

IDTECH[®]

Value through Innovation

vivo^{pay}[®]

Vend III User Guide



CE FC

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ID TECH .
10721 Walker Street
Cypress CA 90630
USA

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1.0 Getting Started

1.1 Overview

The ViVOpay VEND III seamlessly integrates with existing vending systems and fits into a standard bill changer opening. The ViVOpay VEND III is an unattended NFC and contactless reader with Magnetic Stripe Reader, contact EMV card reader, integrated display and function keys. This device features serial RS-232 and USB 2.0 communications to POS systems as well as an Ethernet port. The ViVOpay VEND III complies with ISO/IEC 18092 and supports the full peer-to-peer NFC feature set.

ViVOpay VEND III is certified for the following contactless payment applications:

- EMVCo CCPS
- MasterCard PayPass M/Chip
- Visa payWave VCPS
- American Express, ExpressPay
- Discover DPAS
- Mifare (Passthrough)
- ISIS SmartTap
- Google Wallet

ViVOpay VEND III also fully supports magnetic stripe applications.

This document assumes that users are familiar with their host POS systems and vending machines.

1.1.1 Features

The following features are supported:

- ISO14443 type A/B and Mifare based contactless payment transactions
- ISO 18092
- Three-track magnetic stripe reader
- Three SAM card slots
- Contact card slot
- 10 Base-T Ethernet port

1.2 Unpacking the ViVOpay Vend III

The ViVOpay VEND III requires a data cable and a power supply. Verify that you have all the required components for the installation.

<p>ViVOpay VEND III</p> <p>*XX designates variations of the base model.</p>	
<p>Data and Power cables (varies by length)</p> <ul style="list-style-type: none">• Serial Data Cable (P/N 220-2467-XX*)• USB Data Cable (P/N 220-2466-XX*) <p>These cables are recommended and approved by ID TECH to comply with FCC rules and regulations.</p> <p>*XX designates cable length.</p>	
<p>Power supply</p> <ul style="list-style-type: none">• US/North America (P/N 140-2035-00)• Europe (P/N 140-2035-01)• United Kingdom (P/N 140-2035-02)• Australia (P/N 140-2035-03) <p>This power supply is recommended and approved by ID TECH to comply with FCC rules and regulations.</p>	

You may also need the following:

- Four M3 screws

If you want to secure the reader to a surface, you need four M3 screws of the appropriate length (not supplied).

- Contactless test card (P/N 241-0015-03)

The ID TECH data cables and power supply are specifically designed to meet FCC requirements.

2.0 Installing the ViVOpay Vend III

2.1 Overview

Before you connect and mount the ViVOpay VEND III, you should plan the installation to conform to PCI requirements and minimize radio frequency interference. Once you have determined the location and mounting of the ViVOpay VEND III, you can connect it to power and the control unit. Finally, you should test the ViVOpay VEND III to make sure the installation is successful.

2.2 Site Planning

Environmental considerations affect how you install the ViVOpay VEND III. You should consider objects and devices near the reader that may affect the performance of the contactless radio frequency antenna.

2.2.1 Radio Frequency Interference

To perform contactless transactions, the ViVOpay VEND III uses a radio frequency antenna. The range (reading distance) and performance of the reader can be affected by other radio frequency emitters and proximity to metal.

For best performance, adhere to the following guidelines:

- Do not position the ViVOpay VEND III closer than 1 foot (30 cm) to other ViVOpay readers or other RF-emitting devices (non-NFC). Some environments may require greater distances.
- Do not position the ViVOpay VEND III near radio transmitters.
- Avoid placing the ViVOpay VEND III on or near large metal objects.

2.2.2 User Access

The ViVOpay VEND III is design for unattended use. Is is important to consider the following factors when planning the location of the reader.

- Clear visibility of the display
 - Anticipate the angles at which the user may be viewing the display to maximize visibility.
- Make sure the user can easily reach the reader
 - Provide access to the reader to push buttons and tap or swipe cards.
- No obstructions in the MSR swipe path
 - Make sure nothing is blocking the entrance or exit of a card passing through the MSR.

2.3 Installing the ViVOpay VEND III

This section describes how to install the ViVOpay VEND III. The basic steps are:

- Install SAMs if required
- Connect to power and POS
- Mount
- Test the installation

2.3.1 Connector and SAM Access

The ViVOpay VEND III connectors and SAM slots are on the bottom of the reader.

To access the connectors:

1. Turn over the ViVOpay VEND III so that the connectors and SAM slots are visible.



2.3.2 Install a SAM Card

All ViVOpay VEND III models have three SAM card slots in addition to one SoftSAM. Consequently, the physical SAMs are labeled SAM 2 through SAM 4, left to right. If you are using a SAM card(s) in your application, insert the SAM card as described in the following steps.

Warning: Do not insert or remove a SAM card while the ViVOpay VEND III is powered. This will cause permanent damage to the SAM card.

To install a SAM card:

1. Use your fingernail to slide the lock bar down, away from the connectors, and pull the SAM cage away from the closed position. The cage hinges on the edge furthest from the connector ports.

2. Insert the card with the contacts facing the bottom of the SAM cage. The cut corner of the SAM should be positioned shown below.



3. Press the cage into the closed position. The cage will snap into place.
4. Slide the lock bar up, towards the connectors, to lock the SAM in position.

2.3.3 Connect Data and Power

There are connectors for Ethernet, data and power, and PIN pad in back of the ViVOpay VEND III. The connections you need to make are dependant on your specific POS configuration and application. The power is received on the data connector. The product is intended to be powered by a DC source from 5 VDC to 45 VDC; this power source should comply with the Limited Power Source requirements (sub-clause 2.5 of UL/IEC 60950-1). It is recommended to power the product with a LPS UL Listed/ Class 2 IEC certified DC power supply, output rated 9 Vdc, 0.67 A.

The pinouts for the POS side of the data cables are given in the tables below.

RS-232 (220-2467-0X)

DB9 Pin Number	Description
1	No connect
2	RS-232 Tx
3	RS-232 Rx
4	No connect
5	GND
6	No connect
7	No connect
8	No connect
9	Power 5 - 45 VDC

USB (220-2367-0X)

USB Pin Number	Description
1	VBus
2	Data - (DM)
3	Data + (DP)
4	GND
5	GND
6	Power 12 VDC

To connect data and power

1. Connect your data cable to the RS232/USB port.



2. Connect the other end to the host system. Refer to the pinouts given above if needed.

The ViVOPay VEND III displays the opening set of screens before it displays the **Welcome** screen.

The opening screens include:

- Copyright screen
- Firmware version screen

The reader should then display **Welcome** or **Please present card** or similar wording, depending upon the application.

If the reader fails to power up, try reseating the power connector (or change to a different power outlet). For more troubleshooting information, see [“Troubleshooting” on page 13](#).

2.3.4 Connect Ethernet

To connect to Ethernet

1. Insert a CAT5 or better cable into the Ethernet port. (Note The TCP protocol stack is not supported in the initial product release)



2. Connect the other end of the Ethernet cable to an Ethernet switch or hub.

2.3.5 External Mount

The ViVOpay VEND III can be mounted directly on a surface (external) or mounted from behind a surface (internal) using a flange bracket. Surface mounting requires the standoff and seal for effective weather proofing.

To mount externally

1. Drill four 5.0mm (3/16 inch) holes in the surface where the ViVOpay VEND III will be mounted. Use the hole spacing shown in [Figure 1](#).

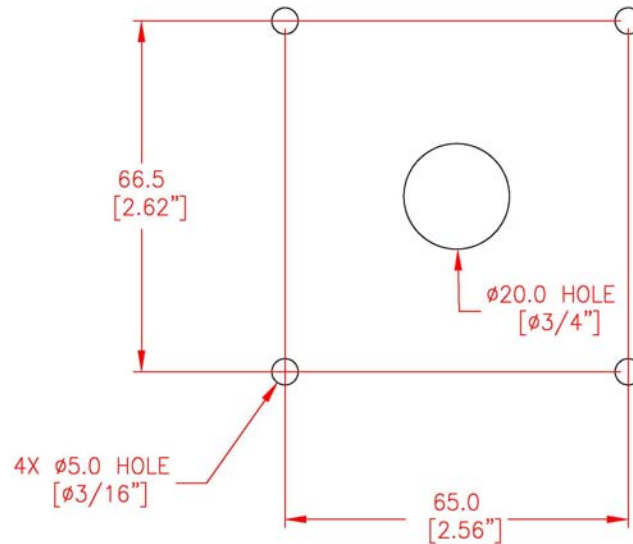


Figure 1. Mounting hole dimensions

2. Drill a 20.0mm (3/4 inch) hole or cut an access hole large enough to pass an RJ50 connector in the center of the area inside the mounting holes.
3. Position the ViVOpay VEND III over the mounting holes and use four M4 screws (not supplied) long enough to secure the ViVOpay VEND III to the mounting surface.

2.3.6 Internal Mount

The ViVOpay VEND III can be supplied with a bracket designed to install the ViVOpay VEND III in the same location as a currency acceptance device.

To mount internally

1. Disconnect power from the vending machine.
2. Open the vending machine to access the currency acceptor mounting locations.
3. Remove the currency acceptor or cover plate. Retain the fasteners for ViVOpay VEND III installation.



Figure 2. Currency acceptor removed

4. Insert ViVOpay VEND III with bracket from inside the vending machine.



Figure 3. Placing the reader (ViVOpay Vend shown)

5. Secure the ViVOpay VEND III with the fasteners from [Step 3](#).



Figure 4. ViVOpay VEND III in position (ViVOpay Vend shown)

2.4 Testing the Installation

After you have completed the installation and have checked for PCI conformance, check that the ViVOpay VEND III and the POS are communicating correctly by performing a sample transaction using a contactless card and a magstripe card.

You can also test basic functionality using the Onboard Diagnostics (OBD) described in [“Onboard Diagnostics” on page 14](#).

3.0 Troubleshooting and Maintenance

3.1 Troubleshooting

The ViVOpay VEND III readers are reliable and easy to troubleshoot. The components that may require troubleshooting include the power supply, the reader, and the data cable.

Symptom	Possible Cause	Remedy
General Issues		
Reader does not appear to be powered on—no LEDs lit, no LCD display.	<ul style="list-style-type: none"> • Reader not powered on. • Incorrect power supply used. 	<ul style="list-style-type: none"> • Check cable connections. • Verify that power is on and correct voltage and current are present. • Replace the power supply. • Verify that power cable plug is fully inserted. • Replace the reader.
Reading Cards/Fobs/Phones		
LEDs do not light and beeper is not audible when card/fob/phone is presented.	<ul style="list-style-type: none"> • Card/fob/phone not properly presented. • Metal or RF interference. • Firmware issue (contact your local support representative). • Reader not powered on or incorrect voltage. • Incorrect power supply used. • Unsupported card/fob/phone used. 	<ul style="list-style-type: none"> • Present card/fob/phone closer to the reader and ensure it's parallel to the reader's display. • Verify that the card/fob/phone is valid/current. • Test with "ViVOpay Contactless Test Card" part number 241-0015-03. • Try a different card/fob/phone. • Verify that the unit is not near any large metal objects. • Verify that correct firmware is loaded (local support representative only). • Verify that power is on and correct voltage and current are present. • Verify that power cable plug is fully inserted. • Replace the reader.
Some cards/fobs/phones read, but not all.	<ul style="list-style-type: none"> • Wrong firmware (contact your local support representative). • Possible bad card/fob/phone. • Unsupported card used. 	<ul style="list-style-type: none"> • Verify that correct firmware is loaded on reader (local support representative only). • Check to see if card/fob/phone is damaged. • Try a different card/fob/phone.
Communication to POS/ECR		
No data is received, or data is garbled.	<ul style="list-style-type: none"> • Faulty or incorrect cable connections. • Unsupported card used. • Contactless application is not installed on terminal (for serial connections only). • Magstripe card not swiped correctly. • Magstripe card not level during card swipe. • The POS application is not using the correct communications parameters. 	<ul style="list-style-type: none"> • 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). • Try a different card/fob/phone or magstripe card if testing the magstripe reader. • If testing with the magstripe card, try turning the card around; make sure that the card is level during the card swipe. • Contact the payment processor for an application upgrade. • Check that the cable is correctly attached to the back of the ViVOpay VEND III. • Check the POS application.

3.1.1 Onboard Diagnostics

The ViVOpay VEND III has a PC-based Diagnostics program that can run various diagnostics tests on the VEND III. If you did not purchase an RS232 data cable with your ViVOpay VEND III, you will need one to access the diagnostic tests.

PC based diagnostic tool operation instructions to follow

3.2 Maintenance

The ViVOpay VEND III contains no user-serviceable parts within its enclosure. Do not open the ViVOpay VEND III enclosure.

WARNING: Attempting to open the ViVOpay VEND III enclosure will trigger security measures and it will stop functioning even after reassembly!

You can upgrade the ViVOpay VEND III's firmware if required.

3.2.1 Upgrading the Firmware

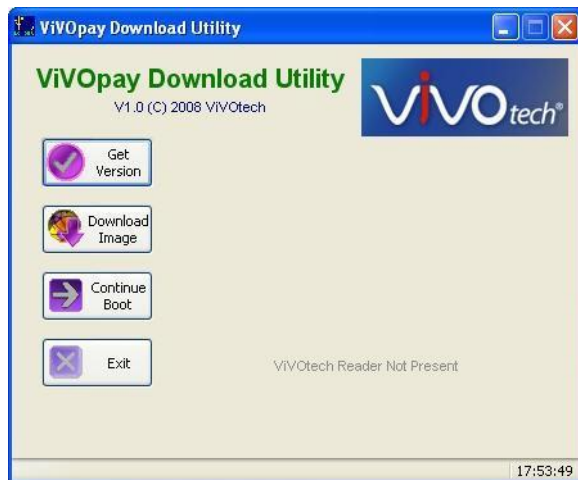
You can upgrade the firmware of the ViVOpay VEND III if required for your application. You will need the following from your ViVOpay VEND III distributor:

- New ViVOpay firmware
- ViVOpay download utility
- USB data cable

You also need a PC with a USB port. The PC should have the required USB driver USBSER.SYS and HID.DLL files. If not, they are available for download from Microsoft's website.

To upgrade the firmware

1. Make sure you have the USBSER.SYS and HID.DLL files installed on the PC.
2. Copy the firmware image and ViVO download utility, provided by ID TECH Support or your ID TECH representative, to the PC you are using for the upgrade.
3. Copy the vivopay.inf file to the Windows\inf directory.
4. Connect the USB data cable to the ViVOpay VEND III and PC (see ["Connect Data and Power"](#) on page 6).
5. Double click the ViVO download utility icon or .exe to start the utility.



6. Power on the ViVOpay VEND III. The bootloader version appears under the ID TECH logo.
7. Click **Download Image**.
8. When prompted, locate and select the firmware (.hex file) to download and click **OK**.
 - A progress bar indicates the status of the download. It will take approximately eight minutes to complete the download.
9. When the download is complete disconnect the ViVOpay VEND III from the PC and power.
 - The new firmware will be active next time you apply power to the ViVOpay VEND III.
10. Connect the ViVOpay VEND III to the POS with the appropriate data cable.
11. Reconnect power.

4.0 ViVOpay VEND III Specifications

RF Interface	
Frequency	13.56 MHz
Standards	ISO 14443 Type A/B ISO 18092
Physical	
Length	107.5 mm (4.23 in)
Width	84.9 mm (3.34 in) maximum
Depth	65.8 mm (2.59 in)
Weight	0.29 Kg (0.64 lbs)
Environmental	
Operating Temp.	-20 to 50° C (-4 to 122° F)
Storage Temp.	-40 to 85° C (-40 to 185° F)
Operating Humidity	0 to 90% non-condensing
Operating Environment	Indoor and outdoor
Power	
Voltage	5-45 VDC regulated, -0%, +10%
Consumption	

4.1.1 Lithium Battery Warning

The Lithium Battery used in the products may not be replaced by the user. The product must be returned to a ID TECH Inc. authorized service center for replacement with the same or equivalent type recommended by the manufacturer. If, for any reason, the battery or ViVOpay card reader must be disposed of, do so following the battery manufacturer's instructions.

4.2 Regulatory Compliance

4.2.1 FCC Part 15 Class B Equipment

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.

4.2.2 FCC Information for User

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

4.2.3 Industry Canada Class B Equipment

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

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

4.2.4 Industry Canada Information for User

This device complies with Industry Canada license-exempt RSS standards(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.

Cet appareil est conforme aux normes d'Industrie Canada RSS (s) exempts de licence. Son fonctionnement est soumis aux deux conditions suivantes: (1) ce dispositif ne doit pas causer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris celles pouvant causer un mauvais fonctionnement de l'appareil.