![ID TECH - Value through Innovation]

ViVOpay Vendi™
User Manual

80139500-001 Rev. B

Copyright

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 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. 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 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 Vendi not expressly approved by ID TECH could void the user's authority to operate the ViVOpay Vendi.

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 of the device.

Cautions and Warnings

⚠️	**Caution:** The ViVOpay Vendi should be mounted 1-2 feet away from other ViVOpay Vendi. 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.

Table of Contents

1. Overview

The ViVOpay® Vendi supports both card swipe and contactless payment information processing and authorization at existing POS locations. It is seamlessly integrated into existing POS systems by direct mounting inside a vending machine or on the surface of the vending machine. The unit can accept a variety of contactless credit cards, Mobile Wallets, contactless key fobs, and wireless POS-supported devices.

The ViVOpay Vendi supports USB and serial RS-232 host communication using the protocol defined in the *NEO v1.0.0 Interface Developers Guide*. The ViVOpay Vendi 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.

ViVOpay Vendi supports the following contactless payment applications in the latest release of firmware:
- American Express Expresspay 3.0
- Discover DPAS 1.0
- Interac Flash v1.5
- MasterCard PayPass/MChip 3.0.2
- MIFARE
- Visa VCPS 2.1.3 - MSD & qVSDC
- Apple Pay & other Mobile Wallets

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

1.1 Features
- Supports ISO 14443 Type A and Type B, MIFARE and ISO 18092 NFC Compliant
- Accepts Mobile payments, NFC cards, and contactless key fobs
- 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.
- Weather Proof with an IP Rating of 65
- All the latest Contactless EMV L1 and L2's
- RS232 and USB
- Supports TDES & AES Encryption
- DUKPT Key Management

1.2 Specifications

Hardware	
MTBF	200,000 hrs.
Transmitter Frequency	13.56 MHz +/- 0.01%
Transmitter Modulation	ISO 14443-2 Type A Rise/Fall Time: 2-3 µsec. Rise, < 1 µsec fall ISO 14443-2 Type B Rise/Fall Time: < 2 µsec. each; 8% - 14% ASK ISO 18092
Receiver Subcarrier Frequency	847.5 KHz
Receiver Subcarrier Data	ISO 14443-2 Type A: Modified Manchester ISO 14443-2 Type B: NRZ-L, BPSK ISO 18092
Typical Read Range	4-6 cm (1.5 to 2.3 inches)
IK Rating	IK 8
IP Rating	IP 65
Physical (interior mount)	
Height	108 mm (4.25 inches)
Width	85.4 mm (3.36 inches)
Depth	50.8 mm (2.0 inches)
Physical (exterior mount)	
Height	137.6 mm (5.42 inches)
Width	99.5 mm (3.92 inches)
Depth	42.5 mm (1.67 inches)
Environmental	
Operating Temperature	-20°C to 70°C (-4°F to 158°F)
Storage Temperature	-30°C to 80°C (-22°F to 176°F)
Cold and Heat Shock	-30°C to 80°C (-22°F to 176°F) within 2 hrs.
Operating Humidity	10% to 95% non-condensing
Electrical	
Reader Input Voltage	+7.5V to 45VDC; MAX 0.4A; 3 Watts

2. Installation

This Section describes how to install the ViVOpay Vendi either inside a vending machine or on the front surface of the vending machine.

Make sure that you have the following major components required for installing the ViVOpay Vendi unit inside a vending machine. Note that the Interior Cable ends will vary from vending machine that the Vendi is being installed in. *The picture of the Vendi includes the optional "back plate" (P/N 520-2278-00)	
Remove all power from the vending machine by removing the plug from the electrical socket.	

Open the vending machine to gain access to the backside of the front panel. See the individual vending machine instructions on how to gain access to the interior.	
Remove any existing hardware to make room for the installation of the ViVOpay Vendi hardware.	

Insert the ViVOpay Vendi into the opening making sure that it is positioned right side up.	
Attach the nuts to lock the ViVOpay Vendi into position.	

Attach the Pigtail Cable to the back of the ViVOpay Vendi.	
Attach the other end of the Pigtail Cable to the supplied Interior Cable, which then attaches inside the vending machine. Tidy all cables and fasten with nylon cable-ties. Ensure that no loose cables could be caught when the vending machine door is opened/closed for servicing. Additionally, avoid routing excess cables over fans or other electrical motors that could cause undue heat buildup or electrical interference.	
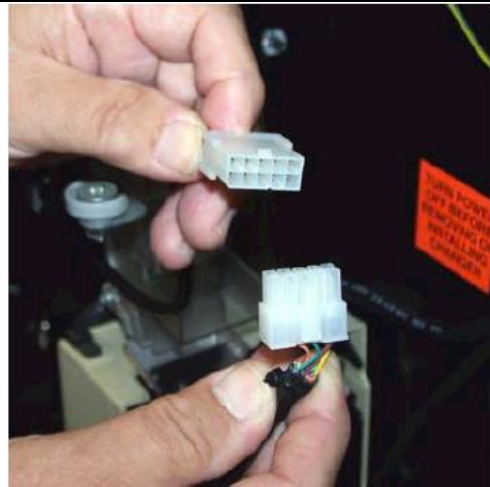
Close up the vending machine.	
Connect the power cable into the electrical outlet. The ViVOpay Vendi unit LEDs should come on and the unit should beep.	

Test the ViVOpay Vendi using the supplied contactless card or a magstripe card. The Green LEDs at the top of the ViVOpay Vendi unit should all flash and you should hear an audible beep to confirm that the ViVOpay Vendi has read the card.

Green LEDs - blink to indicate that a card has been read when it is presented to the ViVOpay Vendi unit. Left LED is normally on even when no card is presented. All Green LEDs flash when the card is successfully read.

Blue LEDs - blink to indicate that the ViVOpay Vendi unit is operational. Normally, the Blue LEDs blink in sequence to indicate that the unit is available. Depending on the specific vendor, this feature may not apply.

Orange LED - blinks to indicate that a transaction is in progress. A beep is audible. LED is normally off unless information is being transmitted. Depending on the specific vendor, this feature may not apply.

3. Firmware Upgrade via RS232 or USB

3.1 Preparation

To update the new firmware you will need:

• PC with available serial or USB port
• Cables:
  • Test cable: Part # 80139201-001
  • For Serial, use cable Part # 220-2463-XX (DB-9 serial to RJ45 or RJ50)
  • For USB, use cable Part # 220-0012-XX (USB to RJ50)
  • Power supply with Part #140-2035-XX
• Vendi Firmware Download Application
• Firmware file(s) – please visit the Download section on www.idtechproducts.com
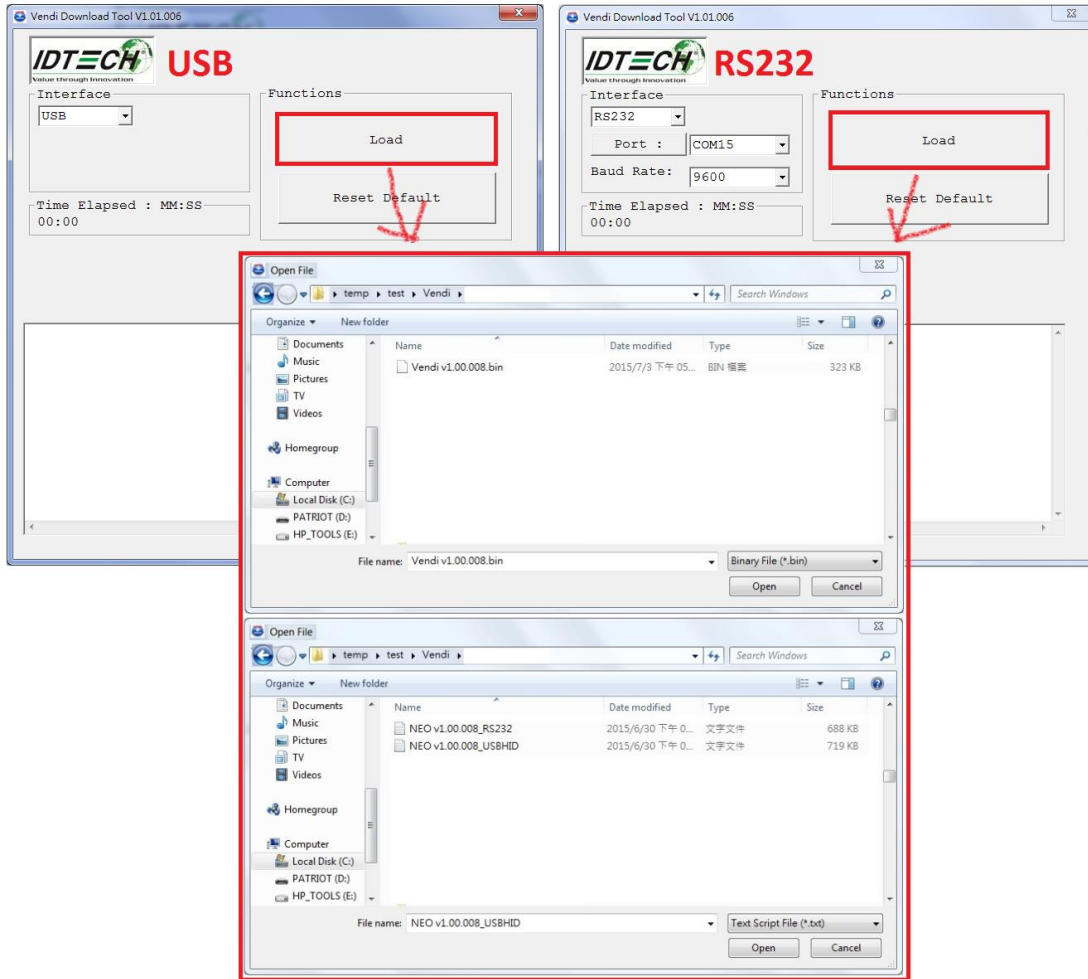
3.2 Download Procedure

1. Confirm Firmware Download Application is installed on PC
2. Plug 80139201-001 into Vendi and connect either the serial cable (220-2463-XX) or USB cable (220-0012-XX) into 80139201-001 on one end and the other end to the PC.
3. Plug the power supply (140-2035-XX) into the appropriate portion on 80139201-001. There will be a beep indication reader is active.
4. Launch the Vendi Firmware Download Application
5. Select the interface (RS232 **OR** USB_HID)
   For RS232: Select the appropriate "COM Port" & Baudrate (default Baudrate is 9600)

Screenshot examples:
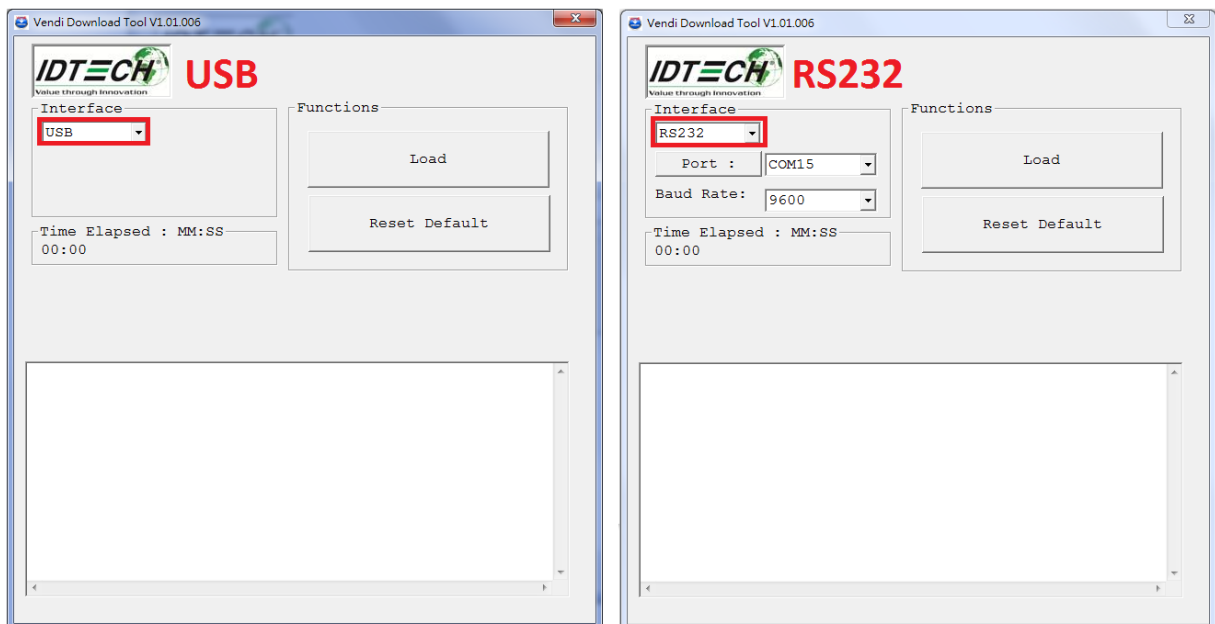
6. Click "Load", and select the appropriate firmware file **(Ex:"NEO_v1.00-XXX .txt" or "Vendi v1.00.XXX.bin")**

7. Download process will start
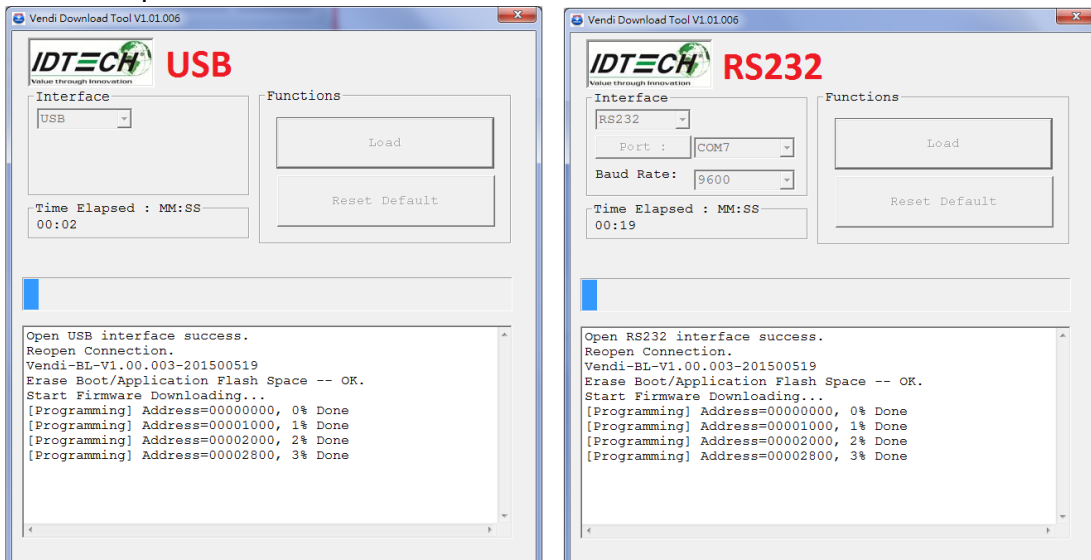
8. Once Download is complete, it will display "100% Done and Rebooting"
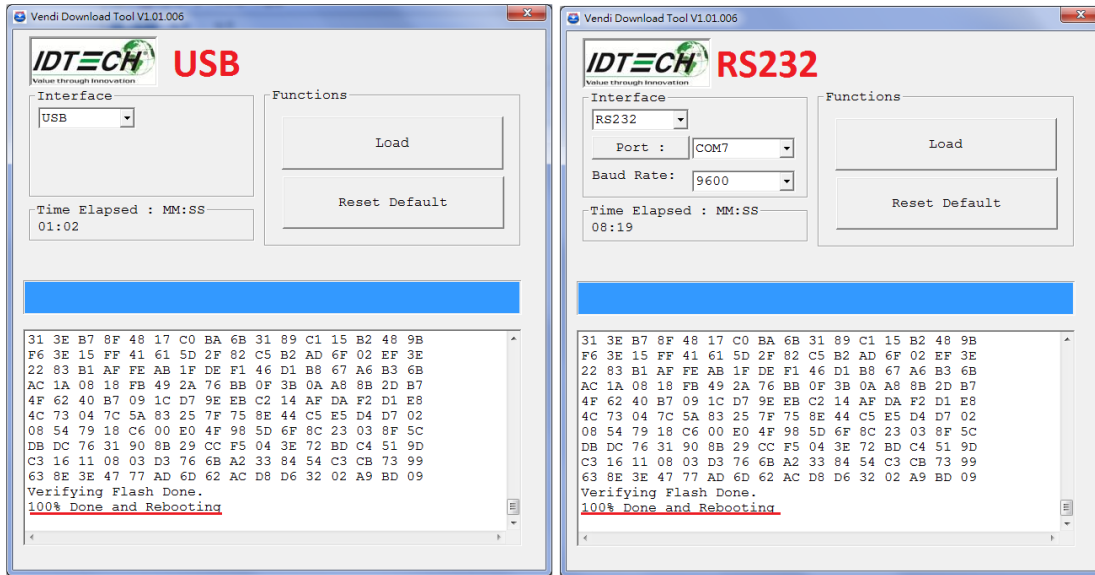
3.3   Default Configuration

1. *Continue from last step in Sec. 3.2*
   Click "Reset Default" and when it is complete, "End of Load Default Setting (04-F0)" is displayed.

2. Application could be closed at this time.

4. Installation Points
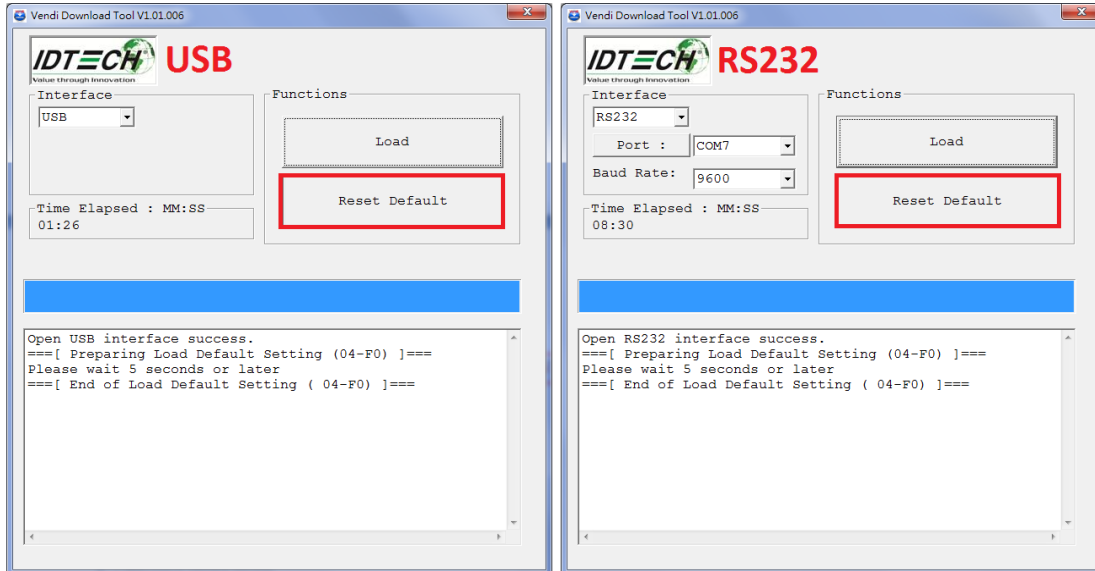
Unit is susceptible to RF and electromagnetic interference. This means that it is important not to mount the unit next to or near (within 3 or 4 feet) large electric motors, computer UPS systems, microwave transmitters, radio transmitters, communications equipment etc.

- Unit should be mounted in such a way that it is out of the reach of small children and not in areas where it is likely to have liquids spilled on it. Although rugged, it is not impervious to damage.
- Unit should be tested after installation with a test card. An end-to-end transaction should be run (the same as an actual purchase on the POS). The POS should register "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.
- When mounting the unit on a surface, thorough cleaning of the area with alcohol or Windex should be performed, and allowed to dry prior to applying any sticky tape/velcro pads.
- The decals on the unit have a protective film that should be removed prior to leaving the installation site.
- Due to the high visibility of contactless payment systems with major banking institutions rolling out these systems, it is critical to troubleshoot and fix any problems that occur immediately. From experience, it is important for all involved to have a successful rollout, and it will help patrons have a better and more rewarding user experience if all systems are working well. For this reason, we encourage you to contact your local support representative with any questions or queries that you may have as early as possible, and we will be glad to assist.

5. Troubleshooting

Symptom	Possible Cause	Remedy
General Issues		
ViVOpay Vendi does not appear to be powered on (no LEDs lit)	• ViVOpay Vendi is not properly powered on or incorrect voltage • Using incorrect power supply	• Check cable connections • Ensure power is on and correct voltage and current are present • Replace the ViVOpay Vendi.
Reading Cards/Fobs/Phones		
LEDs do not light up and beeper is not audible when card/fob/phone is presented	• Card/Fob/Phone is not properly presented • RF interference • Unsupported card used • Wrong firmware - contact your local support representative	• Present card/fob/phone closer to the unit and ensure it is parallel to the face of the reader • Ensure the card/fob is valid/current • Try a different card/fob/phone • Check to see if card/fob/phone is damaged • Test with contactless test card • Ensure phone cover is not obstructing the NFC functionality of the phone • Ensure correct firmware is loaded on Vendi • Power cable is securely plugged in • Replace the ViVOpay Vendi.
Some cards/fobs/phones read, but not all	• Wrong firmware - contact your local support representative • Possible bad card/fob/phone	• Check to see if card/fob/phone is damaged • Ensure phone cover is not obstructing the NFC functionality of the phone • confirm test card is fully functional • Ensure correct firmware is loaded on unit – contact local support representative if needed

Symptom	Possible Cause	Remedy
Communication to host		
No data is received, or data is garbled	• Faulty or incorrect cable connections. • Contactless application is not installed on terminal	• Check that the cable connection is secure and in the correct port on host end • Check that POS/ECR has the correct software application to accept data from the contactless reader (may need assistance from POS vendor) • Contact the payment processor for an application upgrade

6. Glossary

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 failures. 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 payments.

POS

Point of Sale.

Point of Sale (POS)

Refers to terminals used in retail stores with a magnetic stripe reader, keyboard, display and autodialed 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.

Symbol Explanations:

)))✍	EMV Contactless Symbol
🗑	The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

Customer Support

Please contact your local support representative or send an email to
support@idtechproducts.com for all support questions.