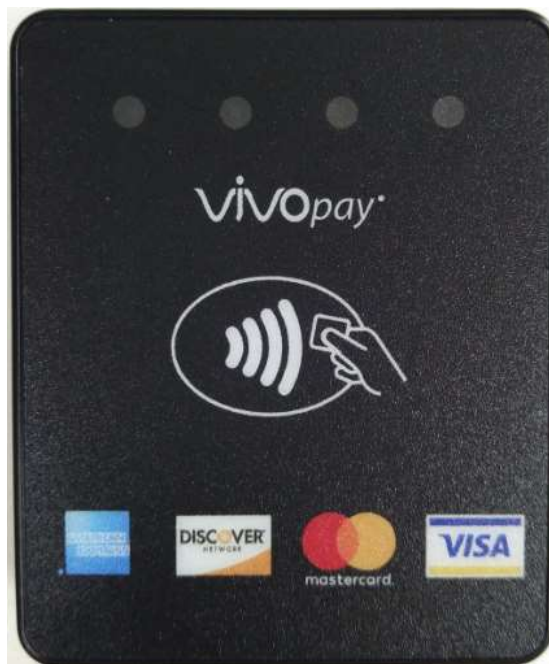




# ViVOpay Kiosk IV User Manual



80160500-001 Rev. A

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## FCC warning statement

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 undesired operation.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance 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 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 or modifications to the ViVOPay Kiosk IV not expressly approved by ID TECH could void the user's authority to operate the ViVOPay Kiosk IV.

## IC Warning statement


This device complies with Industry Canada's licence-exempt RSSs. 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.*

## Cautions and Warnings

	<p><b>Caution:</b> The ViVOPay Kiosk IV should be mounted 1-2 feet away from other ViVOPay Kiosk IVs. Can be adjusted based on lane setup.</p>
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	<b>Caution:</b> 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.
	<b>Warning:</b> Avoid close proximity to radio transmitters which may reduce the ability of the reader.

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## 1. Overview

The ViVOPay Kiosk IV is a compact standalone contactless reader designed to support contactless transactions based on ISO 18092, ISO 14443 Type A/Type B/MiFare compatible cards, fobs and tags, as well as NFC phones. The ViVOPay Kiosk IV is comprised of a compact controller module and an antenna module packaged individually. This two-part design allows the controller module to be installed within the cabinetry of a kiosk while the antenna is installed separately on an exterior surface with a physical separation of up to one meter. The controller only has one non-SRED version. The antenna is available with a square or angled bezel.

The ViVOPay Kiosk IV supports USB and serial RS-232 host communication using the protocol defined in the *NEO Interface Developers Guide*. This comprehensive guide describes all of the firmware commands and other features available in NEO-series devices; it is the authoritative source for technical information of interest to systems integrators. (Contact your ID TECH representative to obtain a copy of this guide, which is available under NDA.) Note, also, that a feature-rich Windows-based Universal SDK is also available to aid rapid development of applications that talk to Kiosk IV.

Be sure to check the Downloads link on the ID TECH public Knowledge Base at <https://atlassian.idtechproducts.com/confluence/display/KB/Knowledge+Base++Home> for the latest product downloads.

The ViVOPay Kiosk IV is designed to support a wide input power range. Both data and power can be supplied via a single cable to reduce the effort and complexity of installation.

### 1.1 Features

The ViVOPay Kiosk IV supports the following transaction types:

- ISO/IEC 14443 Type A and B
- ISO 18092
- Speed: Enables quick transactions improving store productivity and operational efficiencies.
- Implementations: Retail locations, 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 cards. Crypto data processing for contactless EMV cards.
- 32-bit Microcontroller with ample memory capable of supporting future application upgrades
- Small antenna integrated internal with FPCB

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

**Kiosk IV with non-SRED version feature:**

Feature	NSRED
02-01 command (non-encrypted Activate Transaction)	Supported (unless encryption is turned on)
02-40 command (encryption-compatible Activate Transaction)	Supports plaintext output and encrypted output
03-00 command	03-00 command not supported if encryption is enabled
03-40 command	Supports plaintext output.
Encryption Switch (C7-36/37 commands)	Yes
MAC Key	Not supported
Encryption Type	AES and TDES available
SAM	Not supported
Pass-Through Mode Output	Always Plaintext
USB	VID: 0x0ACD PID: 0x3710
Burst Mode setting	If MSD/EMV encryption is ON and Data Key exists, then reader is in encryption mode, and Burst Mode is forced to be off.
FW version	Kiosk IV VX.YY.ZZZ
Self-Check	1. Supports self-check when power is on. 2. No periodic 24-hour self-check
Tamper Detection and Data Zeroization	Not supported

## 1.2 ViVOPay Kiosk IV Specifications

Hardware	
MTBF	500,000 hours based on Telcordia Technologies SR-332 modeled at 40° C.
Transmitter Frequency	13.56 MHz +/- 0.01%
Transmitter Modulation	ASK
Typical Read Range	4-6 cm (1.5 to 2.3 inches)
Physical	
Length	64 mm (2.48 inches)
Width	53 mm (2.08 inches)
Depth	15 mm (0.59 inches)
Environmental	
Operating Temperature	-25° C to 70° C (-13° F to 158° F), max change of 10° C per hour
Storage Temperature	-40° C to 85° C (-40° F to 185° F) - nonSRED
Operating Humidity	10% to 90% non-condensing
Electrical	
Reader Input Voltage	+5VDC <b>PLEASE NOTE: For UL compliance. Input voltage needs to be below 30 VDC</b>
Working Current	<500mA

## 1.3 Certifications and Approvals

ViVOPay Kiosk IV supports the following contactless payment applications and mobile payments:

- American Express ExpressPay 3.1
- Discover DPAS 1.0
- Interac Flash v1.5
- MasterCard PayPass/MChip 3.1
- Visa VCPS 2.1.3 - MSD, qVSDC, ODA and IRWIN
- Mifare Classic
- CUP
- Apple Pay VAS
- Google Smart Tap 2.x
- Contactless EMV L1 and L2
- PBOC Level 1 / Level 2





## 2. Kiosk IV Installation

This section provides information on how to install the ViVOpay Kiosk IV on a kiosk.

### 2.1 Parts List

Verify that you have the following hardware for the installation of the ViVOpay Kiosk IV:

- ViVOpay Kiosk IV Controller non-SRED
- ViVOpay Kiosk IV RS-232 cable 80160205-001(optional accessory), Or customer supplied
- ViVOpay Kiosk IV USB cable 80121214-001(optional accessory), Or customer supplied
- Drill Template (PN 80160500-001)

Kiosk IV top & bottom view



Kiosk IV cable assembly figure

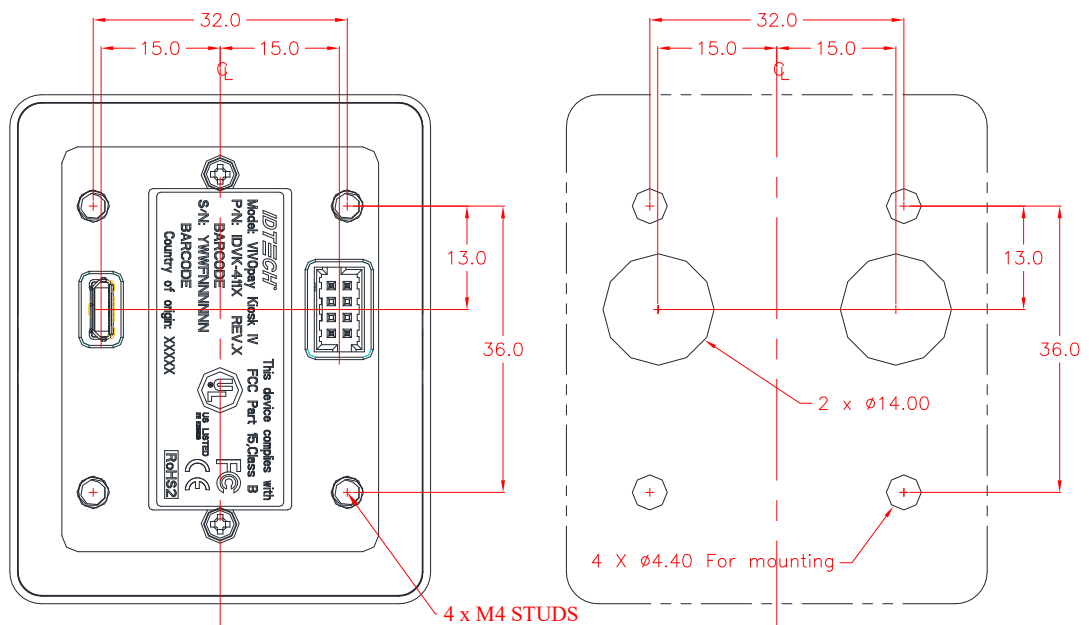


## 2.2 Mounting the ViVOPay Kiosk IV

Use the following instructions to mount the Kiosk IV unit on the exterior of a kiosk:

**Note:** Verify the orientation of the ViVOPay Kiosk IV before marking and drilling the holes. The two larger holes should be located towards the top of the mounting location to ensure that the ViVOPay Kiosk IV is oriented correctly with the LEDs at the top.

1. Use the Drill Template for the Kiosk IV Reader (80160001-001), locate and mark the four 4.4mm (0.173 inch) mounting holes.
2. Use the Drill Template, locate and mark the two 14.0 mm (0.551 inches) access holes (used for connecting the power and data cable to the Kiosk IV Reader ).
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) holes using a 35/64 drill bit.



5. Make sure that the front of the device will be properly oriented (not upside down) on the Kiosk before inserting the four studs into the mounting holes.
6. Align the four studs with the mounting holes and attach the device to the outside surface of the kiosk.
7. Use four M4 hex nuts(FAS0259) to secure the Kiosk IV Reader to the outside surface of the kiosk. Make sure to tighten the nuts securely so that the Kiosk IV does not move on the outside surface of the kiosk. Drill the four 4.4 mm (0.173) mounting holes using a number 17 drill bit.

### 2.3 Connecting to Micro USB or RS-232 port

The KIOSK IV can be powered through the serial communications port or Micro USB connector. If you are using RS-232 data communications, you must power the KIOSK IV through the DC Jack on DB9 connector and make sure 5VDC power input.



**The RS-232 port has the following pinouts:**

8pin connector (USB, RS232 and 5V power)

MPN: A2004WV-2X08P

PIN#	Function	PIN#	Function
1	RS232_TX1	2	5V_IN
3	RS232_RX1	3	GND
5	NC	4	USB_DM (Optional)
7	GND	8	USB_DP (Optional)

Note: USB DP/DM interface share with Micro USB interface by 0 ohm resister.

Default BOM setting switch to Micro USB port, and no USB function on 8 pin connector.

## 2.4 Using the ViVOPay Kiosk IV to Make a Purchase

### Presenting Cards or NFC Phones

The ViVOPay Kiosk IV allows for credit/debit card purchases using Contactless technology.

Present the card/phone in close proximity to the front portion of the antenna module. Present the card/phone so that maximum surface area 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 the antenna's ability to read the Contactless test card. If unsuccessful, there will be no reaction from the reader. If you use a test card and the Kiosk IV antenna is attached to the Kiosk IV Controller, a dummy transaction can be tested. The transaction will not be authorized and will come back with a response, but will at least test for end-to-end connectivity.

## 2.5 Making a Purchase

1. After the transaction has been entered on the kiosk control panel, the customer should present their card/fob/phone in close proximity so that maximum surface area is parallel to the antenna.
  - A single beep and all four LEDs briefly flashing indicates the card/fob/phone has been read correctly.

## 3. Installation Points

- The Kiosk IV is designed to be mounted on a metal surface and in close proximity to any internal motors and electrical devices that may be operating inside the kiosk. However, the Kiosk IV is susceptible to RF and electromagnetic interference. ***It is important that the unit not be mounted near (within 3 or 4 feet) large electric motors, computer UPS systems, microwave transmitters, anti-theft devices, radio transmitters, communications equipment and so on.***
- ***Close proximity of metal to the RF-emitting end of the antenna can greatly reduce the range of the antenna.***

- Tie all cables neatly with nylon cable-ties and route them so that they are inaccessible and invisible to customers. Label the cable ends, host, ViVOPay and power, to simplify connection testing or component replacement.
- Test the Kiosk IV installation using a test card to perform an end-to-end transaction (the same as an actual purchase on the Kiosk). The kiosk control panel should display "Requesting Authorization". Even if the transaction is declined (as it should be with a test card), it will prove connectivity all the way through the system. If possible the store manager or some other responsible party should test each Kiosk IV on a regular basis (perhaps at the start of each day or at least once per week) with a test card to ensure continued operation and functionality. If the kiosk is rebooted on a regular basis (such as every night) it is important to test the contactless reader as soon as possible afterwards to ensure continued communication to the kiosk.

#### **4. RF Interference**

**Q. Why do I need to know about RF interference?**

**A.** Contactless payment uses radio frequency technology to send card data to a contactless terminal reader.

**Q. How can RF interference affect contactless payment?**

**A.** RF interference can cause data errors. If RF interference is present, contactless payment devices may operate 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 and RF interference include:

- AM/FM radio and TV transmitters
- 2-way radios, pagers
- Mobile telephones
- Power lines, transformers
- Medical equipment
- Microwaves
- Electromechanical switches

**Q. What should I do if I suspect RF interference exists in my environment?**

**A.** Begin by inspecting your environment for possible sources of RF interference.

**Q. Do equipment manufacturers test their devices for RF interference?**

**A.** Electronic equipment is tested for RFI sensitivity by the manufacturers. These tests are performed in a controlled laboratory environment and will often not replicate the types of devices that would be encountered in your point-of-sale (POS) environment.

**Q. What RF levels will impact RF operations?**

**A.** Factors that can cause RF interference vary case-by-case. There are no set rules defining a single 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 high signal levels of another frequency - so frequency is an important factor. Some electronic system components are internally shielded and have a very high immunity to interference; but generally, most equipment has not been so engineered.

## 5. Firmware Upgrade

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

### 5.1 Preparation

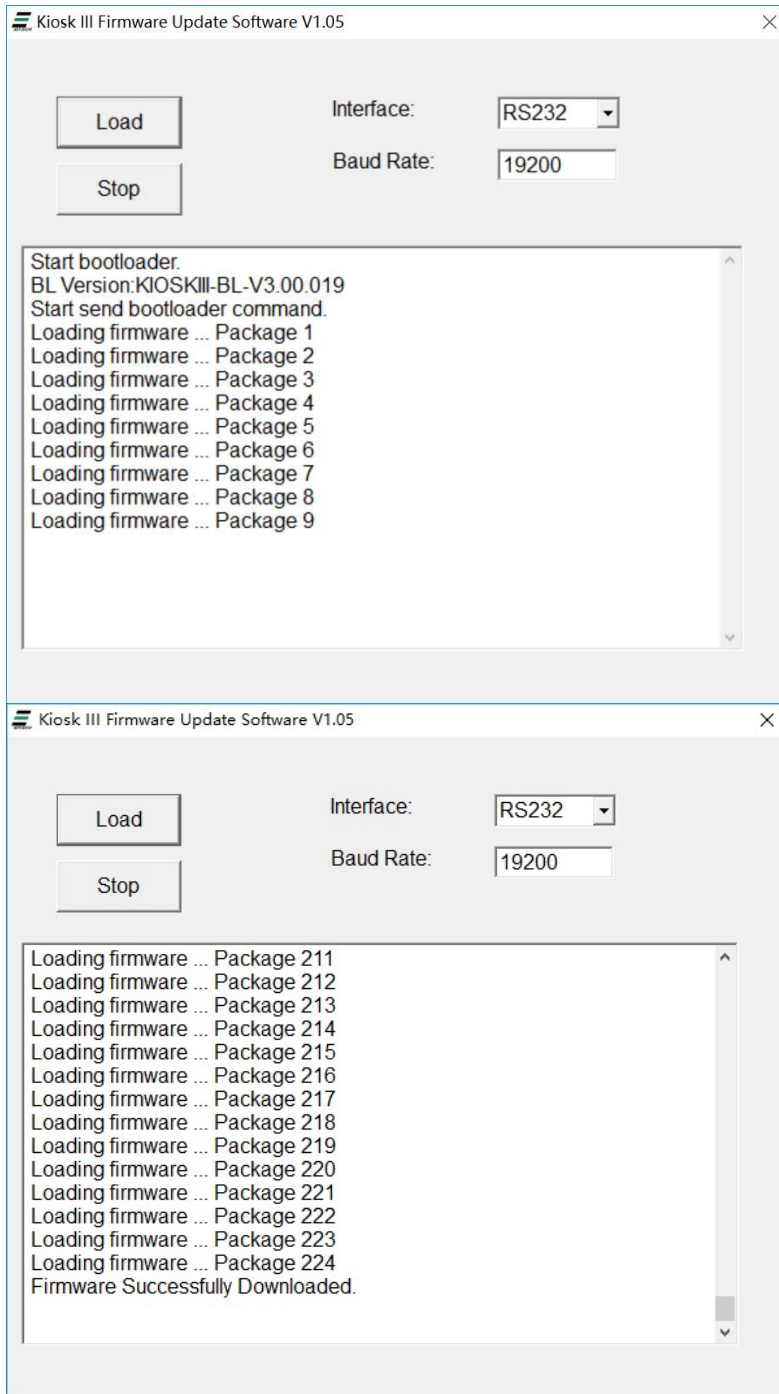
To update the new firmware you will need:

- PC with available serial or USB port
- Kiosk IV with a serial data cable or a USB cable attached
- **For serial downloads:** use cable 220-2492-00, 220-2463-00 and 140-2035-00
- **For USB downloads:** 220-2492-00, 80097208-001 or your own Micro USB cable and 140-2035-00
- Firmware files (including Boot Loader files) for the desired firmware

### 5.2 Uploading Firmware for RS232 or USB

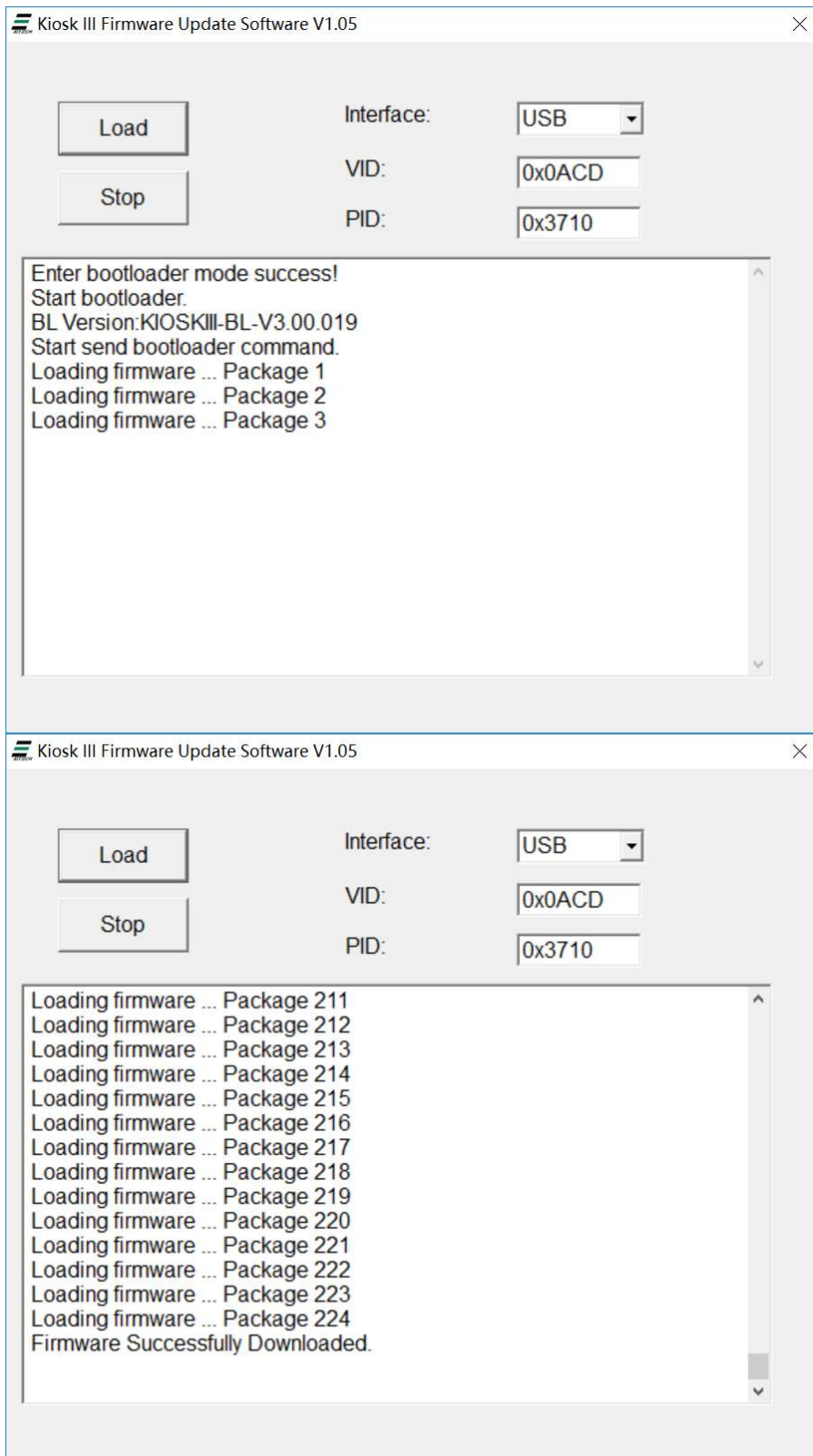
1. Move Kiosk IV V1.20.001s7\_ENC\_USBHID.txt or Kiosk IV V1.20.001s7\_ENC\_RS232.txt and “Kiosk III Firmware Update Software V1.05.exe ” into the same folder.
2. Check and confirm device is correctly connected to the power source and RS232/USB connection.
3. If RS232 is the interface choice, then please close all software that is using the RS232 communication.
4. Run “KIOSKIV Bootloader Utility.exe”, choose communication type and parameters according to the connection interface.
  - For serial interface, choose “COM” and Baud Rate is 19200 (default). Load xxx\_RS232.txt file
  - For USB interface, choose “HID” and verify VID displaying 1D5F and PID displaying 0100 (default). Load xxxx\_USBHID.txt file
5. Click the “Load” button -select the firmware file will be downloaded into the device. When “Firmware successfully downloaded” appears on the utility, then the firmware has been successfully downloaded. The Utility could be closed at that time.

**Serial Interface:**





**USB interface:**



## 6. Troubleshooting

The ViVOPay Kiosk IV readers are reliable and easy to troubleshoot. The components that may require troubleshooting include the power module (if applicable), the reader, and the serial cable.

Symptom	Possible Cause	Remedy
<b>General Issues</b>		
Reader does not appear to be powered on (no LEDs are lit).	<ul style="list-style-type: none"> <li>• Reader not powered on or incorrect voltage.</li> <li>• Improper use of internal power supply provided by the kiosk.</li> </ul>	<ul style="list-style-type: none"> <li>• Check cable connections.</li> <li>• Verify that power is on and correct voltage and current are present.</li> <li>• Make sure that the correct pins are utilized.</li> <li>• Make sure that the power provided is within the specified range of the Kiosk IV reader.</li> <li>• Make sure that the correct polarity is observed.</li> <li>• For more information, refer to the Input Voltage under the Electrical specification section.</li> <li>• Replace the ViVOPay Kiosk IV.</li> </ul>
<b>Reading Cards/Phones</b>		
LEDs do not light and beeper is not audible when card/fob presented.	<ul style="list-style-type: none"> <li>• Card/fob/phone not properly presented.</li> <li>• RF interference.</li> <li>• Unsupported card used.</li> <li>• Wrong firmware (contact your local support representative).</li> </ul>	<ul style="list-style-type: none"> <li>• Present card/fob/phone closer to the antenna, and ensure it is parallel to the face of the reader.</li> <li>• Verify that the card/fob/phone is valid/current.</li> <li>• Verify that metal is not interfering with the antenna.</li> <li>• Test with “ViVOPay Contactless Test Card” part number 241-0015-03 Rev A.</li> <li>• Try a different card/fob.</li> <li>• Check to see if card/fob is damaged.</li> <li>• Verify that correct firmware is loaded on reader (local support representative only).</li> <li>• Power cable plug is fully inserted.</li> <li>• Replace the ViVOPay Kiosk IV.</li> </ul>

Some cards/fobs read, but not all.	<ul style="list-style-type: none"> <li>• Possible bad card/fob.</li> <li>• Unsupported card used.</li> <li>• Wrong firmware (contact your local support representative).</li> </ul>	<ul style="list-style-type: none"> <li>• Check to see if card/fob is damaged.</li> <li>• Verify that correct firmware is loaded on reader (local support representative only).</li> </ul>
<b>Communication to Kiosk</b>		
No data is received, or data is garbled.	<ul style="list-style-type: none"> <li>• Faulty or incorrect cable connections.</li> </ul>	<ul style="list-style-type: none"> <li>• Check that the cable connection is secure and in the correct port on the kiosk IV.</li> </ul>
<b>Load Firmware</b>		
Firmware loading software indicate "open RS232 failed"	Device is not well connected to PC. Or other software is using serial interface	<ul style="list-style-type: none"> <li>• Check the cable connection</li> <li>• Close other software which is using serial interface</li> </ul>
Firmware loading software indicate "Load firmware failed"	Device is not well connected to PC	<ul style="list-style-type: none"> <li>• Check the cable connection</li> </ul>
Firmware loading software indicate "Send Command failed"	Bootloader firmware in device is destroyed	<ul style="list-style-type: none"> <li>• contact your local support representative to reload manufacture firmware</li> </ul>

***If you are unable to resolve the problem, please contact [support@idtechproducts.com](mailto:support@idtechproducts.com) (sending an e-mail to this address will automatically open a support ticket).***