UserManual ViVOpay KioskII

631-0071-00

FCC Regulatory Compliance

Notices 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 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. This device complies with part 15 of the FCC rules. Operation is subject to two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off an on, the user is encouraged to try and correct the interference by one ormoreof 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.

Changes ormodifications to the ViVOpay Kiosk II not expressly approved by ID TECH could void the user's authority to operate the ViVOpay Kiosk II.

ICComplianceWarning

Operation issubject to twoconditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CautionsandWarnings

⚠	**Caution:** The ViVOpay Kiosk II should be mounted 1-2 feet away from other ViVOpay Kiosk IIs. Can be adjusted based on lane setup.
⚠	**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.
⚡	**Warning:** Avoid close proximity to radio transmitters which may reduce the ability of the reader.

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Table of Contents

Overview

The ViVOpayKiosk II is a compactstand-alone contactless readerdesigned to support contactless transactions based on ISO 14443Type A/Type B/MiFare compatible cards, fobs, and tags aswell as NFC phones.The ViVOpay Kiosk II is comprised of a compact controller module and an antenna module packaged individually. This two-part design allows the controller module to be installedwithin thecabinetry of a kiosk and the antenna installed on an exterior surface witha separation of up to 1 meter. The antenna is availablewith a square or angled bezel.

The ViVOpayKiosk II supportsUSB andserialRS232host communication usingthe protocol defined in the*Global Reader Serial InterfaceDevelopers Guide*. The ViVOpay Kiosk II is designed to support a wide input power range. Both dataand powercan be supplied via asinglecable to reducing the effort and complexity of installation.

Features

- Supports ISO14443 TypeA, Type B, MiFareand NFC basedcontactless transactions
- 32-bit Microcontroller withample memory capable of supporting future application upgrades
- Crypto data processing forcontactless EMV cards
- RS232(9600,19200, 38, 400, 57, 600,115, 200 baud) host interface
- RS232 or USB data communications
- Small antenna flush-mounted on external cabinetry with square or angled bezel
- Internal mounted controller board with1meter controller/antenna separation

Valid CardTypes

ViVOpay Kiosk II supports the followingcontactless payment applications in thelatest release of firmware:
- ISO 14443
- PayPass M/Stripe
- PayPass M/Chip
- PayPass MXI
- VisaWave 1 and 2
- VisaPay/Wave MSD and qVSDC
- JCBJ/Speedy
- JCB Mobile/QuicPay
- American Express- ExpressPay
- Discover Zip
- MiFare ePurse

KioskII Specifications

Hardware	
MTBF	500,000 hrsbased on TelcordiaTechnologies SR-332 modeled at 40°C.
Transmitter Frequency	13.56 MHz +/- 0.01%
TransmitterModulation	ISO 14443-2Type A Rise/Fall Time: 2-3 μsec.Rise, <1 μsec fall ISO 14443-2Type B Rise/Fall Time: <2 μsec. each; 8%-14%ASK
Receiver Subcarrier Frequency	847.5 KHz
Receiver Subcarrier Data	ISO 14443-2Type A: Modified Manchester ISO 14443-2Type B: NRZ-I, BPSK
Typical ReadRange	4-6 cm (1.5 to 2.3 inches)
Physical	
Controller	
Height	105 mm (4.13 inches)
Width	76.2 mm (3.00 inches)
Depth	22.5 mm (0.88 inches)
Square BezelAntenna	
Height	75 mm (2.95 inches)
Width	60 mm (2.36 inches)
Depth	16.8 mm (0.66 inches)
Angle Bezel Antenna	
Height	96.2 mm (3.787 inches)
Width	82.3 mm (3.24 inches)
Depth	16.8 mm (0.66 inches)
Environmental	
Operating Temperature	-25° to 70° C(-13° to 158° F)
Storage Temperature	-40° to 85° C(-40° to 185° F)
Operating Humidity	10% to 90% non-condensing
Electrical	
Reader Input Voltage	+7.5v to 36 VDC (by AC to DC adapter)

ViVOpay Kiosk II Installation

Thissection provides information on how to install the ViVOpay Kiosk II on a kiosk.

PartList

Verify that you have the following hardwarefor the installation of the ViVOpay Kiosk II:
- ViVOpay Kiosk II Controller
- ViVOpay Kiosk II Antenna(either square or angle bezel)
- Antenna LED power and data cable
- ViVOpay Kiosk II to ECR/POS cable(customer supplied). This USB or serial cable varies based on thehost to be used.
- Drill Template for the antenna (630-1046-00)

Square Bezel Antenna
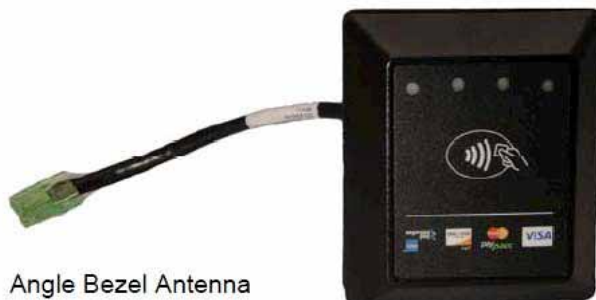
Angle Bezel Antenna

MountingtheViVOpayKioskII ExternalAntenna

Use the following instructions to mount the antenna on the exteriorof the kiosk:

Note: Verify the orientationof the ViVOpay Kiosk II Antenna beforemarking anddrilling the holes. The two larger holesshould be located towards the top ofthe mounting location to ensure that the ViVOpay KioskII Antennais oriented correctly with the LEDs at the top.

1. Using the Drill Template for the antenna(630-1046-00), locate and mark the four 4.4mm (0.173 inch) mounting holes.
2. Using the Drill Template, locate and mark the two 14.0 mm (0.551 inches) across holes (used for connectingthe antennapower and the LED power and datacable to the ViVOpay Kiosk II).
3. Drill the four 4.4 mm (0.173) mounting holes using a number 17 drill bit.
4. Drill the two 14.0 mm (0.551 inch) holesusing a 35/64 drill bit.
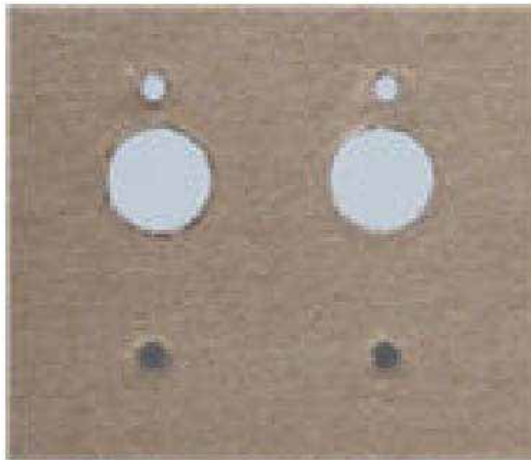
5. Remove thenuts from thefour mountingscrews.
6. Route the end of the cable(220-2457-00) with the RJ45 connectorthrough the left 14.0 mm (0.551 inch) hole in to the kiosk. Make sure that the front of the antenna will be properly oriented(not upside down)on the kiosk before inserting the fourscrews into the mounting holes.
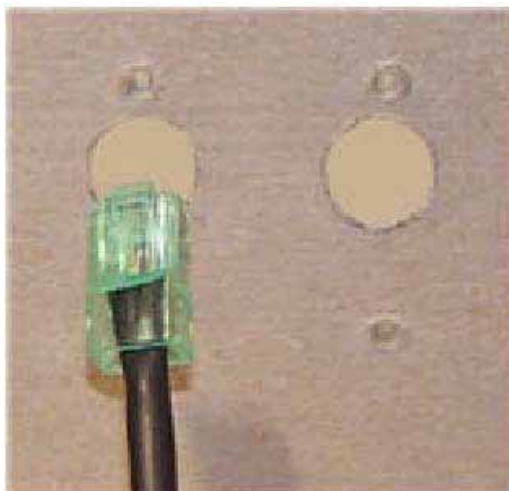
7. Align the four screwswith the mounting holes and attach the ViVOpay Kiosk II to the outside surface. Make sure that the cable is not pinched or binding.

Square Bezel Antenna   Angle Bezel Antenna
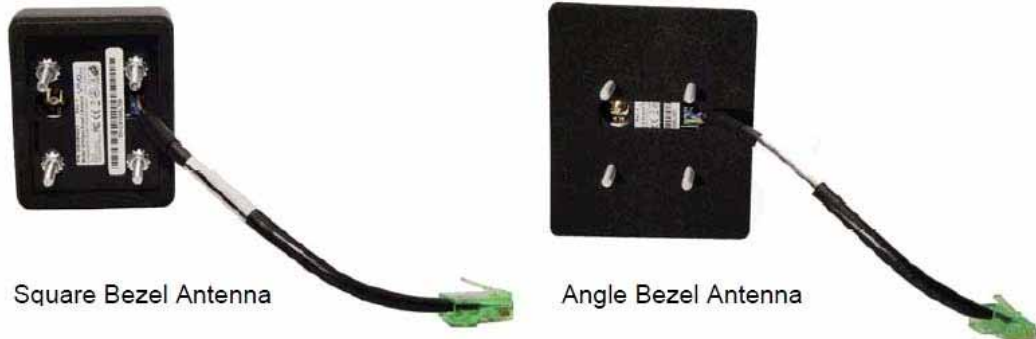
8. Use the fournuts to secure the ViVOpayKiosk II to the outside surface of thekiosk. Makesure to tighten the nuts securely sothat the ViVOpay Kiosk II does not move on the outside surface of the kiosk.

   If you are installing the Angle Bezel Antenna, tighten the nuts to 5-7in/lbs. for a good weather seal.

9. Attach the end of the cablewith the SMB connector through the right 14.0 mm (0.551 inch) hold and attach it to the socketonthe back of the ViVOpay Kiosk II antenna. The SMB connector pushes on the socket of the antenna.
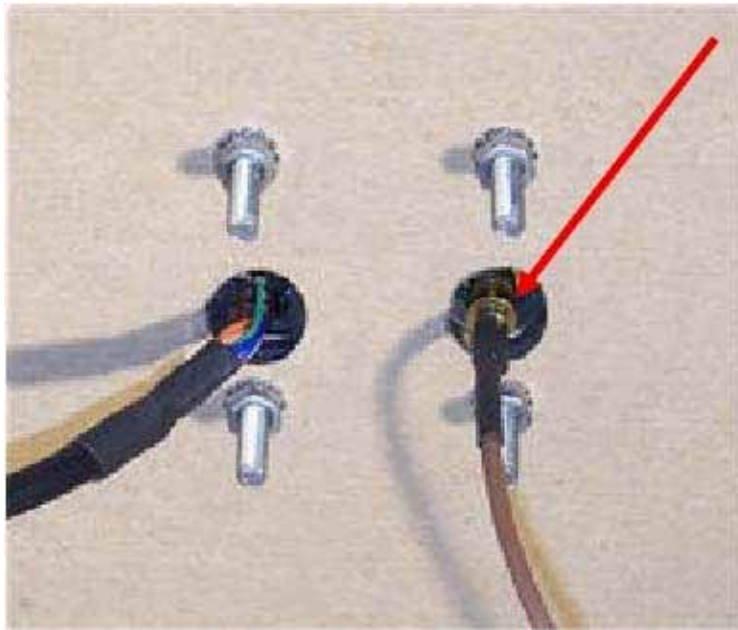
10.Attach the RJ45 connectorcoming fromthe ViVOpay Kiosk II Antenna to the RJ45 receptacle onthe 220-2457-00cable.
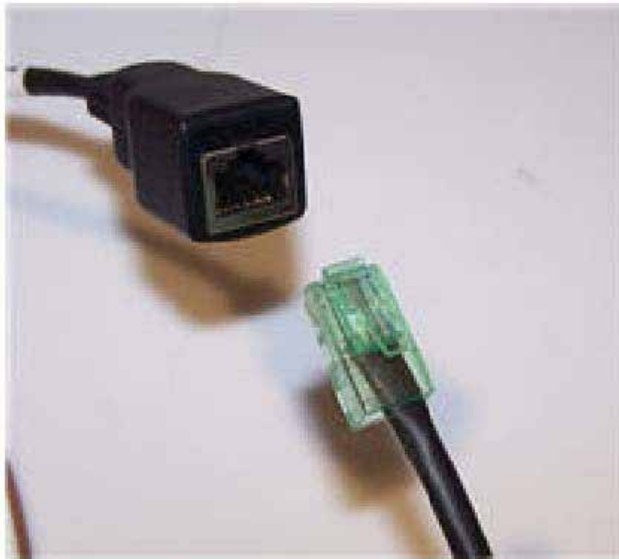
Flush- Mounting the Square Bezel Antenna

The RF fieldof the antenna is sensitiveto the proximity of metal.Ifyou are flush-mounting theantenna in a metal surfaceor bezel, you have three options:

- Mount with the RF emittingsurface of the antenna at least 1 cm forward of any metal.
- Mount with the RF emittingsurface of the antenna at least 1 cm behind any metal. This will reduce theeffective range of the antenna.
- Mount flushwith the metal but allow aminimum of 1cm spacing between the antenna and the metal.

In all cases, test the antenna mounting before engaging in a full scale installation.

MountingtheViVOpayKioskII Controller

Note: The ViVOpay Kiosk II Controller must be mounted within 1meter of the antenna. If the antenna is mounted on a surface that opens (such asa door), make sure the controller and antenna areclose enough that there is no tension on the cable when the enclosure is open.

If it is acceptable, the installer can drill four holes for mounting thecontroller if screw heads can appear on the outside of thekiosk.In thiscase, it wouldbe advisableto use security screws to preventtampering with the screws.

If drilling additional holes on the outside ofthe kiosk surface is notacceptable, the installer can use double-sided tape to mountthe controller to any clean surface.

Mounting the ViVOpayKiosk II Controller Using Screws

1. Position theViVOpay Kiosk II controller on the interior of the kiosk making sure that there issufficient room for the antenna mountingsurface to be fully opened.

2. Locate the four 4.4 mm (0.173 inch) mounting holesby holding the ViVOpay Kiosk II Controller in position andmark the holes. The following diagramshows the spacing on the holes to be drilled for mounting the ViVOpay Kiosk II Controller.
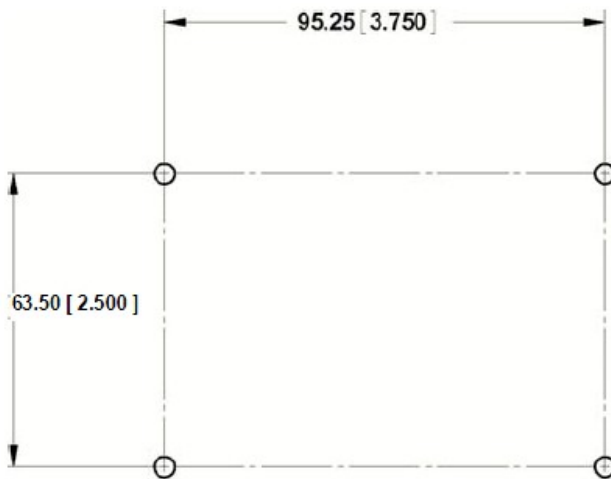
3. Drill the four 4.4 mm (0.173 inch) mounting holes using a number 17 drill bit.
4. Use fourscrews and nuts to mount theViVOpay Kiosk II Controller to the kiosk surface. (Mounting screws are not provided and must be supplied bythe installer.)
5. Tighten the nuts to hold the ViVOpay Kiosk II Controller in positionso that it does not move.

Mounting the ViVOpayKiosk II Controller Using Mounting Tape

1. Position theViVOpay Kiosk II Controller on the interior of the kiosk making sure that there issufficient room for the antenna mountingsurface to be fully opened.
2. Attach double-sided tape tothe mountingsurface.
3. Position theViVOpay Kiosk II Controller over the mounting tape and gently apply pressure to hold the controller in position.

AttachingtheCablesfromtheAntennatotheController

1. Attach the SMB end of the cable (220-2457-00) from the antenna to the ViVOpay Kiosk II Controller.

2. Attach the other end of the cable (220-2457-00) from the antenna to the ViVOpay Kiosk II Controller.

Note: Verify that the polarizing plug on the end of thedata cable isfacing towards the top of the ViVOpay Kiosk II Controller (away from the mounting plate) before inserting the cable.If the cable is installed incorrectly (upside-down), it willapply the wrong polarity to the LEDs and damage them.

Connecting to Power

The Kiosk II can be powered through the serial communications port or the two-socket power connector. If you are using USB data communications, you must power the Kiosk II through the two-socket power connector.

By using AC to DC adapter to Connect to the white two-socket Molex connector (mating connector Molex P/N 0039012020with 5556-series crimps) or to pins 1 and 2 of the RS232 connector (see next section).
(P.S Please don't use DC power source for our units, and this product do not supply the DC Jack Cable).
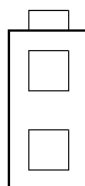
Pin 2 - Ground

Pin 1 - +7.5v to 36VDC

Connecting to the Data Port

The Kiosk II has two data connections options: USB through the USB connector and RS232 through the 14-pin Molex connector.
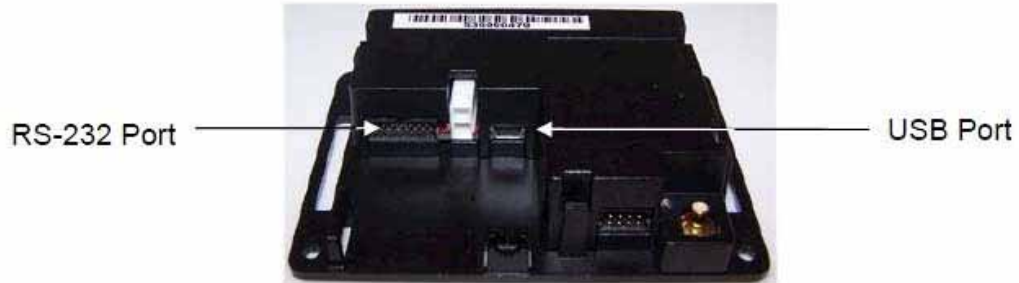
The USB port uses a standard USB connector and pin outs. TheRS232 port has the following pin outs.

Pin	Description	Pin	Description
1	Power ground	2	+7.5v to 36VDC (By using AC to DC adapter)
3	Power ground	4	+7.5v to 36VDC (By using AC to DC adapter)
5	No connection	6	Reserved
7	Reserved	8	Reserved
9	Signal ground	10	Signal ground
11	RS232 Tx	12	RS232Rx
13	ISP Input	14	Reserved

To build your ownRS232cable, use Molex female connector part number 0511101451 with 50394-series crimps (see www.molex.comfor more information). Pin 1 is indicated by a triangle (diagram issocket-side viewof the female connector). Ifyou are powering the Kiosk II from this connector,wire the two powerpins (pins 2 and 4) together and the two power ground pins together (pins 1 and 3).
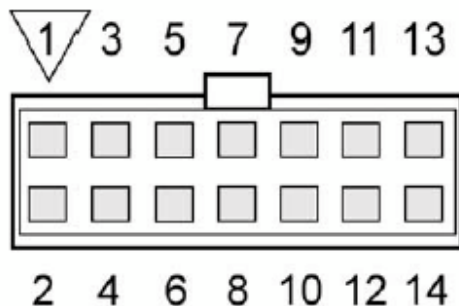
UsingtheViVOpayKioskIItoMakeaPurchase

Presenting Cards, Fobs, or NFC Phones

Your new ViVOpay Kiosk II allows for credit/debit card purchasesusing the new contactless technology.

Present the card/fob/phone in close proximity tothe front portion ofthe antennamodule. Present the card/fob/phone so that maximum surfacearea is parallel to the antenna module as shown below. The antenna should beep and all four green LEDs should illuminate briefly to indicate a successful test.

This tests theantenna's ability to read the RFIDtest card. If unsuccessful, therewill be no reaction from the reader. If you use a test card andthe ViVOpay reader is attached to the ViVOpay Kiosk II Controller, a dummytransactioncan be tested. The transaction will not be authorized and willcome backwith a response,but will at least test for end-to-end connectivity.

Making aPurchase

- After the transaction has been enteredonthe kiosk control panel, the customer should present their card/fob/phone in close proximity so that maximum surfacearea is parallel to the antenna.
- A single beep and all fourLEDs briefly flashing indicates the card/fob/phone has been readcorrectly.

Installation Points

- The ViVOpayKiosk II is designed to bemounted on ametal surface and in close proximity to any internal motors and electrical devices that may beoperating inside the kiosk. However, the ViVOpay Kiosk IIis susceptible to RF andelectromagnetic interference. It is importantthat the unit not be mounted near(within3 or 4 feet) large electric motors, computerUPS systems,microwave transmitters, anti-theft devices, radio transmitters, communications equipment and so on.
- Close proximity of metal tothe RF-emitting end of theantenna can greatly reduce the range of the antenna. See the precautions describedin FlushMounting the Kiosk IIAntenna.
- Tie all cablesneatly with nylon cable-tiesand route them so that they are inaccessibleand invisible to customers.Label thecable ends, host,ViVOpay, and power, to simplify connection testing or component replacement.

- Test the ViVOpay Kiosk II installation using a test card to perform an end-to-end transaction (the same as an actual purchase on theKiosk). Thekiosk control panel should display "Requesting Authorization". Even if the transaction is declined (as it should bewith a test card),it will proveconnectivity all the way through the system. If possible the store manager or some other responsibleparty should test each cardto ensurecontinued operationand functionality. If the kiosk is rebooted on a regular basis (such as every night) it is importantto test the contactless reader as soonas possible afterwards to ensure continuedcommunication to the kiosk.
- Refer to the troubleshooting section of thismanual before contacting your distributor with support questions.

RF Interference

Q. WhydoIneed to knowaboutRF interference?
A. Contactless payments use radio frequency technology to sendcard data to a contactless terminal reader.

Q. HowcanRF interference affect contactless payments?
A. RF interference can cause data errors. If RF interference is present, contactless payment devices may operation intermittently or inconsistently.

Q. Where does RF interference come from?
A. Radio frequency interference (RFI) can originate from a wide number of sources at the point-of-sale (POS). Some examples of sources of RF energy andRF interference include:

> AM/FM radioand TV transmitters
> 2-way radios,pagers
> Mobile telephones
> Power lines, transformers
> Medical equipment
> Microwaves
> Electromechanicalswitches

Q. What should I do if I suspect RF interference exists in myenvironment?
A. Begin by inspecting your environmentfor possible sources ofRF interference.

Q. Do equipment manufacturers testtheir devices for RF interference?
A. Electronicequipment istested forRFI sensitivity by the manufacturers. Thesetests are performed in a controlled laboratory environmentand will oftennot replicate the types of devices that would be encountered inyour point-of- sale(POS)environment.

Q. WhatRF levelswill impactRF operations?
A. Factors that can causeRF interference vary case-by-case. There are noset rules defining asingle RF level that will cause RFI. RFI depends on the sensitivity of the equipment under consideration, or how low an interpreting signal can be in the presence of the equipment and cause problems.
Equipment can be particularly sensitive to very low signal levels of one frequency and yet be quite immune to highsignal levels of another frequency-so frequency is an important factor.
Some electronic system components areinternally shielded and have a very high immunity to interference; but generally, most equipment has not been so engineered.

Troubleshooting

The ViVOpayKiosk II readers arereliable and easy to troubleshoot. The components that may require troubleshooting include thepowermodule (if applicable), the reader, and the serial cable.

Symptom	Possible Cause	Remedy
General Issues		
Reader does not appear to bepowered on (no LEDs lit).	• Reader not powered on or incorrect voltage. • Improper useof internal power supplyprovided by the kiosk.	•Check cableconnections. • Verify that power is on and correct voltage and currentare present. • Makesure that the correct pins are utilized. • Makesure that the power provided is within the specified range of the Kiosk II reader. • Makesure that the correct polarity is observed. •For more information, refer to the Input Voltageunder the Electrical specificationsection. •Replace the ViVOpay Kiosk II.
Reading Cards/Fobs/Phones		
LEDs do not light and beeper is not audible when card/fob/phone is presented.	• Card/fob/phone not properly presented. •RF interference. •Unsupported card used. • Wrong firmware (contact your local support representative).	• Present card/fob/phone closer to the antenna, and ensure it is parallel to the face of the reader. • Verify that the card/fob/phone is valid/current. • Verify that metal is not interfering with the antenna. •Testwith "Contactless Test Card" part number 241-0015-03 RevA. • Verify that the Phone Wallet is enabled for payments. •Try a differentcard/fob/phone. • Check to seeif card/fob/phone is damaged. • Verify that phone cover is correctly attached to phone (Nokia 3220). • Verifythat correct firmwareis loaded on reader (local support representative only). • Power cableplug is fully inserted. •Replace the ViVOpay Kiosk II.
Some card/fobs/phones read, but not all.	• Possible bad card/fob/phone. •Unsupported card used. • Wrong firmware (contact your local support representative).	• Check to seeif card/fob/phone is damaged. • Verify that phone cover is correctly attached to phone. • Verifythat correct firmwareis loaded on reader (local support representative only).

Symptom	Possible Cause	Remedy
Communication to Kiosk		
No data is received, or data is garbled.	• Faulty or incorrect cable connections.	• Check that the cable connection is secure and in the correct port on the kiosk.

If you are unable to resolvethe problem, contact your localsupport representative.

Firmware Upgrade

The Kiosk II can be upgraded using either the serial or USB interfaces.

SerialFirmwareDownloadProcess

The ViVOpayKiosk II canonly be upgraded when it is placed in upgrade mode by drawing down the ISP signal on the externalconnector. Using thecable and dongle mentioned above accomplishes this by connecting theISP pin tothe RS232signal ground. If the ISP is grounded when theViVOpay Kiosk II powerson, it enters download mode. Otherwise it will operate normally, emitting abeep and flashing LEDs when powered on.

If you want to build your own downloadcable,the pinouts to the external connector are given in Connecting to theData Port. After you have entered download mode, you must erase the current firmware and install the new firmware.

Preparation

To install thenew firmwareyou will need:
- PC with available serial orUSB port
- ViVOpay Kiosk II with a serial orUSB data cable attached
- For serial downloads: 220-1275-00 Download Dongle (DB-9 serialto RJ45)
- Philips LPC2000 Flash Utility software
- Firmware file for the desired firmware (contact ViVOpaysupport@idtechproducts.com)
- Power supplyfor the ViVOpay reader (7.5- 36 VDC; 3 Watts output).

LoadtheViVOpayKioskFirmware

1. Install the LPC2000 flash utility program on the PC.
2. Copy the ViVOpay Kiosk II firmware on the PC.
3. Connect the download dongle (220-1275-00) to thePC COM portand plug in the 220-2374-00cable from ViVOpay Kiosk II tothe dongle.
4. Connect the power to the ViVOpay reader. Thereshould be no beep, and no LED activity.
5. Launch the Philips LPC2000 utility. If the Philips utility fails to identify any reader attached, please follow thetroubleshooting steps given in Troubleshooting.
6. Set the **Device** to LPC 2138.

7. The COM port is normally set to **1** but this depends upon your PCDevice Manager setup. Youcan select the COM port to which thecable is connected by navigating to the WindowsDevice Manager (**Start** ->**Settings** ->**Control Panel**->**System** ->**Hardware**->**Device Manager** ->**Ports**) to verify theactual port number that is assigned to the serial port. Press**ENTER**after making the selection.
8. Click**Read Device ID**, the**Part ID**: and**Boot LoaderID**: fields should be filled inif the reader is responding to the utility.
   Note: If the reader does NOT respond to the utility, reset the reader by unplugging and replugging the power connector andtry again.
9. Click**Erase**. This erases the old firmware on the reader. A message indicates a successful erase.
10. Click**Blank Check** (with **Entire Device** selected) to confirm that the erase function worked properly.
11. In the **Flash Programming** box, click the "…" box to select the firmware file you want to load on the ViVOpay Kiosk II.
12. Click**Uploadto Flash** to load the firmware on the reader (the % completion bar shows the firmware loading progress).
13. Disconnect power and theserial dongle.
14. Connect power to the Kiosk II and connect the standard datacable. It will load the new firmwareapplication.

USBFirmwareDownload

The download process over the USB interface is performed with the bootloader commands presented in the*Serial InterfaceDeveloper's Guide*. For a copy of the *Serial Interface Developers Guide* contact ID TECH or yourID TECH representative.

Symbols explanations

	The symbol on the product or in the instructions means that your electrical and electronic equipment should be disposed at the end its life separately from your household waste. There are separated collection systems for recycling in the EU. For more information, please contact the local authority or your retailer where you purchased the product.