



ViVOpay 4500™ User Guide

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May 2006

FCC/IC Regulatory Compliance

Notices Class B Equipment

FCC Warning:

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 and correct the interference by one or more of the following measures:

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

IC Compliance Warning:

This Class B digital apparatus complies with Canadian ICES-003.

Cautions and Warnings



CAUTION: The unit should be mounted 1-2 feet away from other units. Can be adjusted based on lane setup.



CAUTION: The unit should not be placed directly on or within 4 inches of any large metal surfaces.



CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.



CAUTION: Changes or modifications not expressly approved by Vivotech could void your authority to operate the equipment.



WARNING: Avoid close proximity to radio transmitters which may reduce the ability of the reader.



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ViVOpay 4500™ Overview

Overview

The ViVOpay 4500™ supports contactless payment information processing and authorization at existing POS locations. It is seamlessly integrated into existing POS systems by direct mounting to previously installed magnetic card readers or Electronic Cash Registers (ECRs). The unit can accept a variety of contactless credit cards, contactless key fobs, and wireless POS-supported devices and does not require additional counter space.

ViVOpay 4500 supports the following contactless card types:

- MasterCard Paypass and MCAIP
- American Express ExpressPay
- Visa MSD
- VisaWave

This document assumes that users are familiar with their host POS systems and all related functions.

Features

The ViVOpay 4500 supports the following transaction types:

- Contactless RF devices such as ISO 14443 Type A and Type B, MiFare, and Ultra Light MiFare devices
- SIM Standard (ISO7816) Type Support

Additional Features

- **Contactless:** Accepts transactions from consumers using ISO/IEC 14443 Type A and B, NFC, Mifare Ultralight, ISO/IEC 15693 cards and key fobs.
- **Compatibility:** Works with most POS and ECR systems including Ingenico enTouch 1000, VeriFone Everest and Omni 3750, HHP 3100, @pos 3100, Partech ECR, Micros (Eclipse & Workstation 4), Radiant Squirrel, and IBM SurePOS systems.
- **Speed:** Enables quick transactions improving store productivity and operational efficiencies.
- **Implementations:** Retail locations, ticket booths, multi-lane merchants, single-lane merchants, hospitality, car rental, and much more.
- **Consumer Intuitive:** Equipped with LEDs and sound to provide visual and audible cues to enable smooth and seamless transactions.
- **Secure:** Provides highly secure transactions whether financial, pre-paid, loyalty, or gift.

ViVOPay 4500 Specifications

Hardware

Contactless:	13.56 MHz
Interface:	ISO 14443 Type A/B,
ISO	15693 Mifare®, Ultralight, IR

Physical

Height:	(Unfolded) 5 inches (125.0 mm) (Folded) 2.5 inches (62.5 mm)
Width:	(Widest) 4.2 inches (105 mm)
Depth:	.7 inches (10 mm)

Environmental

Operating Temp.:	0 to 40 c (32 to 104 F)
Storage Temp.:	-18 to 70 c (0 to 158 F)
Operating Humidity:	20% to 90% non-condensing

Power

Voltage:	9V DC, 500 mA 120 VAC, 60 Hz (US) 220 VAC, 50 Hz (International)
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Installing ViVOpay 4500

This section describes how to install the ViVOpay 4500 in several different configurations. The VP4500 may be mounted in a stand-alone fashion on a counter in its own stand, mounted to a window for applications such as cinema box-office applications, or integrated with custom-designed brackets to two common POS units --- the Ingenico enTouche1000 and the Verifone Omni 3750. Installation methods may vary depending upon the location of the POS and counter configuration.

ViVOpay 4500 Counter Top Stand

The following diagram shows the ViVOpay 4500 installed in a counter top stand.



Bracket and Saddle Installation

1. Assemble the ViVOpay 4500 counter top stand by inserting the saddle into the base. Make sure to align the curved part of the saddle with the curved part of the base.



2. Attach the base to the countertop using the three screws that come with the counter top stand.
3. Slide the bottom of the ViVOpay 4500 down into the saddle. Press the sides firmly until the tabs snap into place.
4. Attach the serial cable from the ViVOpay 4500 to the appropriate POS.
5. Insert the ViVOpay power cable into the power module.
6. Plug the power adapter into the power outlet.
7. Peel the clear protective sheeting from the surface of each overlay.
8. Install the required driver from the supplied software disc if you are attaching the ViVOpay 4500 to a computer using the 3750 DONGLE (Part Number 220-1273-00).

Ingenico enTouche 1000

The following diagram shows the Ingenico enTouche 100 with the ViVOpay 4500 attached. The remainder of this section explains how to install the ViVOpay 4500 on the Ingenico enTouche 1000.



Bracket and Saddle Installation

Remove all components from the shipping carton:

Ensure the following components are set up in the POS area:

- Ingenico POS, powered off
- ViVOpay 4500 with saddle and bracket
- POS Terminal



Sample of ViVOtech mount and original enTouche cover

Perform the following installation procedures:

1. Disconnect the power adapter from the Ingenico unit.
2. Turn the Ingenico unit so that the bottom is facing up.
3. Grasp the rear cover, gently apply pressure the top, and pull it up and away from the unit.



4. Insert the male ViVOpay 4500 plug into the female Ingenico plug on the bottom right side.
5. Insert the female plug into the POS jack.
6. Slide the saddle shown below into the prongs on the new Ingenio cover.



7. Replace the original Ingenico cover with the ViVOpay 4500 cover by inserting the bottom two prongs of the saddle into the applicable slots on the bracket and snap the top into place.



8. Fit or gather the cables under the cover. The resulting configuration is shown below.



9. Slide the bottom half of the ViVOpay 4500 face unit into the bracket as shown below.



10. Reconnect the power cables and other serial interfaces as normal.



11. Power on the POS and ViVOpay 4500. When lit, the leftmost LED indicates power is on.

Omni 3750

The following diagram shows the Omni 3750 with the ViVOpay 4500 attached. The remainder of this section explains how to install the ViVOpay 4500 on the Omni 3750.



Bracket and Saddle Installation

Obtain the following components:

- Omni 3750 with appropriate firmware
- ViVOpay 4500 with serial and power cable
- ViVOpay 4500 saddle
- ViVOpay 4500 mounting bracket
- ViVOpay 4500 power supply
- Test Card



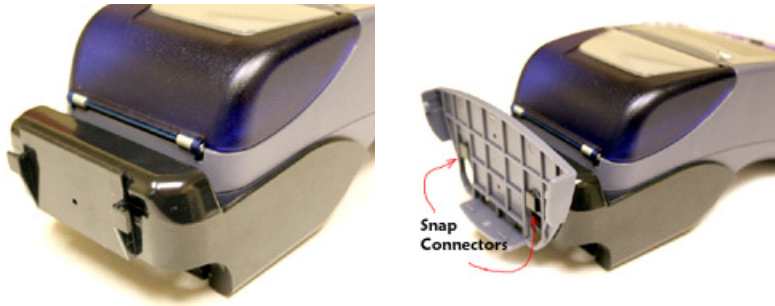
Bracket and saddle

Perform the following installation procedures:

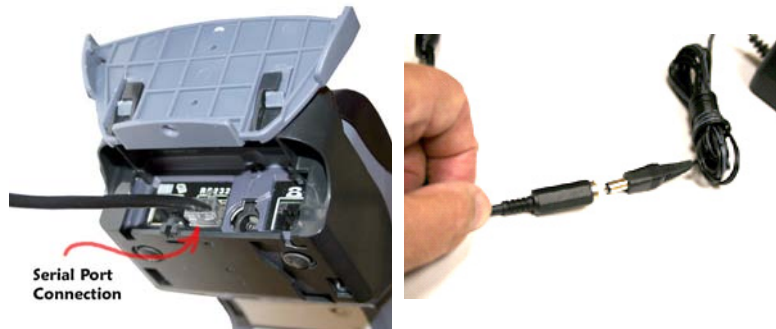
1. Disconnect the power adapter and any other cables from the Omni unit.
2. Turn the Omni unit so that the rear is facing up as shown in the figure below.



3. Insert the Omni into the ViVOPay 4500 bracket.
4. Slide the two prongs of the saddle into the applicable bracket slots and snap into place.



5. Connect the ViVOPay 4500 serial cable to the Omni RS232 data port. Push the connector until the cable is locked in the port.
6. Insert the ViVOPay power cable into the power module.



7. Slide the ViVOPay 4500 into the saddle.
8. Fit and gather the cables under the bracket. The resulting configuration is shown below.



Reconnect the power cables and other serial interfaces as normal.

9. Power on the POS and ViVOPay 4500. When lit, the leftmost LED indicates power is on.

ViVOPay 4500 Window Mount.

The following diagram shows the ViVOPay 4500 mounted to a window for applications such as a cinema box-office. The remainder of this section explains how to install the ViVOPay 4500 on a window surface.



Note: The glass thickness must be less than 1 inch.

1. Obtain the following component:
 - ViVOPay 4500 with serial and power cable.
 - ViVOPay 4500 saddle.
 - ViVOPay 4500 power supply.
 - ViVOPay 4500, window mount overlay with double site adhesive.
2. Determine the VP4500 placement on the window; using the alcohol cleaning pad to clean the window, it is important that the window be clean of any oily or greasy residue that will interface with the adhesive mounting overlay; let the window dry.
3. Remove the adhesive covering on the overlay from the site marked “Peel this first”.



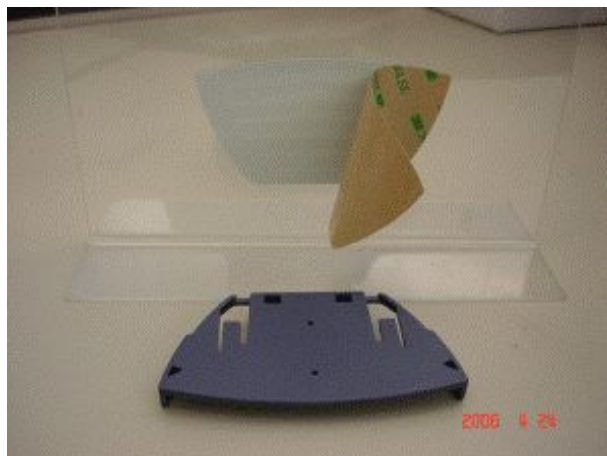
4. Affix the VP4500 overlay to the window.



5. Remove the second backing adhesive covering from the overlay.



6. Affix the saddle onto the overlay adhesive; press to make sure saddle is firmly adhered to the overlay.





7. Slide the bottom of the ViVOpay 4500 down into the saddle. Press the sides firmly until the tabs snap into place.



8. Attach the serial cable to the POS and the power cable to the power supply.



Testing with Cards and Fobs

After the installation is complete it is essential to test the read ability and connectivity of the ViVOpay 4500. This can be achieved using a ViVOtech supplied test card/fob.

Present the card/fob in close proximity to the reader. Present the card/fob so that maximum surface area is parallel to the antenna as shown below.



The reader should beep and all four green LEDs should illuminate. This tests the reader's ability to read the RFID test card.

When a card/fob has been successfully read, an audible beep is emitted and four LEDs will be illuminated.

Installation is now complete.



Troubleshooting

The ViVOpay 4500 reader is reliable and easy to trouble shoot. The components that may require troubleshooting include the power module, the reader, and the serial cable.

Symptom	Possible Cause	Probable Cause and Remedy
General Issues		
Reader does not appear to be powered on (no LEDs lit).	Reader not powered on or incorrect voltage.	- Check cable connections. - Ensure power is on and correct voltage and current are present. - Replace the power module. - Replace the reader.
Reading Cards/Fobs/NFC Phones		
LEDs do not light and beeper is not audible when card/fob/phone is presented.	- Card/Fob/Phone not properly presented. - Metal or RF interference. - Wrong firmware (contact ViVOtech personnel).	- Present card/fob/phone closer to the reader antenna, and ensure it is parallel to the face of the reader. - Ensure the card/fob is valid/current (shouldn't affect phones). - Check to see if card/fob/phone is damaged. - Ensure phone cover is correctly attached to phone. - Ensure the reader is not near any large metal objects. - Ensure correct firmware is loaded on reader (ViVOtech personnel only). - Power cable plug is fully inserted. - Replace the reader.
Some cards/fobs/phones read, but not all.	- Wrong firmware (contact ViVOtech personnel). - Possible bad card/fob/phone.	- Ensure correct firmware is loaded on reader (ViVOtech personnel only). - Check to see if card/fob/phone is damaged. - Ensure phone cover is correctly attached to phone. - Replace test card.
Communication to POS/ECR		
No data is received, or data is garbled.	- Faulty or incorrect cable connections. - For solutions using DS-1000/2000 strips, possible misalignment of strip in relation to magnetic read head in POS slot or damaged strip.	- Check that the cable connection is secure and in the correct port on the POS/ECR. - Check that the POS/ECR has the correct software application to accept data from the contactless reader (may need assistance from the POS vendor). - For realignment or replacement of DS-1000/2000 contact ViVOtech personnel for assistance.

**Electronic Cash Register (ECR)**

The combination of a traditional cash register and a POS terminal, often PC-based.

ExpressPay from American Express

American Express contactless payment product that utilizes contactless technology.

Firmware

Software that is embedded in a hardware device that allows reading and executing the software, but does not allow modification, e.g., writing or deleting data by an end user.

Example: Firmware is a computer program in a read-only memory (ROM) integrated circuit chip. A hardware configuration is usually used to represent the software.

Example: Firmware is a program embedded in an erasable programmable read-only memory (EPROM) chip, which program may be modified by special external hardware, but not by an application program.

Fob

A key chain device or other non-standard credit card sized form factor that has an embedded radio frequency (RF) chip.

MasterCard PayPass

MasterCard's contactless payment product that utilizes contactless technology.

MTBF

Mean time between failure. MTBF is the average time a device will function before a failure.

NFC

Near Field Communications.

NFC Phone

Near Field Communications (NFC) phone. A technology where RFID chips are embedded in the back cover of a cell phone, such as the Nokia 3220, that enables communication with contactless readers to make credit payments.

POS

Point of Sale.

Point of Sale (POS)

Refers to terminals used in retail stores with a magnetic stripe reader, keyboard, display and autodialer modem or IP connection, connected to the telephone/internet network and used for on-line credit/debit authorization. Can also be connected to a host computer, which handles all transaction processing including item price look-up, data collection, and credit/debit authorization.

Proximity Payments

Payment method utilizing contactless technology such as RF, Infrared (IrDA) or Near Field Communications (NFC).

Radio Frequency (RF)

Any frequency that corresponds to radio signals, including those used by cellular telephones and wireless networks.

RF Reader

The Point of Sale device that receives the RF transmission from a card, fob or NFC phone.

Visa Contactless

Visa's contactless payment product that utilizes contactless technology.



Customer Support

Technicians and installers may contact ViVOtech Inc. at http://www.vivotech.com/support/service_request.asp to submit a service request or call the toll free support line @ 877-248-2535. Both are available 24 hours per day, seven days a week.

About ViVOtech

ViVOtech Inc. enables more than 30 million new and existing merchant Point of Sale (POS) systems with rapid, scalable and cost-effective deployment of secure contactless card and mobile device payment capabilities. ViVOtech uses its unique Dynamic Strip™ technology to upgrade an existing POS terminal in minutes with no POS software change. ViVOtech has more than ten patents pending on various enabling technologies.

The company is privately held and headquartered in Santa Clara, California. ViVOtech Inc.'s management and advisory board include former executives from First Data Corporation, Citibank, Diebold, Intuit, McCaw Cellular, Target Corporation, VeriFone and Visa International/USA. For more information about ViVOtech, call 877-248-2535, e-mail info@vivotech.com or visit www.vivotech.com.