

Verifone Carbon

Installation Guide

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Verifone Carbon Installation Guide
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Verifone, Inc.

1-800-Verifone

www.verifone.com



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

Audience

This guide describes the card reader’s features, and provides the basic information for its installation and configuration.

Organization

This guide is organized as follows:

[Chapter 1, Device Overview](#). Provides an overview of the device.

[Chapter 2, Setup](#). Explains setup and installation of the device, selecting a location, and establishing connections with other devices.

[Chapter 3, Specifications](#). Discusses the power requirements and dimensions of the device.

[Chapter 4, Maintenance and Cleaning](#). Explains maintenance of the device.

[Chapter 5, Service and Support](#). Provides information on contacting your Verifone 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 with unit installation and configuration.

[Chapter 7, Port Pinouts](#). Shows the different pinout settings for ports on the Verifone Carbon

[Appendix A, Caution and Warning Messages](#). Shows the UL/cUL certification-compliant translations of all Warning and Caution messages in this installation guide.

Related Documentation

To learn more about the card reader and controller device, refer to the following set of documents and their associated Verifone Part Numbers (VPNs).

<i>Verifone Carbon Certifications and Regulations Sheet</i>	VPN DOC179-001-EN
<i>Verifone Carbon Quick Installation Guide</i>	VPN DOC179-002-EN
<i>Verifone Carbon Reference Guide</i>	VPN DOC179-004-EN
<i>Verifone Carbon Printer Stand Certifications and Regulations Sheet</i>	VPN DOC179-005-EN
<i>Verifone Carbon Security Policy</i>	VPN DOC420-008-EN




Conventions and Acronyms

This section describes the conventions and acronyms used in this guide.

Document 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 referenced.	See Conventions and Acronyms .
	The pencil icon is used to highlight important information.	If exchanging cables, use a Verifone-approved cable.
	The caution symbol indicates possible hardware or software failure, or loss of data.	Using an incorrectly rated power supply can damage the unit or cause it to malfunction.
	The lightning symbol is used as a warning when bodily injury might occur.	For safety, do not string cables or cords across a walkway.

Acronym Definitions

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

Table 2 Acronym Definitions

Acronym	Definitions
COM	Communications port
CTLS	Contactless
EMV	Europay, MasterCard, and Visa
ETH	Ethernet
HW	Hardware
I/O	Input/Output
ITP	Internal thermal printer
LCD	Liquid crystal display
LPS	Lines per second
MSAM	Micromodule-Size Secure Access Module
MSR	Magnetic-stripe card reader
PCI	Payment Card Industry
PIN	Personal Identification Number
POI	Point of Interaction

Table 2 Acronym Definitions (continued)

Acronym	Definitions
PTS	PIN Transaction Security
QVGA	Quarter Video Graphics Array
RJ45	Registered Jack 45 modular connector
SAM	Secure Access Module
SC	Smart card
SCR	Smart card reader
SD	Secure Digital
SDA	Static Data Authentication
SDHC	Secure Digital High Capacity
SIM	Subscriber Identity Module
SMA	SubMiniature version A connector
TFT	Thin-film transistor
TLS	Transport Layer Security
UI	User interface
USB	Universal Serial Bus

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Device Overview

This chapter provides a brief description of the Verifone Carbon system, a modular merchant- and consumer-facing device, enabling use as a handheld or stand-mounted payment solution.

Features and Benefits

Verifone Carbon provides magnetic-stripe card reader (MSR), smart card (SC) and contactless (CTLS) payment processing with a 5-inch (12.7 cm) color TFT capacitive touch panel LCD screen, integrated with a 10 or 8 inch (25.4 or 20.32 cm) tablet. The Printer Stand provides additional expansion options (such as a bar code scanner and weighing scale), connectivity features (USB, MOD 10, telco and RJ45) as well as power charging and an optional internal thermal printer (ITP)..

NOTE



Verifone ships variants of the Verifone Carbon system for different markets. Your device may have different features described in this section.

Connectivity

- Device port
 - High speed USB2.0 connection with tablet
 - Interface to tablet on USB 2.0 port 0
 - Host port (OS downloads) on micro USB type AB connector
 - Interface on USB 2.0 port 1 (Please refer to section 5.8 of ERS for details)
 - Unpowered RS232 with no handshake (key loading) on micro USB type AB connector
 - RX/TX only using (VPNCBL179-100-01-A)
-

NOTE



You can find the Verifone Carbon ports on the lower right area behind the 5-inch screen. The Printer Stand ports are accessible from the underside of the unit, while the tablet ports and slots are on the sides of the lower right corner.

Performance

- Verifone Carbon:
 - 4GB RAM and 512MB Flash memory
 - 5-inch color TFT display capacitive touch panel LCD (854 x 480)
 - Software-controlled backlight
 - WiFi and Bluetooth enabled
 - Integrated external speaker

- Tablet:
 - 8 or 10-inch color TFT display capacitive touch panel LCD (1280 x 800)
 - Barcode scanning enabled for front and rear cameras
 - Provides power and data to Verifone Carbon unit
 - WiFi and Bluetooth enabled
 - Integrated external speaker
 - Optional 3G or 4G
- Printer Stand:
 - USB 2.0 high-speed connections
 - Provides ETH and WiFi to Verifone Carbon + tablet unit
 - Provides power and data to Verifone Carbon + tablet unit
 - Cash drawer interface
 - Optional printer

Security

- PCI PTS POI v4.x approved for debit and other PIN-based transactions
- EMV L1 Type Approval (contact and contactless)
- Tamper-resistant construction, TLS protocols, and VeriShield file authentication
- Supports VeriShield Protect encryption implementations.

Exceptional Ease of Use

- Capacitive touch-screen UI access for merchant and customer.
- Signature capture screen capability.
- The contactless (CTLS) functionality offers a convenient payment option for consumers.
- The triple-track, high-coercivity card reader handles most magnetic stripe cards.
- EMV card reader ensures secure payment option.
- Large (5-inch for customers, 8- or 10-inch for merchants) LCD displays simplify training and reduce help desk calls.
- The multiple font-capable optional thermal printer simplifies paper loading and reduces paper jams. Uses 80 mm wide x 80 mm diameter paper rolls, prints at 30 lines per second (LPS).

Modular Countertop Performance

- The 32-bit processing and multi-tasking capabilities ensures fast processing of payment, payment-related, and value-added applications.
- Exceptional displays and optional printer graphics-handling capabilities that quickly render logos, graphical fonts, and character-based languages.

True Multi-Application Capability

- The Verifone Carbon ensures uncompromising reliability from Verifone, the worldwide leader in e-payment.
- The Verifone Carbon offers 4 GB and 512 MB of dynamic memory allocation for the operating system, which supports multiple applications on a single terminal.
- The primary smart card reader and the MSAMs safeguard sensitive financial data and support multiple smart card schemes.
- Verifone Carbon units are certified for ISO 7816-1 and ISO 7816-2 standards for smart card solutions, as well as ISO 14443 type A & B and ISO 18092 standards for CTLS operations.
- The VeriShield security architecture meets published specifications for PCI PTS POI and provides sophisticated file authentication to prevent execution of unauthorized software on Verifone Carbon devices.

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Setup

This chapter describes the setup procedures for the Verifone Carbon terminal, under the following sections:

- Selecting Unit Location
- Unpacking the Shipping Carton
- Examining the Unit's Features
- Establishing Communication
- Loading a Paper Roll in the Printer
- Installing or Replacing MSAM Cards
- Connecting Optional Devices
- Connecting the Terminal Power Pack
- Using the Smart Card Reader
- Using the Magnetic Card Reader

Selecting Unit Location

Use the following guidelines when selecting a location for your device.

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 a network, telephone, or modem line connection.
- For safety, do not string the power cord in a walkway or place it across a walkway on the floor.

Environmental Factors

- The unit must be used in an attended environment.
- Do not use the terminal 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 motor.

- Do not use the unit outdoors.

CAUTION

The Verifone Carbon is not waterproof or dustproof, and is intended for indoor use only.

Any damage to the unit from exposure to rain or dust may void any warranty.

Electrical Considerations

- Avoid using the Verifone Carbon during electrical storms.
- Place the Verifone Carbon 10 cm away from metallic objects to avoid interference with the CTLS field.
- 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.

PIN Protection Measures

You can employ several techniques for effective PIN entry screening on the keypad. Use the following methods in combination or singly, as necessary:

- Position the Verifone Carbon on the printer stand in such a way as to make visual observation of the PIN entry process infeasible. Examples include:
 - Visual shields designed into the check-stand. These shields may be solely for shielding purposes, or may be part of the general check-stand design.
 - Position the Verifone Carbon so that it is angled in such a way that PIN spying is difficult.
- Position the in-store security cameras so that PIN entry is not visible.
- Use signage to limit the view of the Verifone Carbon to just that of the cardholder.
- Offer PIN security literature at the point of sale.

Unpacking the Shipping Carton

Open the shipping carton and carefully inspect its contents for possible tampering or shipping damage. The Verifone Carbon is a secure product and any tampering may cause the device to cease to function properly.

To unpack the shipping carton

- 1 Validate the authenticity of the sender by verifying the shipping tracking number and other information located on the product order paperwork.
- 2 Remove and inspect the following items:
 - Verifone Carbon terminal integrated with 10- or 8-inch tablet
 - Stand with or without Printer
 - Power pack
 - Telephone line cord
 - Paper roll

Refer to [Accessories and Documentation](#) for more information about the device's related accessories.



Verifone ships variants of the Verifone Carbon for different markets. Your unit may have different accessories described in this section.

- 3 Remove all plastic wrapping from the terminal and other components.
- 4 Remove the clear protective film from the displays.
- 5 Save the shipping carton and packing material for future repacking or moving of the device.



Do not use a unit that has been tampered with or otherwise damaged. This unit comes equipped with tamper-evident labels. If a label or component appears damaged, immediately notify the shipping company and your Verifone representative or service provider.

Periodic Inspection

Periodically inspect the Verifone Carbon terminal for possible tampering. Signs of tampering include:

- Wires protruding out of the device.
- Foreign objects inserted into the smart card slot or magnetic stripe slot.
- Signs of damage to the tamper-evident labels.
- A Tamper Warning message on the device display.

If any device is found in tamper state, please remove it from service immediately, keep it available for potential forensics investigation, and notify your company security officer and your local Verifone representative or service provider. For contacting Verifone, please see "[Service and Support](#)".

Examining the Unit's Features

Before you continue the installation process, review the features of the device (see Figure 1).

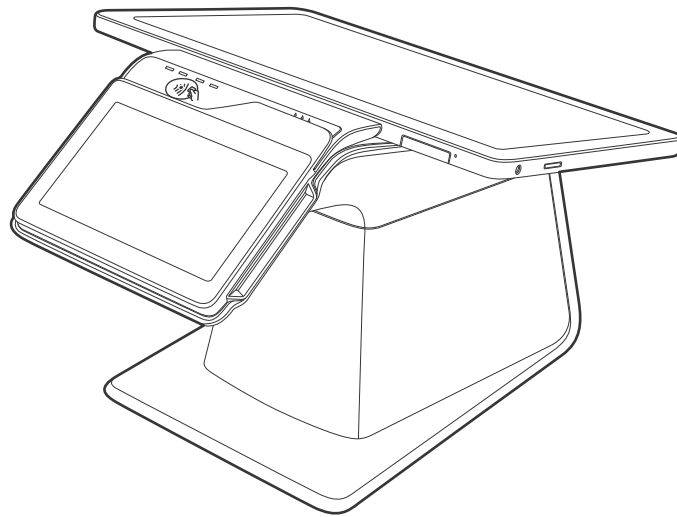


Figure 1 Verifone Carbon Mounted on Printer Stand

Verifone Carbon Features

The Verifone Carbon terminal presents the following:

- A touchscreen LCD display. The upper left edge of the screen acts as the tapping area for contactless transactions.
- A magnetic card reader, built into the top right edge of the screen. The arrows indicate swipe direction.
- A smart card reader built into the right side of the screen.
- 8- or 10-inch display
- Printer Stand
- The internal thermal printer door opens with a push on the right-side button.
- Printer indicator LED

Connection Ports Turn the printer stand upside down to view the connection ports. The ports provide communications, peripheral device connections, and power supply.

Figure 2 shows the power, communications and connection ports for the Verifone Carbon printer stand.

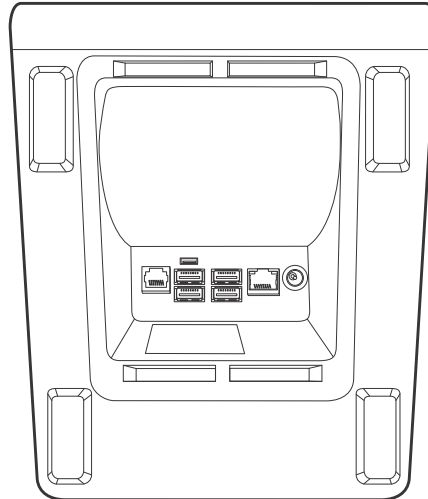


Figure 2 Power and Communication Ports

WARNING



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

To use the connection ports

The connection ports offer multiple connectivity for the Verifone Carbon terminal. Please refer to the following list of peripheral devices for the connectivity options.

NOTE



Verifone ships variants of the Verifone Carbon terminals for different markets. Your terminal may have different features described in this section.

Host USB Port

- PIN Pads
- Barcode readers
- Biometric readers
- USB flash disk
- USB keyboards

Ethernet Port

- Ethernet cable to router, hub or switch

Multi-Communication Port (USB/RS-232)

- PIN Pads

- Computers
- ECRs
- Check readers
- CTLS readers
- Biometric readers
- Barcode readers
- Keyboards

Telco Port

- Telephone line with 56K modem

The MOD 10 RS-232 + USB/Mini-USB Multi-Communication dongles (VPN CBL420-002-01-A and CBL420-002-02-A) support the following:

- PIN Pads
- Computers
- ECRs
- Check readers
- CTLS readers
- Biometric readers
- Barcode readers
- Keyboards

NOTE

The Multi-Communication port supplies 11.6 V / 365 mA to power accessories (PIN pads and powered RS-232 devices). It is SW configurable to Host or Client and supplies 5 V, 500 mA to external USB devices.

For information on how to attach peripheral devices, see [Connecting Optional Devices](#).

Establishing Communication

You can connect the Verifone Carbon Printer Stand to your network using an ethernet cable. You can also connect using the Wi-Fi option on the Verifone Carbon.

Connecting by Ethernet Cable

Connect the ethernet cable to the ETH port on the printer stand, then route it directly to a network jack (see [Figure 3](#)). This is a direct connection to your network.

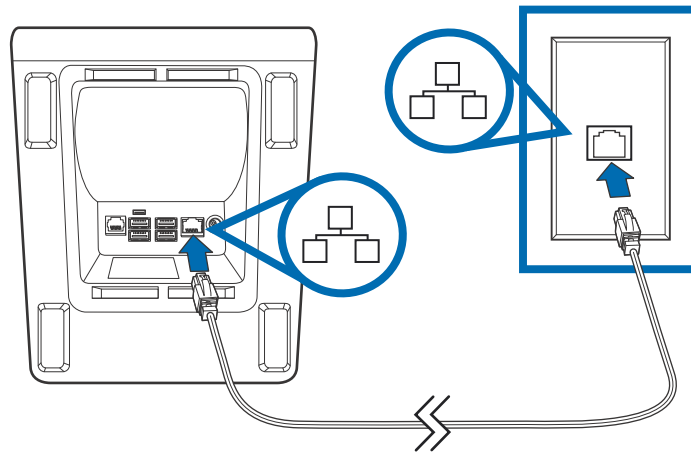


Figure 3 Ethernet Connection

Loading a Paper Roll in the Printer

Before you can process transactions that require a receipt, you must install paper in the printer.

The Verifone Carbon Printer Stand uses a roll of 57 mm wide x 40 mm, single-ply, thermal sensitive paper.

A pink out-of-paper indicator line appears on the edge of the paper before the end of the roll. After this line appears, there is enough paper remaining on the roll to conclude at least one more transaction.



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.

To install a paper roll 1 Press the printer door button. See Figure 4).

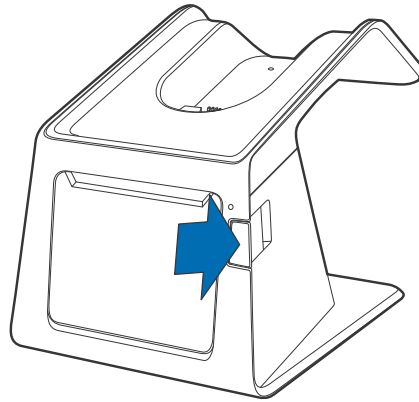


Figure 4 Opening the Printer Door

- 2 Remove any partial roll of paper in the tray.
- 3 Loosen the glued leading edge of the new paper roll or remove the protective strip. Unwind the paper roll past any glue residue.
- 4 Hold the roll so the paper feeds from the *bottom* of the roll.
- 5 Gently drop the paper roll into the printer tray.

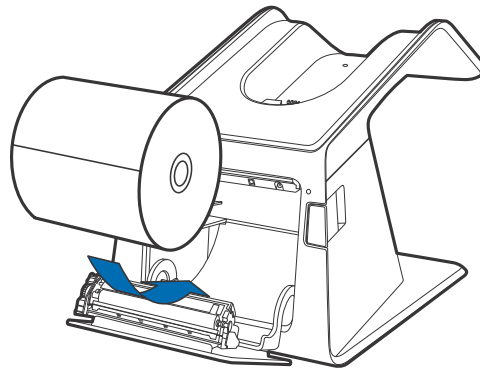


Figure 5 Loading Paper Roll

- 6 Pull paper up past the glue residue.

- 7 Close the printer door by swinging upward until the door clicks shut, allowing a small amount of paper past the glue residue to extend outside the printer door. (see Figure 6).

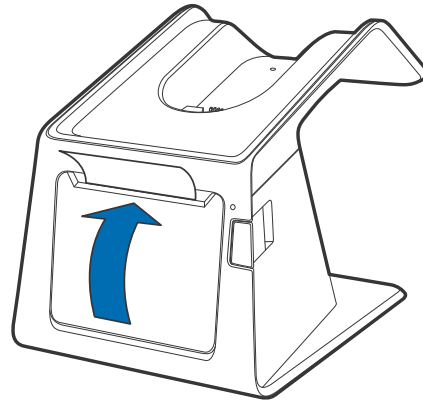


Figure 6 Closing Printer Door

NOTE



For paper ordering information, refer to [Accessories and Documentation](#).

Installing or Replacing MSAM Cards

When you first receive your Verifone Carbon, you may need to install one or more MSAM cards, or you may need to replace old cards.

CAUTION



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

NOTE



Verifone ships variants of the Verifone Carbon device for different markets. Your unit may have different features described in this section.

To install or replace MSAMs

- 1 Remove the power pack from the power outlet.
- 2 Place the unit upside down on a soft, clean surface to protect the display from scratches.

- 3 Hook your finger on the latch and lift the cover to access the MSAM card slot.

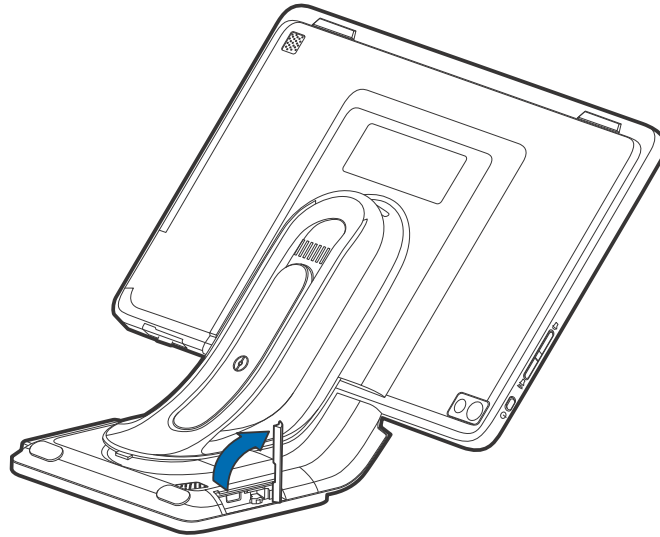


Figure 7 Opening the MSAM Cover

- 4 Remove any previously installed MSAM cards from the cardholder.
- 5 Install an MSAM card by carefully sliding it into the slot until it is fully inserted.

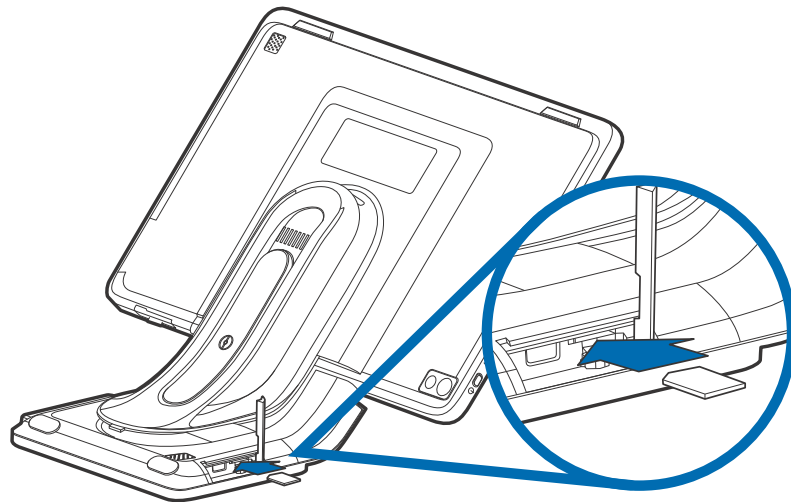


Figure 8 Installing an MSAM Card

- Swing the MSAM cover down to secure it in place.

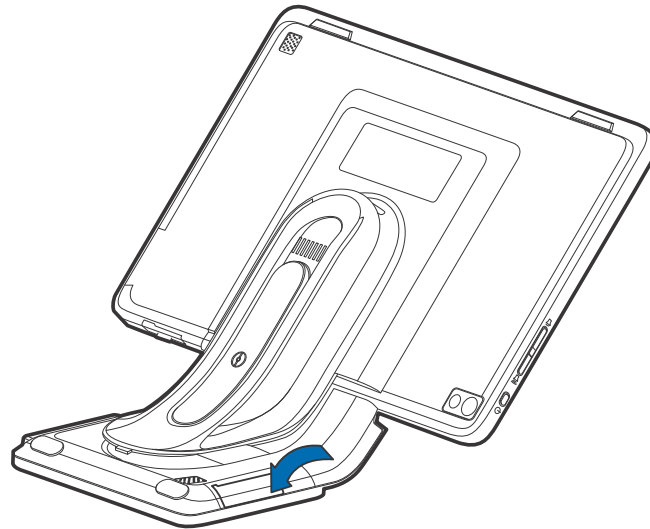


Figure 9 Closing MSAM Cover

Connecting Optional Devices

The Verifone Carbon device supports some peripheral devices designed for use with electronic point-of-sale terminals.



CAUTION Before connecting any peripheral device, remove the power plug from the terminal. 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.

Different terminals support different devices, so for more information about optional devices, please contact your Verifone distributor.

Optional Device Connections

You can connect several devices to your Verifone Carbon. For reference, see [To use the connection ports](#) for the list of devices you can connect to the Verifone Carbon.

You can use the MOD 10 RS-232 + USB/Mini-USB Multi-Communication dongle (VPN CBL420-002-01-A and CBL420-002-02-A) as a PIN pad port or an RS-232 port, depending on the power source available.



NOTE Make sure you replace the rear cover when all cables are installed. This provides some protection to the cables and connectors. Do not carry the terminal by the installed cables or pull the terminal about the by the cables. This may cause a cable to be removed or damage the cables.



CAUTION Some devices (ECRs and some PIN pads) require a separate power source. Before connecting to any device, remove the power cord from the Verifone Carbon unit.

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Connecting the Terminal Power Pack

Contact your Verifone representative or visit the online store at www.store.verifone.com for information on these devices.

Connecting ECRs to the Verifone Carbon

The Verifone Carbon supports electronic cash registers (ECRs).

The following illustration shows how to make a peripheral connection to the Multi-Communication port using the MOD 10 RS-232 + USB Multi-Communication dongle (VPN CBL420-002-01-A)

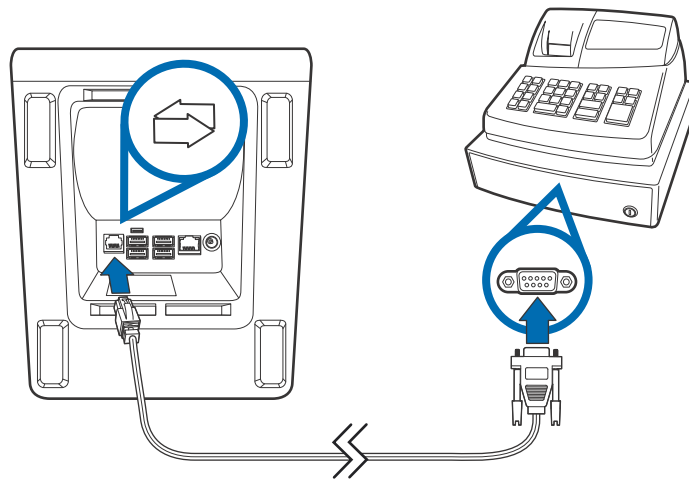


Figure 10 Sample ECR Connection

Connecting the Terminal Power Pack

After connecting optional peripherals, prepare to connect the Verifone Carbon to your power source.



CAUTION Using an incorrectly rated power supply may damage the terminal or cause it not to work as specified. Before troubleshooting, ensure that the power supply being used to power the terminal matches the requirements specified on the bottom of the terminal. (See [Chapter 3, Technical Specifications](#), for detailed power supply specifications.) Obtain the appropriately rated power supply before continuing with troubleshooting.



NOTE Plugging in the power pack to a power source automatically turns on the terminal.

To connect the terminal power pack

- 1 Remove the terminal rear cover to access the power port.

- 2 Insert the round barrel connector (see A in Figure 11) into the power port.

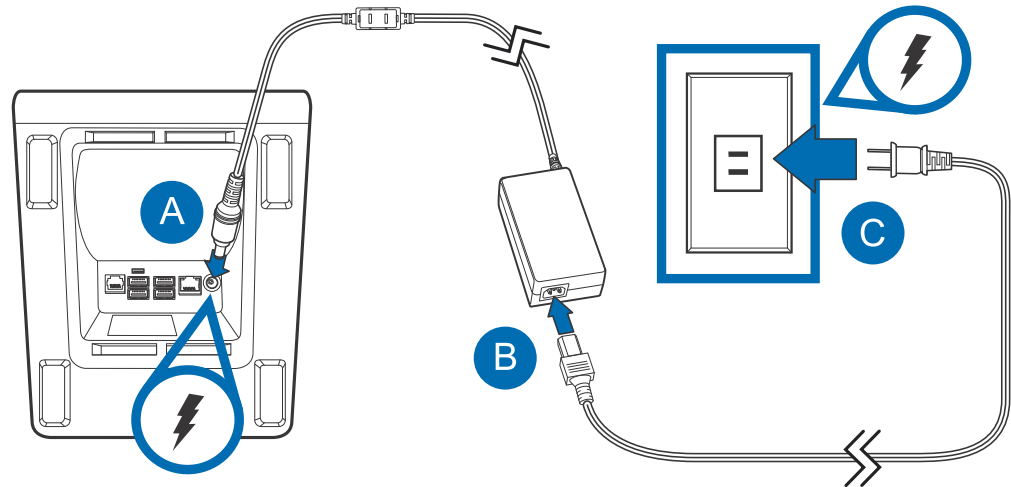


Figure 11 Power Connection

- 3 Connect the power adapter to the power brick (see B in Figure 11).
- 4 Plug the AC power pack into a wall outlet or powered surge protector.

WARNING



Do not plug the power pack into an outdoor outlet or operate the terminal outdoors.

Disconnecting the power during a transaction may cause transaction data files not yet stored in terminal memory to be lost.

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

The screens activate when the device has power.

If the terminal comes pre-loaded with an application, this starts after the initial Verifone copyright screen and usually displays its own copyright screen.

Using the Smart Card Reader

The smart card transaction procedure may vary from one application to another. Verify the procedure with your application provider before performing a smart card transaction.

To conduct a smart card transaction

- 1 Position a smart card with the contacts facing upward (see Figure 12).
- 2 Insert the smart card into the smart card reader slot in a smooth, continuous motion until it seats firmly.
- 3 Remove the card only when the application indicates the transaction is complete.

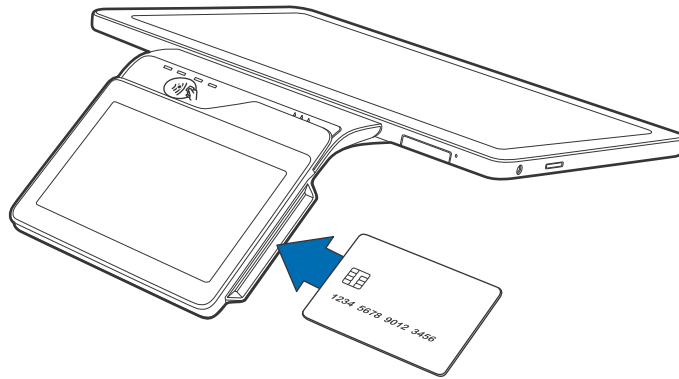


Figure 12 Inserting a Smart Card



CAUTION Leave the smart card in the card reader until the transaction is complete. Premature card removal will invalidate the transaction.

Using the Magnetic Card Reader

The Verifone Carbon terminal supports credit or debit card transactions.

To conduct a credit or debit card transaction

- 1 Position the card with the magnetic stripe oriented downward, facing the reader.

- 2 To ensure a proper read of the magnetic stripe, swipe the card smoothly through the reader in one direction (either to the left or to the right), as shown in Figure 13.

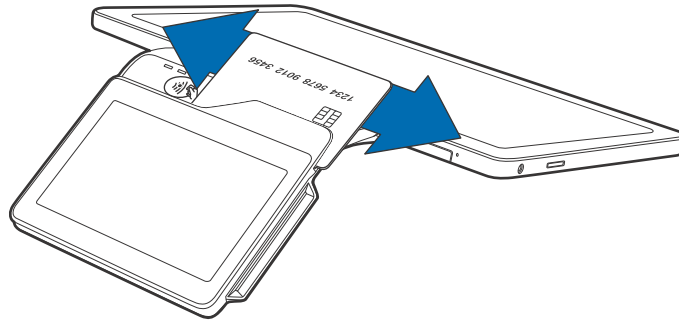



Figure 13 Using the Magnetic Card Reader

- 3 Check the screen for confirmation of a successful transaction.

Using the Contactless Reader

Verifone Carbon provides a third alternative to paying for goods and services: CTLS.

To perform a CTLS transaction

- 1 Hold the card (within 4 cm) or gently tap against the surface of the contactless antenna, marked by the logo .

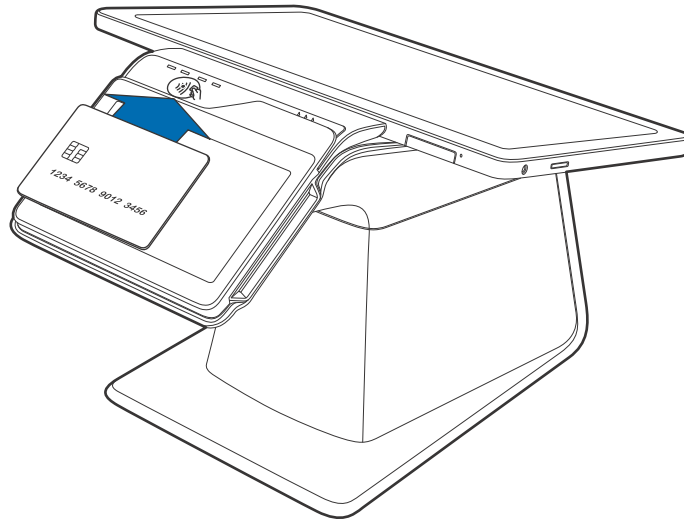


Figure 14 Conducting a Contactless Transaction

- 2 After you tap your card, the LEDs will light up and the buzzer will sound for about 2 seconds, prompting you to remove your card.

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Specifications

This chapter discusses power requirements, dimensions, and other specifications of the Verifone Carbon system.

Technical Specifications

Refer to the following information on the power, weight, temperature, memory, ports and other technical details about your Verifone Carbon system.

Swordfish Unit Power Requirements

- Input power rating: 5 V DC, 2.2 A.
- External universal-input 100-240 V AC, 0.5 A power supply, compliant with Energy Efficiency.

Temperature

- Operating Environment: 0°C to +50 °C (32 °F to 122 °F)
- Non-Operating Environment: -20 °C to +70°C (- 4 °F to 158 °F)
- Relative humidity: 5% to 90% RH non-condensing

Memory

- 4GB RAM and 512MB Flash memory

Magnetic Stripe Card

- Triple-track
- Supports bi-directional card read, swipe speed at 10 IPS to 40 IPS

Smart Card Reader

- Non-sliding
- Card conserving plated landing contacts

CTLS Function

- Verifone Carbon and
- Verifone Carbon only

SAM Requirements

- 1 SAM slot

- ID-000 format

Communication

- WiFi
- Bluetooth

Display

- 5-inch capacitive touch screen LCD (854 x 480)
- Software controllable back-light

Tablet Unit Power Requirements

- Input power rating: 11.6 V DC, 1.55 A.
- External universal-input 18 W power supply, compliant with Energy Efficiency.

Temperature

- Operating Environment: 0°C to +50 °C (32 °F to 122 °F)
- Non-Operating Environment: -20 °C to +70°C (- 4 °F to 158 °F)
- Relative humidity: 5% to 90% RH non-condensing

Audio and Video

- 8- or 10-inch capacitive touch screen LCD (1280 x 800)
- Audio jack (audio and microphone)
- Front- and Rear-facing cameras capable of barcode reading
- SD Card slot

Communication

- WiFi
- Bluetooth

Sensors

- Accelerometer (Gyroscope + Accelerometer)
- Proximity
- Light
- GPS
- SAR

Stand Unit Power Requirements

- Input power rating: 24 V DC, 3.75 A
- External universal-input 18 W power supply, compliant with Energy Efficiency.

Temperature

- Operating Environment: 0°C to +50 °C (32 °F to 122 °F)
- Non-Operating Environment: -20 °C to +70°C (- 4 °F to 158 °F)
- Relative humidity: 5% to 90% RH non-condensing

Communication

- WiFi
- Ethernet
 - Speed 10 Base-T /100 Base-TX
 - Compliant with IEEE802.3 LAN networks.
- Dial modem
 - V.92 standard supported, line speeds from 2400 Kbps to 56 Kbps.
- USB
 - Four USB2.0 high speed slots
 - Supports 5 V, 500 mA to external USB device
 - One micro USB type AB host port (OS downloads)
- Multi-Communication port
 - Supports the MOD 10 RS-232 + USB/Mini-USB Multi-Communication dongle.
- Optional 3G or 4G

Printer Stand Unit Power Requirements

- Input power rating: 24 V DC, 3.75 A
- External universal-input 18 W power supply, compliant with Energy Efficiency.

Temperature

- Operating Environment: 0°C to +50 °C (32 °F to 122 °F)
- Non-Operating Environment: -20 °C to +70°C (- 4 °F to 158 °F)
- Relative humidity: 5% to 90% RH non-condensing

Thermal Printer

- Support 30 LPS for first 30 sec, and then printing speed will slow down to meet 18 W power budget.
- Supports 57 mm wide x 40 mm diameter paper roll
- Out-of-Paper Sensor.

Communication

- WiFi
- Ethernet
 - Speed 10 Base-T /100 Base-TX
 - Compliant with IEEE802.3 LAN networks.
- Dial modem
 - V.92 standard supported, line speeds from 2400 Kbps to 56 Kbps.
- USB
 - Four USB2.0 high speed slots
 - Supports 5 V, 500 mA to external USB device
 - One micro USB type AB host port (OS downloads)
- Multi-Communication port
 - Supports the MOD 10 RS-232 + USB/Mini-USB Multi-Communication dongle.
- Optional 3G or 4G

Maintenance and Cleaning

Your Verifone Carbon should be treated with care. It has no user-serviceable parts.

The following suggestions will help you protect your warranty coverage.

- 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, dry cloth for cleaning.

These suggestions apply equally to your device, or any of its attachments or accessories. If your device is not working properly, take it to the nearest Verifone-authorized service provider for servicing or replacement.



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

Additional Safety Information

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

Potentially Explosive Environments

When using the device in areas with potential risk of explosion, such as petrol stations, follow the advice of all signs and instructions. If there has been a leak, do not use this device.

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V

Service and Support

For Verifone Carbon problems, contact your local Verifone representative or service provider.

For device 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 unit to Verifone, you must obtain a Merchandise Return Authorization (MRA) number. The following procedure describes how to return one or more card reading 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 •](#)) on the underside of each unit to be returned:
 - Product ID, including the model and part number. For example, “M420-xxx-xx-xxx” and “PTID xxxxxxxx.”

- Serial number (S/N xxx-xxx-xxx).

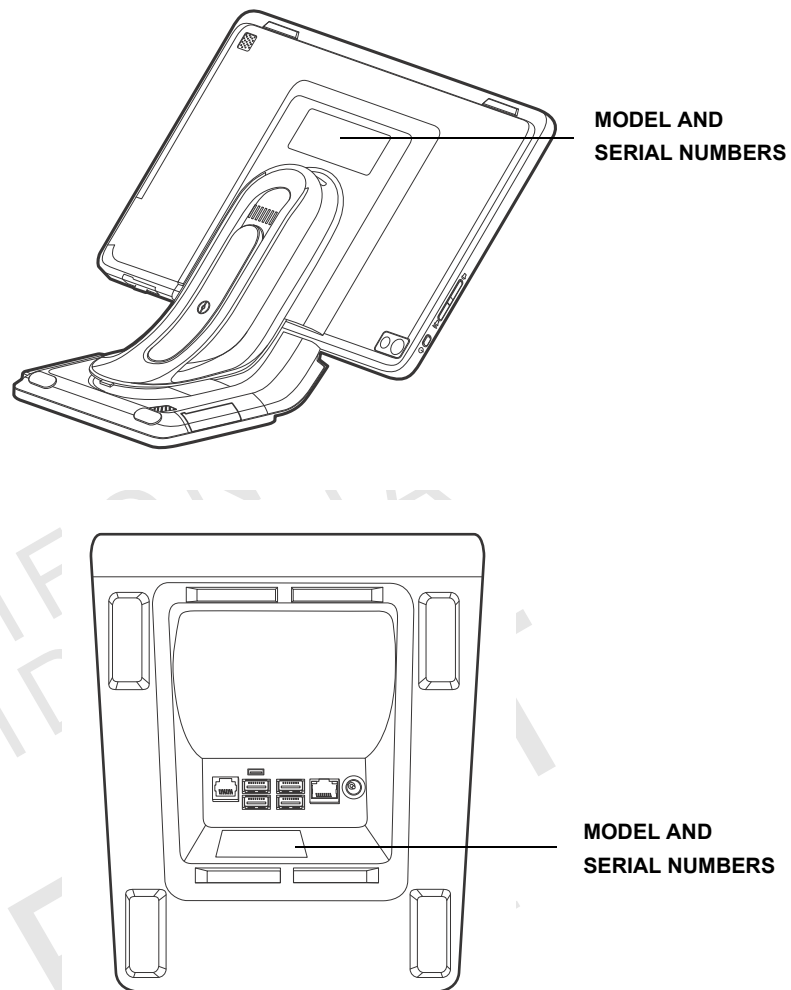


Figure 15 Information Labels on Verifone Carbon and Printer Stand

- 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 to 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.



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

- Describe the problem(s) and provide the shipping address where the repaired or replacement unit must be returned.
- Keep a record of the following items:
 - Assigned MRA number(s).
 - Verifone serial number assigned to the unit you are returning for service or repair (serial numbers are located on the top of the unit, (see [Figure 4](#))).
 - 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 top of the unit).

Accessories and Documentation

Verifone produces accessories and documentation for the card reader. 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

Connection Cables

CBL159-312-01-A	LAN cable for Ethernet connections.
CBL420-002-01-A	MOD 10 RS-232 + USB Multi-Communication dongle
CBL420-002-02-A	MOD 10 RS-232 + Mini-USB Multi-Communication dongle
26264-01-R	Cash register cable, RJ45-SUBD9f, 1.0m.
26264-02-R	Cash register cable, RJ45-SUBD9f, 2.0m.

Power Cables

PWR420-001-01-A	18 W power pack.
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Cleaning Kit

02746	Verifone Cleaning Kit.
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Documentation

VPN DOC420-001-EN	<i>Verifone Carbon Certifications and Regulations Sheet</i>
VPN DOC420-002-EN	<i>Verifone Carbon Quick Installation Guide</i>
VPN DOC420-004-EN	<i>Verifone Carbon Reference Guide</i>
VPN DOC179-005-EN	<i>Verifone Carbon Printer Stand Certifications and Regulations Sheet</i>
VPN DOC420-008-EN	<i>Verifone Carbon Security Policy</i>

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V



Troubleshooting Guidelines

This chapter lists possible malfunctions that may occur while operating a Verifone Carbon device and recommends appropriate corrective actions. 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 unit comes equipped with tamper-evident labels. The reader 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

Using an incorrectly rated power supply may damage the unit or cause it to not work properly. Before troubleshooting, ensure that the power supply used to power the unit matches the specified requirements (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 screen does not show correct or clearly readable information:

- Check terminal power connection.
- Remove and reapply power to the terminal.
- Check all cable connections and verify that the telephone line is properly connected.
- If the problem persists, contact your local Verifone service provider.

Terminal Does Not Dial Out

Use the following steps when the terminal does not dial out:

- If you are using a telephone connection, check if the telephone line is plugged correctly in the terminal port and in the telephone line socket.
- Check that the telephone line is working by plugging it into a working telephone and listening for a dial tone.
- Replace the telephone cable that connects the terminal with a cable you know is working correctly.
- Verify that a modem profile is present. The modem will not function without a modem profile.

- If your terminal shares the same network as your Internet, check that the Internet connection is working.
- If you are using a Wi-Fi connection, the terminal may be out of the Wi-Fi range. If possible, move the terminal closer to the Wi-Fi router.
- If your establishment uses the same modem or router to connect to a PC, you should attempt to visit a web site to verify that the router or modem is working properly.
- Check if the Wi-Fi router or modem is turned on or plugged in and connected to the telephone socket.
- Test the router or modem by connecting an analogue telephone to the phone line that the router or modem is using. Make sure there is a normal dial tone.
- Try rebooting your router, modem and/or terminal, disconnect the power cable to the terminal and router. Wait approximately 30 seconds. Allow 60 seconds for the terminal application to reboot and establish a connection with the router.
- If you are using an Ethernet connection, check if the Ethernet cable is connected to the port on the terminal and to a working network port.
- If the problem persists, contact your local Verifone service provider.

Printer Paper Jam

If paper jams inside the printer:

- 1 Open the printer door.
- 2 Remove the damaged paper from the paper roll.
- 3 Replace the paper roll and close the printer door.
- 4 If the problem persists, it may be due to poor paper quality. Install a new roll of higher-quality printer paper.

CAUTION



Poor-quality paper may jam the printer. To order high-quality Verifone paper, refer to [Accessories and Documentation](#).

Keypad Does Not Respond

If the on-screen keypad does not respond properly:

- Check the terminal display. If it displays the wrong character or nothing at all when you touch an on-screen character, follow the steps outlined in [Transactions Fail To Process](#).
- If touching a screen command 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.

Peripheral Device Does Not Work

If any peripheral device (PIN pad or smart card reader) does not work properly:

- Check the power cord connection to the peripheral device.
- Check that the device connected to the proper port has power and is functioning properly. If possible, perform a self-test on the device in question.
- The cable connecting the optional device to the terminal serial port may be defective. Try a different serial cable. See [Connecting Optional Devices](#).
- If the problem persists, contact your local Verifone representative.

Transactions Fail To Process

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

Check the 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. With the card reader, the black magnetic stripe should face down.
- If possible, process a transaction manually, using an external keypad, instead of the card reader. If the manual transaction works, the problem may be a defective reader.
- If the manual transaction does not process, proceed to [Check the Telephone Line](#).
- If the problem persists, contact your local Verifone representative.

Check the 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 and that the card is not removed prematurely.
- Ensure the SAM cards are properly inserted in the cardholders and that the cardholders are properly secured (see [Installing or Replacing MSAM Cards](#)).
- If the manual transaction does not process, proceed to [Check the Telephone Line](#).
- If the problem persists, contact your local Verifone representative.

Check the Telephone Line

- Disconnect the telephone line from the terminal and connect it to a working telephone to check for a dial tone. If there is no dial tone, replace the telephone cable.

- If the problem appears to be with the telephone line, check with the party you are trying to call to see if their system is operational. If they are not experiencing difficulties with their line, contact the telephone company and have your line checked.
- If the telephone line works, contact your local Verifone representative for assistance.

Printer Does Not Print

If the printer does not work properly:

- Check terminal power connection.
- Check if the printer is out of paper and that the roll is properly installed. Open the printer door and install a new roll of paper or ensure that the roll is feeding from the bottom.
- Verify that the paper roll is properly installed and the printer door securely closed.
- If the problem persists, contact your Verifone distributor or service provider.

Terminal Display Does not Show Correct or Readable Information

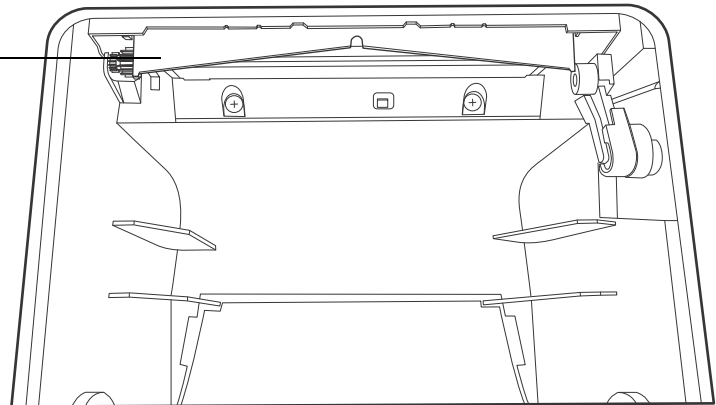
If the display contains errors or does not power up:

- Connect the terminal in to a known-good power supply (if you have one) to see if this clears the problem.
- If the problem persists, contact your local Verifone representative for assistance.

Printer Blade Jams or Printer Door Can't be Closed

If the printer blade won't retract or you can't shut the printer door, exercise caution in resolving these issues.

PRINTER BLADE
JAMMED IN
CUTTING POSITION



PRINTER BLADE
RETRACTED IN
NORMAL POSITION

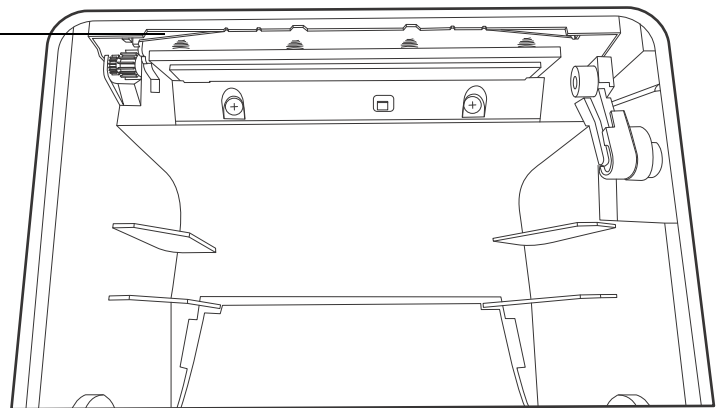


Figure 16 Jammed Printer Blade vs Retracted Blade

WARNING



Do NOT attempt to push the blade back to its retracted position. Use the procedures in this section to retract the blade.

If the provided troubleshooting steps do not resolve this issue, contact your Verifone representative or send the unit in for repairs.

Use the following steps to return the printer blade back to its retracted position and close the printer door:

- Push the Printer Door Release button, as shown in the following illustration:

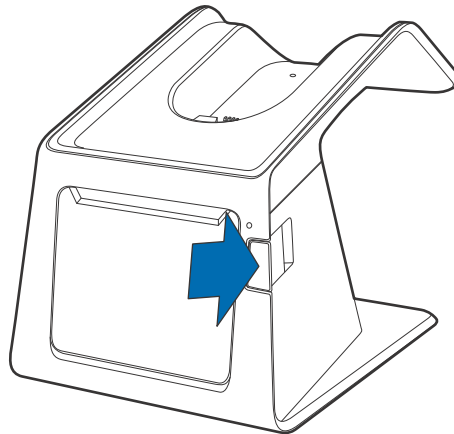


Figure 17 Printer Door Release Button

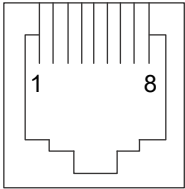
- When the printer blade does not return to its retracted position at once, press the button again (without closing the printer door).
- If pushing the Printer Door Release button while the printer blade is jammed causes the Release button to lock up as well, “press the release button against the printer main body and then push the button again.” Marco, please let me know if this is a correct interpretation of your instructions. Thanks.
- To return the movable blade to its retracted position faster, “operate the release button while pressing down the release button.” Marco, please clarify this, I don't understand what this means. Thanks.

Port Pinouts

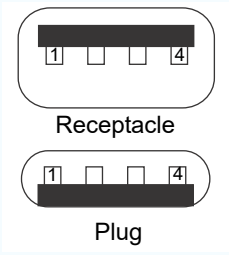
Verifone Carbon Port Pinout Definitions

This section contains port pinout information for the Verifone Carbon and Printer Stand.

Ethernet Port (LAN)

Connector	PIN	Function	Description
	1	TXD+	Transmit data +
	2	TXD-	Transmit data -
	3	RXD+	Receive data +
	4	NC	No connection
	5	NC	No connection
	6	RXD-	Receive data -
	7	NC	No connection
	8	NC	No connection

USB Pinout



Connector	PIN	Function	Description
	1	+5 V	5 V USB Power (500 mA)
	2	DATA-	USB Host Signal -
	3	DATA+	USB Host Signal +
	4	GND	USB ID pin/Ground

NOTE



This USB Type-A port is part of the RS-232 + USB Multi-Communication dongle (VPN CBL420-002-01-A).

USB Mini-B Pinout

Connector	PIN	Function	Description
 <p>Receptacle</p>	1	5 V 0	5 V USB Power
	2	DATA-	USB Device Signal -
	3	DATA+	USB Device Signal +
	4		
	5	GND	USB Ground
 <p>Plug</p>			

NOTE



This USB Mini-B port is part of the RS-232 + Mini-USB Multi-Communication dongle (VPN CBL420-002-02-A).

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Caution and Warning Messages

Verifone Carbon Caution and Warning Messages

Products with UL/cUL certification include French translations of Caution and Warning notices. The following table lists all notices found in the document, their location and the equivalent French translations.

Table 3 Caution and Warning Messages

Notice	Chapter	Page	English Text	French Text
Caution	Setup	page 14	<p>The terminal is not waterproof or dustproof, and is intended for indoor use only.</p> <p>Any damage to the unit from exposure to rain or dust may void any warranty.</p>	<p><i>Le terminal est pas étanche ou à la poussière, et est destiné à une utilisation en intérieur.</i></p> <p><i>Tout dommage à l'unité de l'exposition à la pluie ou à la poussière peut annuler la garantie.</i></p>
Warning	Setup	page 15	<p>Do not use a unit that has been tampered with or otherwise damaged. This unit comes equipped with tamper-evident labels. If a label or component appears damaged, immediately notify the shipping company and your Verifone representative or service provider.</p>	<p><i>Ne pas utiliser une unité qui a été altéré ou endommagé. Cet appareil est équipé d'étiquettes inviolables. Si une étiquette ou d'un composant semble endommagé, avertissez immédiatement la compagnie de navigation et votre représentant ou du prestataire de services Verifone.</i></p>
Warning	Setup	page 17	<p>Do not connect the terminal to the power supply until all the peripherals are attached.</p>	<p><i>Ne pas connecter le terminal à l'alimentation jusqu'à ce que tous les périphériques sont branchés.</i></p>
Caution	Setup	page 19	<p>Poor-quality paper can jam the printer and create excessive paper dust. To order high-quality Verifone paper, refer to Accessories and Documentation.</p> <p>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.</p> <p>Never load a roll of paper with folds, wrinkles, tears, or holes at the edges.</p>	<p><i>Papier de mauvaise qualité peut provoquer un brouillage et de créer excessive de poussière de papier. Pour commander - papier de haute qualité Verifone, consultez Accessoires et documentation.</i></p> <p><i>Gardez le papier thermique dans un endroit sombre . Manipulez le papier thermique attentivement: impact, friction, la température, l'humidité et les huiles affectent les caractéristiques de couleur et de stockage du papier.</i></p> <p><i>Ne jamais charger un rouleau de papier avec des plis, des larmes, ou des trous sur les bords.</i></p>

Table 3 Caution and Warning Messages (continued)

Notice	Chapter	Page	English Text	French Text
Caution	Setup	page 21	To prevent the paper roll cover from damaging the print roller, always gently press down on the printer dust cover to close it.	<i>Pour éviter que le couvercle du rouleau de papier d'endommager le rouleau d'impression, toujours appuyez doucement sur le capot de protection de l'imprimante pour le fermer.</i>
Caution	Setup	page 21	Observe standard precautions when handling electrostatically sensitive devices. Electrostatic discharges can damage this equipment. Verifone recommends using a grounded anti-static wrist strap.	<i>Respecter les précautions standard lors de la manipulation des appareils sensibles aux décharges électrostatiques. Les décharges électrostatiques peuvent endommager cet équipement. Verifone recommande d'utiliser un bracelet anti-statique à la terre.</i>
Caution	Setup	page 23	Before connecting any peripheral device, remove the power cord from the terminal and ensure that the green indicator LED is not lit. 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.	<i>Avant de connecter un périphérique, débranchez le cordon d'alimentation de la borne et de veiller à ce que la LED témoin verte est pas allumé Rebranchez le cordon d'alimentation seulement après que vous avez terminé de connecter le périphérique (s) périphérique. Pour des informations complètes sur l'installation et l'utilisation périphérique, reportez-vous à la documentation utilisateur fournie avec ces périphériques.</i>
Caution	Setup	page 23	Some devices (ECRs and some PIN pads) require a separate power source. Before connecting to any device, remove the power cord from the Verifone Carbon unit.	<i>Certains appareils (ECR et quelques claviers NIP) nécessitent une source d'alimentation séparée. Avant de connecter tout périphérique, débranchez le cordon d'alimentation de l'unité de Verifone Carbon</i>
Caution	Setup	page 24	Using an incorrectly rated power supply may damage the terminal or cause it not to work as specified. Before troubleshooting, ensure that the power supply being used to power the terminal matches the requirements specified on the bottom of the terminal. (See Chapter 3, Technical Specifications, for detailed power supply specifications.) Obtain the appropriately rated power supply before continuing with troubleshooting.	<i>Utilisation d'une alimentation mal classé peut endommager le terminal ou de l'empêcher de travailler comme spécifié. Avant de dépannage, assurez-vous que l'alimentation est utilisé pour alimenter le terminal correspond aux exigences spécifiées sur le fond de la borne. (Voir le chapitre 3, Caractéristiques techniques, pour les caractéristiques de l'alimentation.) Obtenir l'alimentation nominale appropriée avant de continuer avec le dépannage.</i>

Table 3 **Caution and Warning Messages** (continued)

Notice	Chapter	Page	English Text	French Text
Warning	Setup	page 25	<p>Do not plug the power pack into an outdoor outlet or operate the terminal outdoors.</p> <p>Disconnecting the power during a transaction may cause transaction data files not yet stored in terminal memory to be lost.</p> <p>To protect against possible damage caused by lightning strikes and electrical surges, consider installing a power surge protector.</p>	<p><i>Ne pas brancher le bloc d'alimentation à une prise extérieure ou exploiter le terminal à l'extérieur.</i></p> <p><i>Déconnexion de l'alimentation lors d'une transaction peut entraîner des fichiers de données de transaction non encore stockées dans la mémoire terminal pour être perdu.</i></p> <p><i>Pour se protéger contre de possibles dommages causés par la foudre et les surtensions électriques, pensez à installer un protecteur de surtension.</i></p>
Caution	Setup	page 26	<p>Leave the smart card in the card reader until the transaction is complete.</p> <p>Premature card removal will invalidate the transaction.</p>	<p><i>Laissez la carte à puce dans le lecteur de carte jusqu'à ce que la transaction est terminée.</i></p> <p><i>Retrait prématuré de la carte d'invalider la transaction.</i></p>
Caution	Maintenance and Cleaning	page 33	<p>Never use thinner, trichloroethylene, or ketone-based solvents – they can deteriorate plastic or rubber parts.</p>	<p><i>Ne jamais utiliser de diluant, le trichloréthylène ou des solvants à base de cétone - ils peuvent détériorer les pièces en plastique ou en caoutchouc.</i></p>
Caution	Troubleshooting Guidelines	39	<p>Using an incorrectly rated power supply may damage the unit or cause it to not work properly. Before troubleshooting, ensure that the power supply used to power the unit matches the specified requirements (see Specifications for detailed power supply specifications). If not, obtain the appropriately rated power supply before continuing with troubleshooting.</p>	<p><i>Utilisation d'une alimentation mal classé peut endommager l'appareil ou provoquer sa ne fonctionne pas correctement. Avant de dépannage, assurez-vous que l'alimentation utilisée pour alimenter l'unité correspond aux exigences spécifiées (voir spécifications pour les caractéristiques de l'alimentation). Si non, obtenir l'alimentation nominale appropriée avant de continuer avec le dépannage.</i></p>
Caution	Troubleshooting Guidelines	page 40	<p>Poor-quality paper may jam the printer. To order high-quality Verifone paper, refer to Accessories and Documentation.</p>	<p><i>Papier de mauvaise qualité peut provoquer un bourrage. Pour commander - papier de haute qualité Verifone, consultez Accessoires et documentation.</i></p>
Warning	Troubleshooting Guidelines	page 43	<p>Do NOT attempt to push the blade back to its retracted position. Use the procedures in this section to retract the blade.</p> <p>If the provided troubleshooting steps do not resolve this issue, contact your Verifone representative or send the unit in for repairs.</p>	<p><i>Ne pas tenter de pousser la lame dans sa position rétractée . Utilisez les procédures de cette section pour rétracter la lame .</i></p> <p><i>Si les étapes de dépannage fournies ne permettent pas de résoudre ce problème, contactez votre représentant Verifone ou envoyer l'appareil en réparation .</i></p>



FCC/ IC Warning Statement

FCC

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

NOTE: 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 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.

CANADA

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.



APPENDIX A

FCC & IC Warning statement (Printer stand)

FCC

Printer Stand:

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

Industry Canada

Printer Stand:

This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

The device for operation in the band 5150 -5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

High-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.



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Installation Guide

