menu.

3 Before you can access the Setup menu, you will be asked to enter your password. Enter your password, then press the Enter key.

```
Setup

Group ID Password

[                    ]
```

4 On the Setup menu, Discovery is selected by default. Press the Enter key to start searching for a base station.

```
Setup

 Discovery
 Paired Devices
 Configuration
```
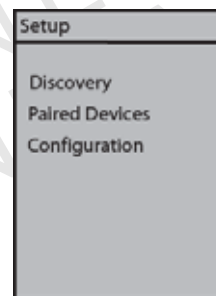
5 There is a short delay as the terminal searches for the base station. The message is shown on the terminal display.

```
Discovery



        Searching....
        *************
```
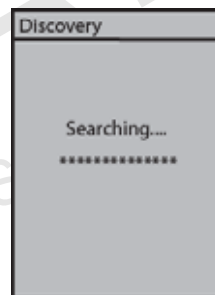
6 Once the terminal discovers the Bluetooth AP Charging Base Station, the base station's friendly name is then displayed.

Discovery

MNLGENEZ2W7

VERIXBT

C322

MNLSTEJKBXP

NOTE If the devices are unable to find each other after two minutes, press the Bluetooth switch found in front of the Bluetooth AP Base. After pressing the switch, the three LEDs will blink indicating that the Bluetooth AP Base is discoverable.

WARNING Pressing the Bluetooth switch while there is an existing Bluetooth connection may result in loss of connection, loss of modem profile, and loss of all modem settings/configuration.

Pairing the Terminal with a Bluetooth AP Base Station

Even after you have successfully searched for a Bluetooth AP Base Station using the terminal, you will not be able to conduct Bluetooth transactions until you have paired the terminal and the base station.

To pair the terminal with the base station:

1 Navigate to the BT Devices menu, select the base station's friendly name, then press the Enter key.

2 Select the base station's name, then press the Enter key.

Discovery
Name:
  C322
BD Address
  94:63:D1:C9:21:C6
Class
  5A0204

    Pair with Device?
    Yes or No

3 If pairing is successful, the BT Devices menu appears on the terminal screen. The friendly name of the Bluetooth AP Base Station appears on the first line of the BT Devices menu.
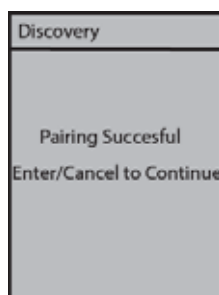
```
Discovery



Pairing Succesful
Enter/Cancel to Continue
```

If everything is connected properly and the terminal is unable to go online, refer to Chapter 6.

Setting the Connection Information for a Paired Device

To set the connection information for a paired device:

1 Select Paired Device.

2 Select a device from the list.

3 On the BT Device Port, select either Ethernet, Modem, or Serial (this is for XPS019).

Pairing with Another Bluetooth AP Charging Base Station

Once the terminal is paired with a Bluetooth AP Base Station and initialized, it may be paired with additional Bluetooth AP Base Station.

To pair a terminal with another Bluetooth AP Base Station:

1 Select Discovery on the terminal's Setup menu, then press Enter.

2 Make sure the terminal is within five meters from the Bluetooth AP Base Station, which must be powered off.

3 When the terminal displays the base station, select it by pressing the appropriate name, and then press Enter.

4 On the Discover menu, select Yes when asked if Pair with Device screen appears.

5 The terminal and base station will then pair. The terminal will then make the new Bluetooth AP Base Station the default pairing device.

If everything is connected properly and the terminal is unable to go online, refer to Chapter 6.

Removing a Paired Bluetooth AP Charging Base Station

To remove a Bluetooth AP Base Station to which a terminal has been paired:

1 Navigate to the BT Devices menu.

2 Select the Bluetooth AP Base Station you want to remove as a pair.

3 Select Remove All Pairs, then press the Enter key.

4 The Bluetooth AP Base Station's friendly name will disappear from the display when the base station is removed.

Removing a Paired Device via Network Control Panel of EOS

To remove a paired device via Network Control Panel of EOS:

1 On the Menu, select Bluetooth.

2 On the Bluetooth menu, select Setup.

3 On the Setup menu, select a paired device, then, select Remove.

Wireless Transaction

VX 690 supports wireless transactions.

Conducsting Wireless Transactions

To conduct wireless transaction:

1 Ensure the terminal is in an optimal position for transmitting.

2 Follow the on-screen instructions provided with your application.

Using the Smart Card Reader

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 Use the Smart Card Reader

1 Position the smart card with the gold contacts facing upward.

2 Insert the card into the smart card reader slot in a smooth, continuous motion until it sets firmly.

3 Remove the card only when the display indicates the transaction is complete.
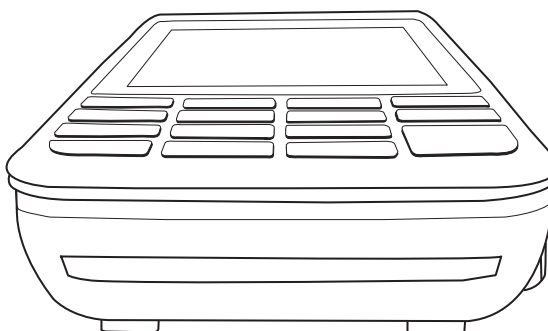
Figure 22   Smart Card Reader

CAUTION

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

Using the Magnetic Card Reader

The terminal has a magnetic card reader that uses a triple track stripe reader. This gives the unit greater reliability over a wide range of swipe speeds and operating environments.

To Use the Smart Card Reader (Credit/ Debit Card Transaction)

1   Position a magnetic card with the stripe in the card reader and facing the keypad.

2   Swipe it through the magnetic card reader starting from the top of the unit downward.
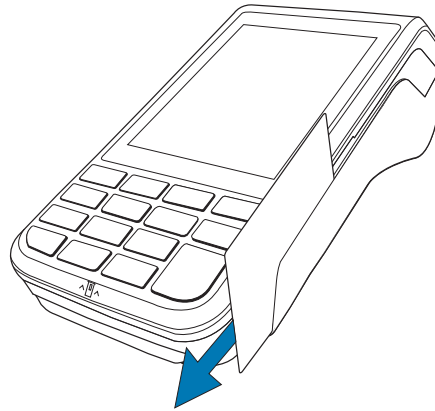
Figure 23   Using the Magnetic Card Reader

Performing a Contactless Smart Card Transaction

The terminal supports contactless transactions through an integrated contactless module. The terminal only becomes active for contactless smart card transactions when initialized by an application.

To Perform a Contactless Smart Card Transaction

1   Gently tap the card onto or hold the card (within 4 cm) against the surface of the RFID canopy.

2 An activated LED visual on the display accompanied by a short beeping sound indicates a successful transaction.

Figure 24   Contactless Smart Card Transaction

NOTE

Do not let metallic surfaces come in contact with the contactless module to ensure that it works properly.

Specifications

This chapter discusses power requirements, dimensions, and other specifications of the terminal.

Power Rating
- 5 V DC, 2.2 A

Power Pack
- PWR260-001-XX-A (varies per region)
- UL/cUL, ITE listed, LPS power supply
- Input rated: 100-240 V AC, 50/60 Hz
- Output rated: 5 V DC, 2.2 A, 11 W

Temperature
- Operating temperature: -10° to 50° C (32° to 122° F)
- Storage temperature: -20° to 70° C (-22° to 140° F)

External Dimensions
- Length: 173.25 mm (6.82 in.)
- Width: 87 mm (3.43 in.)
- Depth: 31.7 mm (1.25 in.)

Weight
- Unit weight: 0.27 kg (0.6 lbs)
- Shipping weight: 0.850 kg (1.9 lbs)

Processor
- 400 MHz ARM 11

Memory
- 192 MB memory (128 MB flash, 64 MB RAM)

Display
- 3.5" QVGA
- Supports up to 26 lines x 26 characters

Magnetic Card Reader
- Triple track (tracks 1, 2, 3), high coercivity, bi-directional

Primary Smart Card
- ISO 7816, 1.8 V, 3 V, 5 V
- Synchronous and asynchronous cards

SAM Card Reader

The terminal has two Security Access Modules (SAMs).

Keypad

- 3 x 5 Secure Keypad Matrix
- Keys can be simulated on touchscreen

Peripheral Ports

The micro-USB port on the terminal and on the base supports peripheral attachment such as USB flash, biometric scanner, and barcode reader. Micro-USB to USB converter adaptor is used for USB flash drive, application download, and debugging.

Security

Complies to PCI 3.x plus country specifics.

Maintenance and Cleaning

Your terminal device is a product of superior design and craftsmanship and should be treated with care. It has no user-serviceable parts. The following suggestions will help you protect your warranty coverage.

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode electronic circuits. If your device does get wet, switch off the power, and allow the device to dry completely before replacing it.

- Do not use or store the device in dusty, dirty areas. Its moving parts and electronic components can be damaged.

- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.

- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.

- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.

- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device. Use only a soft, clean, and dry cloth for cleaning.

- Do not paint the device. Paint can clog the moving parts and prevent proper operation.

- Keep the device free from any small, loose items (such as paper clips, staples, or coins) that could accidentally get inside it through an opening, such as the SD card reader slot or the primary smart card reader slot.

- Do not attempt to open the device other than as instructed in this guide. This device has security features that protect it from tampering. For example, if the device's outer casing is opened, the file content will be deleted.

These suggestions apply equally to your terminal device, or any of its attachments or accessories. If your device is not working properly, take it to the nearest authorized service facility for servicing or replacement. For your safety, have this device serviced only by a VeriFone-authorized service provider.

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.

Additional Safety Information

The following are additional information for your safety in using this device.

Power Adapter   Use only the power adapter that came with your device. Adapters for other electronic devices may look similar, but they may affect your device's performance or damage it.

Potentially Explosive Environments   Do not use this device in any area with a potentially explosive atmosphere, and obey all signs and instructions. Potentially explosive atmospheres include areas where you would normally be advised to turn off your vehicle engine. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Card Readers   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 any problems on your terminal, contact your local VeriFone representative or service provider.

For 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 the terminal to VeriFone, you must obtain a Merchandise Return Authorization (MRA) number. The following procedure describes how to return one or more terminals 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 on the bottom of each terminal to be returned:

- Product ID, including the model and part number. For example, "VX 690", "m260-xxx-xx", and "PTID xxxxxxxx."
- Serial number (S/N xxx-xxx-xxx).

2 Obtain the MRA numbers by completing the following:

- Call Verifone within the United States toll-free at 1-800-VeriFone and follow the automated menu options.

   - Select the MRA option from the automated message. The MRA department is open Monday–Friday, 8 A.M.–8 P.M., Eastern time.

   - 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.).

- 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.

- Complete the Inquiry Contact Form at http://www.verifone.com/aboutus/contact/contact_form.cfm.

• Address the Subject box with to "VeriFone MRA Dept."

• Reference the model and part number in the Note box

NOTE

One MRA number must be issued for each terminal you return to VeriFone, even if you are returning several of the same model.

---

3 Describe the problem(s).

4 Provide the shipping address where the repaired or replacement unit must be returned.

5 Keep a record of the following items:

• Assigned MRA number(s).

• VeriFone serial number assigned to the terminal you are returning for service or repair (serial numbers are located on the bottom of the unit.

• 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 terminal).

Accessories and Documentation

VeriFone produces accessories and documentation for the terminal. 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

Below are accessories used with your terminal. Contact your VeriFone distributor to determine which of accessories fit your requirements.

Table 4   Accessories and VPNs

Accessory	Part Number	Description
Power pack	PWR260-001-XX-A	DC power pack universal
Printer paper	PPR260-001-01-A	40 mm
VeriFone cleaning Kit	VPN 02746-01	Cleaning kit
USB host cable	VPN CBL268-003-01-A	
Serial dongle	VPN M267-D08-00	
Telephone line cable	VPN CBL000-001-01-A	2.1-meter (7-foot) telephone line cable, black, with modular RJ11-type connectors)

To learn more about the terminal, refer to the following set of documents:

VX 690 Certifications and Regulations Sheet	VPN - DOC260-001-EN
VX 690 Quick Installation Guide	VPN - DOC260-002-EN
VX 685/VX 690 Reference Guide	VPN - DOC260-004-EN
Verix eVo Volume I: Operating System Programmers Manual	VPN - DOC00301
Verix eVo Volume II: Operating System and Communication Programmers Manual	VPN - DOC00302
Verix eVo Volume III: Operating System Programming Tools Reference Manual	VPN - DOC00303

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REVISION B.1

Troubleshooting Guidelines

This chapter lists typical examples of malfunctions that you may encounter while operating your terminal and the steps that you can take to resolve them.

The troubleshooting guidelines provided in the following section are included to assist successful installation and configuration of the terminal. If you are having problems operating your unit, please read 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 terminal comes equipped with tamper-evident labels. It 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 terminal 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 Using the Magnetic Card Reader).

- 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 Using the Magnetic Card Reader).

- Ensure the MSAM cards are properly inserted in the slots and are properly secured (see Installing/Replacing MSAM Cards).

- If the problem persists, contact your local VeriFone representative.

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San Jose, CA, 95110 USA
1-800-VERIFONE
www.verifone.com

VX 685/VX 690

Installation Guide