Verifone®

UX300

Installation Guide

Verifone Part Number DOC159-023-EN-C, Revision C

UX300 Installation Guide

Comments? Please e-mail all comments on this document to your local Verifone Support Team.

Verifone, Inc.

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CONTENTS

PREFACE

This guide is the primary source of information for setting up and installing the UX300 unit.

Audience

This guide describes the card reader's features, and provides the basic information for its installation and configuration.

Organization

This guide is organized as follows:

Chapter 1, Device Overview. Provides an overview of the device.

Chapter 2, Setup. Explains setup and installation of the device, selecting a location, and establishing connections with other devices.

Chapter 3, Specifications. Discusses the power requirements and dimensions of the device.

Chapter 4, Maintenance and Cleaning. Explains maintenance of the device.

Chapter 5, Service and Support. Provides information on contacting your Verifone service provider and information on how to order accessories or documentations from Verifone.

Chapter 6, Troubleshooting Guidelines. Provides troubleshooting guidelines should you encounter a problem with unit installation and configuration.

Chapter 7, Port Pinouts. Shows the different pinout settings for ports on the UX300 persistent board as well as model-dependent boards.

Appendix A, UX300 Caution and Warning Messages. Shows the UL/cUL certification-compliant translations of all Warning and Caution messages in this installation guide.

Related Documentation

To learn more about the card reader and controller device, refer to the following set of documents and their associated Verifone Part Numbers (VPNs).

UX1xx Series Certifications and Regulations Sheet	*VPN DOC159-001-EN*
UX100 Quick Installation Guide	*VPN DOC159-002-EN*
UX1xx Series Installation Guide	*VPN DOC159-003-EN*
UX110 Quick Installation Guide	*VPN DOC159-007-EN*
UX300 Certifications and Regulations Sheet	*VPN DOC159-021-EN*
UX300 Quick Installation Guide	*VPN DOC159-022-EN*
UX300 Cable Retainer Quick Installation Guide	*VPN DOC159-052-EN*
UX400 Certifications and Regulations Guide	*VPN DOC159-031-EN*
UX400 Quick Installation Guide	*VPN DOC159-032-EN*
UX400 Installation Guide	*VPN DOC159-033-EN*

Conventions and Acronyms

This section describes the conventions and acronyms used in this guide.

Document Conventions

Various conventions are used to help you quickly identify special formatting. Table 1 describes these conventions and provides examples of their use.

Table 1 Document Conventions

Convention	Meaning	Example
Blue	Text in blue indicates terms that are cross referenced.	See Conventions and Acronyms.
NOTE 	The pencil icon is used to highlight important information.	If exchanging cables, use a Verifone-approved cable.
CAUTION 	The caution symbol indicates possible hardware or software failure, or loss of data.	Using an incorrectly rated power supply can damage the unit or cause it to malfunction.
WARNING 	The lightning symbol is used as a warning when bodily injury might occur.	For safety, do not string cables or cords across a walkway.

Acronym Definitions

Various acronyms are used in place of the full definition. Table 2 presents acronyms and their definitions.

Table 2 Acronym Definitions

Acronym	Definitions
ARS	Anti Removal Switch
COM	Communications port
CTLS	Contactless
CTS	Clear to Send
DDRAM	Double Data Rate Random Access Memory
ETH	Ethernet
HW	Hardware
ISDN	Integrated Services Digital Network
LCD	Liquid Crystal Display
LED	Light Emitting Diodes
MDB	Multi-Drop Bus
MRA	Merchandise Return Authorization
MSR	Magnetic Stripe Card Reader
NAND-flash	Non-volatile storage technology
NFC	Near Field Communications
PCI	Payment Card Industry
PIN	Personal Identification Number
POS	Point-Of-Sale
PSTN	Public Switched Telephone Network
PTS	PIN Transaction Security
RF	Radio Frequency
RJ45	Registered Jack 45 modular connector
RS-232	Recommended Standard 232
RS-485	Recommended Standard 485, or TIA-485-A
RTS	Request to Send
SAM	Secure Access Module
SMA	SubMiniature version A connector
SRED	Secure Reading and Exchange of Data
USB	Universal Serial Bus
VM	Vending Machine
WAN	Wide Area Networks

CHAPTER 1

Device Overview

This chapter provides a brief description of the UX300.

The device is a card reader processing device that works with UX1xx PIN pads, UX400 CTLS antenna unit, vending machines, PCs and other similar peripheral devices. The device can also connect to Verifone's TG-2460H printer and front panel mounted printer FV00018T. The reader supports transactions in a variety of environments, specifically in the outdoor and unattended markets.

Features and Benefits

The UX300 is Verifone's card reader and main control unit. It creates an economical solution for merchants who are looking to expand their payment acceptance options.

Exceptional Ease of Use

The following features simplify transactions in various environments:

- Device driver installs USB connections automatically.
- Designed for indoor and outdoor use.
- Sleep mode.
- Various connectivity options integrated into device to conveniently suit most unattended environments.
- Connects with various Verifone unattended POS terminals.
- Bright LEDs to display card transaction progress.
- Buzzer for audio confirmation of card transactions.
- Conducive design supports payment transactions in a variety of payment situations, such as vending and kiosk environments.

Compliance

PCI PTS 3.1, PCI-SRED, EMV Level 1 and Level 2, PayPass, PayWave, and AMEX Expresspay2.

Device Capabilities

The UX300 is a main control unit device as well as a magnetic card reader and smart card reader. This unit connects to vending machines, PCs, and is intended to connect to peripheral units such as PIN pads, CTLS antenna and external printers.

Diversity of Models

The wide range of UX300 models suit an extensive array of applications:

- UX300-Standard
- UX300-MDB
- UX300-PSTN

- UX300-ISDN
- UX300-GPRS
- UX300-Petrol
- UX300-LAN
- UX300-WPWR.

NOTE

Verifone ships variants of the UX300 for different markets. Your unit may have a different configuration and may look different from the illustrations in this guide. However, the basic process described in this guide remain the same, regardless of the configuration.
Please refer to Specifications for details on all UX300 models.

CHAPTER 2

Setup

This chapter describes the setup procedure for the card reader and controller in the following sections:

Selecting Unit Location

Use the following guidelines when selecting a location for your device.

- Select a location convenient for the customer.
- Avoid dusty, hot or damp locations.
- To minimize data reading or writing errors, pick a location free from magnetic interference. Choose a spot a safe distance away from objects or units that generate magnetism.
- Install the unit not more than 0.5 m away from the UX400 CTLS Reader.

Choosing Mounting Location

Choose a mounting location that ensures the card slot is in full view of the cardholder during card insertion.

CAUTION

Make sure the installation method does not invalidate the Anti-Removal Switches (ARS) function. *Do not*, for instance, install the UX300 in a sub-chassis that can be removed from the main cabinet.

NOTE

The front panel of the device meets the IP34 standards for installation under outdoor environments.

Unpacking the Shipping Carton

Open the shipping carton and carefully inspect its contents for possible tampering or shipping damage.

To unpack the shipping carton

1. Remove the unit from the shipping carton. The standard package contains the unit, a grounding cable and a ferrite connector cable for connecting to an external power supply. Refer to Accessories and Documentation for more information about the device's related accessories.
2. Remove any protective wrap before mounting the unit.
3. Save the shipping carton and packing material for future repacking or moving of the device.

WARNING

Do not use a unit that has been tampered with or otherwise damaged. This unit comes equipped with tamper-evident labels. If a label or component appears damaged, immediately notify the shipping company and your Verifone representative or service provider.

Examining the Unit's Features

Before you continue the installation process, review the features of the device (see Figure 1, Figure 2 and Figure 3).

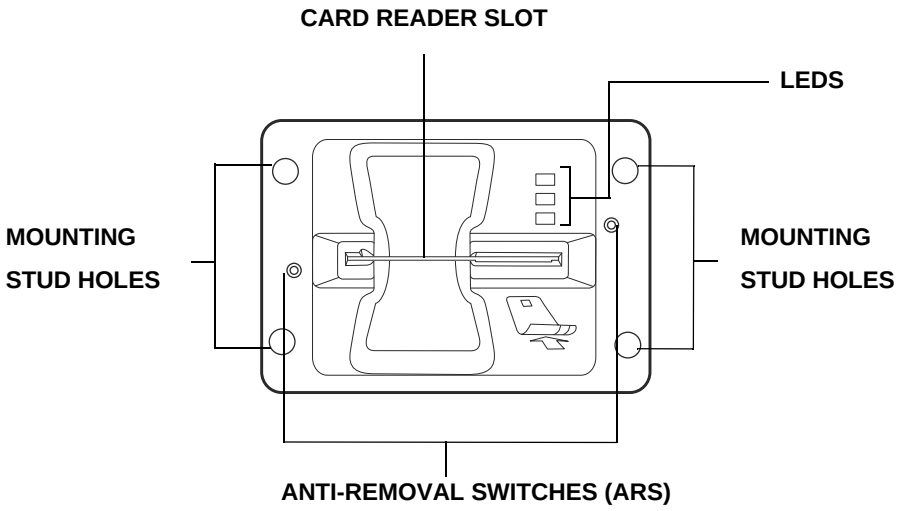


Figure 1 UX300 Front View

Front Features

The front of the reader shows the following:

- Customer-view **indicator LEDs**
- The **card reader** slot
- **Anti-removal switches**
- Installation **mounting stud holes**.

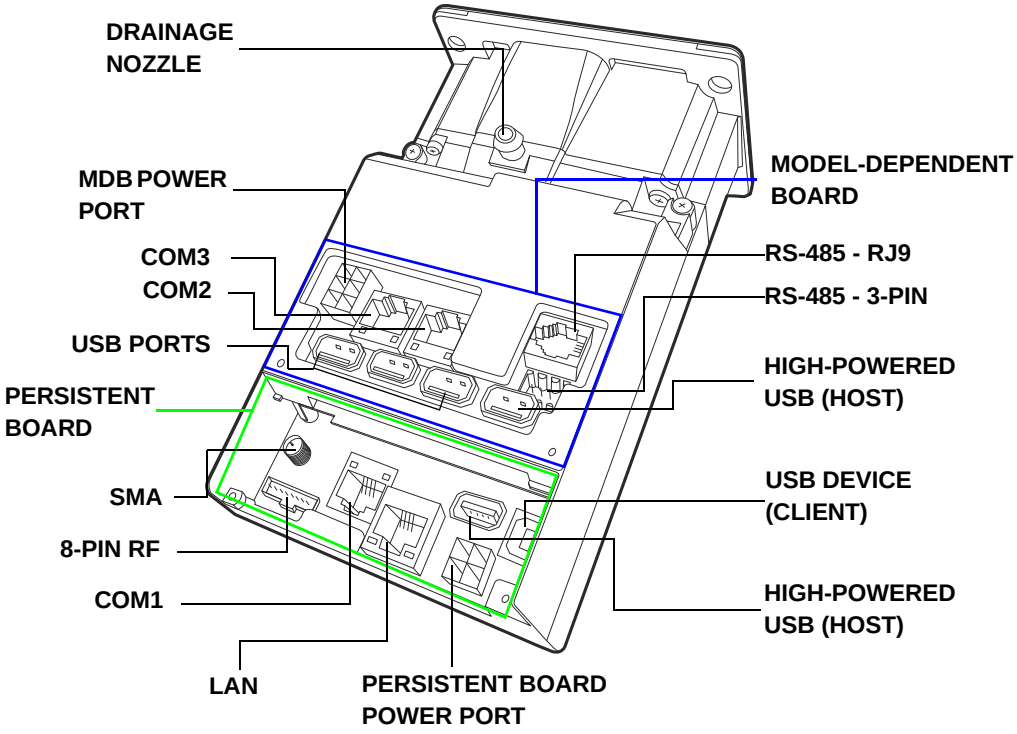


Figure 2 UX300-Petrol Underside View

NOTE

Verifone ships variants of the UX300 for different markets. Your unit may have a different configuration and may look different from the illustrations in this guide. However, the basic process described in this guide remain the same, regardless of the configuration.
Please refer to Specifications for details on all UX300 models.

Underside Features

- Nozzle for **water drainage**
- Persistent board (UX300-Petrol) features:
  - **USB Device** (Type B) [client]
  - **Powered USB** (Type A) [host]
  - **Power port 12 V DC**
  - **LAN** with 2 LEDs
  - **COM1** (RS-232)
  - **8-PIN** RF port
  - **SMA** (analog RF) **CTLS** / **NFC** antenna connector.

- Model-dependent board features:
  - **UX300-MDB**
    - **MDB** power port
    - **Two RS-232** powered ports
    - **Four USB Type A** master ports
  - **UX300-PSTN**
    - **MDB** power port
    - **One RS-232** powered port
    - **Four USB Type A** master ports
    - **PSTN** port
  - **UX300-ISDN**
    - **MDB** power port
    - **ISDN** port
    - **One RS-232** powered port
    - **Four USB Type A** master ports
  - **UX300-GPRS**
    - **MDB** power port
    - **One RS-232** powered port
    - **SIM** card slot
    - **Four USB Type A** master ports
    - **GPRS** antenna port
  - **UX300-Petrol**
    - **Power Port, DC-In, DC-Out, (24 V DC)**
    - **Two RS-232** powered ports
    - **Four USB Type A** master ports
    - **RS-485** port
  - **UX300-LAN**
    - **MDB** power port
    - **Two RS-232** powered ports
    - **Four USB Type A** master ports
    - **Second LAN** port.
  - **UX300-WPWR**
    - **Power Port (24 V DC)**

The following illustration shows the top view of the UX300.

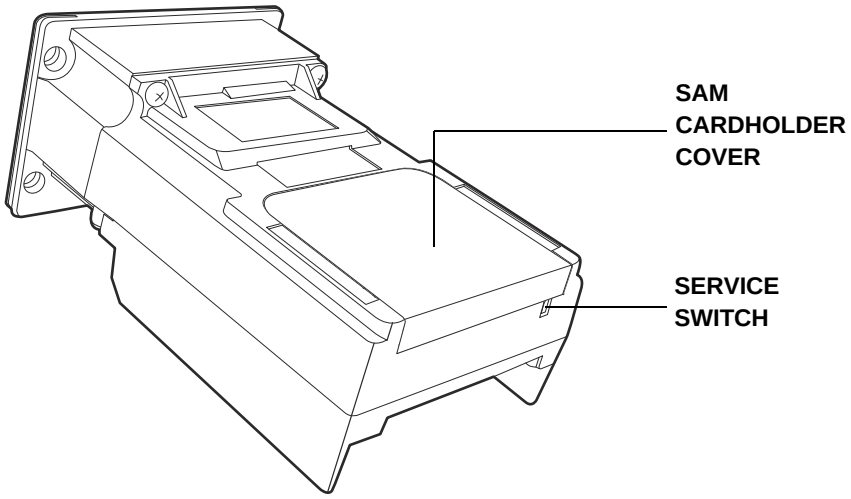


Figure 3 UX300 Top View

Top Features

- **SAM** card slots, see Figure 7
- System Mode **service switch**

UX300 GPRS Bottom Functions

- Nozzle for **water drainage**
- Persistent board connection ports:
  - **USB** port (Type B) [client]
  - **High-powered USB** (Type A) for UX PIN pad connection [host]
  - **Power** port
  - **LAN** with 2 LEDs
  - **COM1**
  - **8-PIN** connector to UX400 CTLS antenna unit
  - **SMA** (analog RF) CTLS antenna connector to UX400
- UX300 Model-dependent board ports:
  - **MDB** Power port
  - **COM** port
  - **SIM** Card slot
  - **Four USB** Type A ports (one high-powered slot)

- **GPRS antenna**

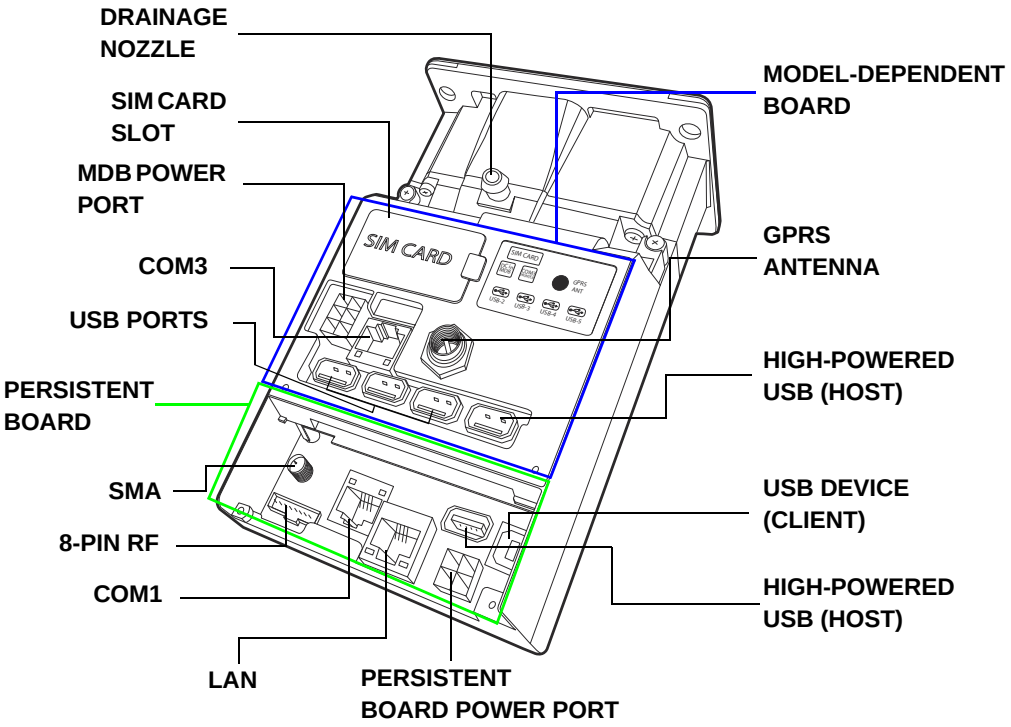


Figure 4 UX300-GPRS Bottom View

ARS and Service Switches

The following illustrations show the locations of the two Anti-Removal Switches (ARS) and the service switch on the UX300.

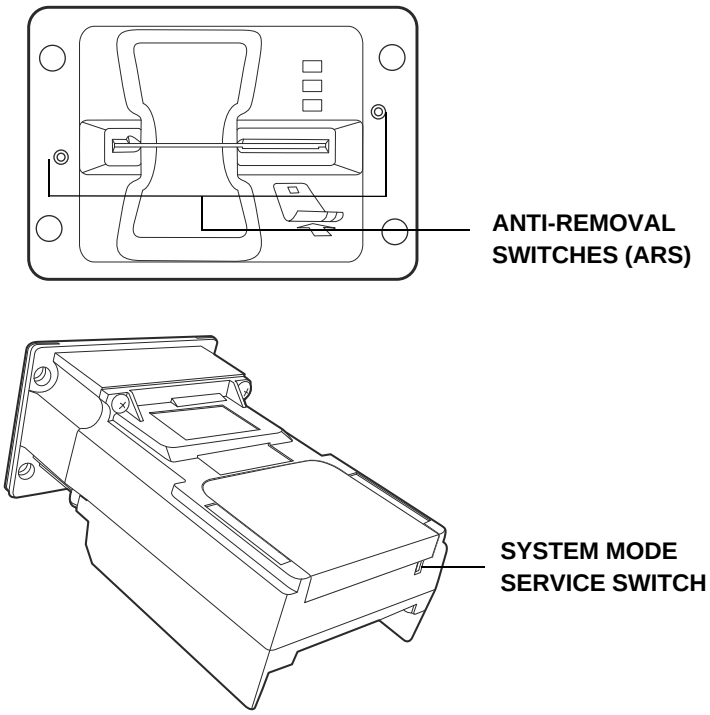


Figure 5 UX300 ARS and Service Switches

Removal Protection

The front Anti-Removal Switches (ARS) detect any removal attempt from the device cabinet and disables the PIN processing functionality. Re-installation requires an authorized process. Please contact your Verifone representative for details.

CAUTION Make sure the installation method does not invalidate the Anti-Removal Switch (ARS) function. *Do not*, for instance, install the UX300 in a sub-chassis that can be removed from the main cabinet.

System Mode Activation

The rear service switch gives administrators System Mode access for the UX300. Use only if you have the proper authorization and equipment to open system mode. Please contact your Verifone representative for details.

Installing or Replacing SAM Cards

You may need to install a security access module (SAM) card or replace the old card. You can find two SAM slots on the UX300, located under a removable protective cover (see Figure 6).

CAUTION Observe standard precautions in handling electrostatically sensitive devices. Electrostatic discharges can damage the equipment. Verifone recommends using a grounded anti-static wrist strap.

To install or replace SAM cards

1. Disconnect the device from all power sources.
2. Disconnect the device from any external devices.
3. Slide the SAM cardholder cover away from the unit, off the top panel.

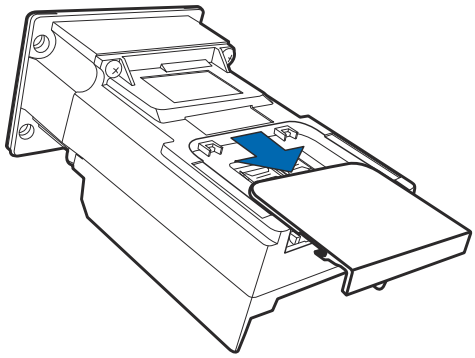


Figure 6 Removing the SAM Cardholder Casing

4. Open the SAM cardholder by sliding the locking tab towards the back of the unit, to the OPEN position.

5 Carefully slide the SAM card into the slot, by aligning the card and carefully sliding into the slot until fully inserted.

NOTE

Before inserting the SAM card, position it as shown in Figure 7, with the card's gold contacts facing outward, toward the unit. The cardholder connector base has a set of contacts and a notch to ensure the SAM card is positioned correctly. The SAM card has a notch on one corner to ensure that it fits into the connector base in only one way.

6 Close the SAM cardholder.

7 Slide the locking tab to the LOCK position.

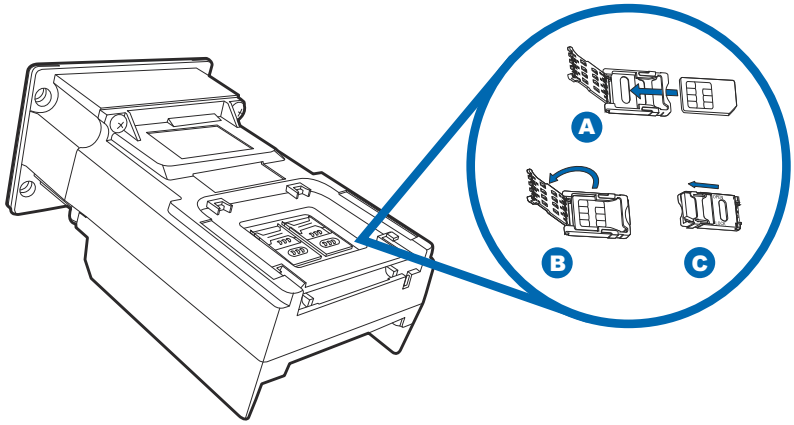


Figure 7 Installing SAM Card

8 Slide the cardholder cover back, locking it into place.

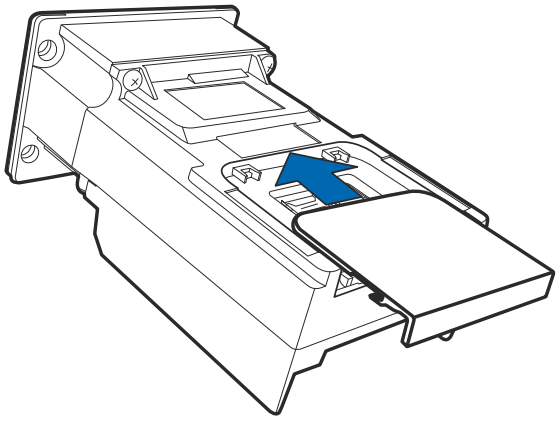


Figure 8 Replacing the SAM Cardholders

Normal Operation Mode

Do not use the UX300 unless it is in normal operation mode. By default, the position of the toggle switch located on the side of the SAM compartment is set to High. There are cases where the switch is moved especially when the device is sent for servicing and upgrade. When this happens, use a tweezer or a similar tool to toggle the switch back to High. To make sure that the switch is in High position, the switch must be aligned with the number 1 located beside the SAM slot as shown in the illustration below.

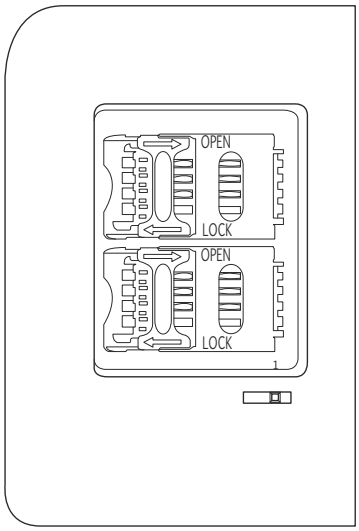


Figure 9 Toggle Switch Set to High Position

Installing SIM Card and Antenna

The UX300-GPRS unit supports the installation of a GSM SIM (Subscriber Identity Module) for fast, always on connectivity. Use the following procedure to install a SIM card and attach the GPRS antenna.

WARNING Changing or inserting new SIM cards on a powered unit can render the SIM card unusable. Disconnect all power sources before performing the SIM card installation or replacement procedure.

To install or replace the card

1. Disconnect the device from all power sources.
2. Disconnect the device from any external devices.
3. Lift up and twist the rubberized SIM Card cover to the side.
4. Open the SIM cardholder by sliding the locking tab towards the back of the unit, to the UNLOCK position.

NOTE There is only one GSM SIM slot. Before inserting the SIM card, position it as shown in the illustration, with the card's gold contacts facing the compartment. The cardholder connector base has a set of contacts and a notch to ensure the SIM/RUIM card is positioned correctly. The SIM card has a notch on one corner to ensure that it fits into the connector base in only one way.

5 Carefully slide the SIM card into the slot, by aligning the card and carefully sliding into the slot until fully inserted.

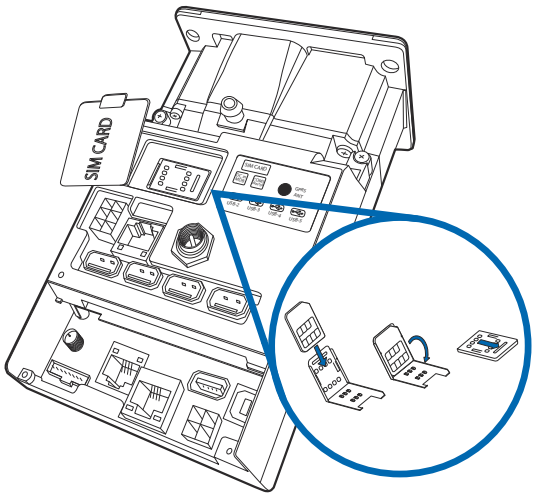


Figure 10 Inserting the SIM Card

6 Close the SIM cardholder.

7 Slide the locking tab to the LOCK position.

8 Replace the rubberized SIM Card cover.

9 Attach the GPRS antenna (VPN ANT159-300-01-A) by screwing the base to the antenna port on the UX300. Tighten to the recommended torque of 7.0 kgfcm.

Cable Connections

The UX300 rear panel holds several interface ports for power and communications. Use this section to see how the UX300 connects to various UX-series units, as well as other devices.

- Connecting to a UX-Series Host Device
- Connecting to a UX-Series Peripheral Device
- Connecting Optional Devices

NOTE

To get the proper connection cables, please refer to Accessories and Documentation.

Connecting to a UX-Series Host Device

This section discusses the connection of the UX300 device with the following host units:

- Connecting to a Vending Machine
- Connecting to a PC

Connecting to a Vending Machine

You can connect the UX300 to a host vending machine (VM) with any of the following connection types:

- USB Type B
- ETH (LAN)
- COM (RS-232)
- MDB

Connecting to a PC

You can connect the UX300 to a host PC with any of the following connection options:

- RJ45 to RS-232 connection
- USB Type B connection
- LAN connection

For more information regarding your card reader configuration and your cabling needs, contact your local Verifone service provider. For cable ordering information, see Accessories and Documentation).

Connecting to a UX-Series Peripheral Device

This section discusses the connection of the UX300 device with the following peripheral units:

- Connecting to a UX1xx Series PIN Pad
- Connecting to a UX400 CTLS Unit

Connecting to a UX1xx Series PIN Pad

You can connect the UX300 to a UX1xx-series PIN pad device with a standard USB Type A to B connection (VPN CBL000-045-01-A).

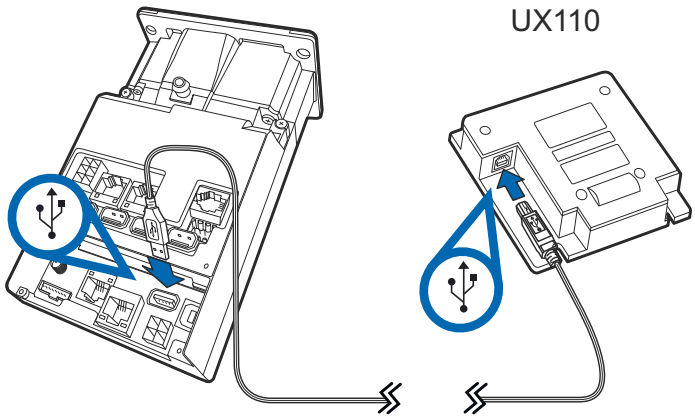


Figure 11 Connecting to a UX110 PIN Pad

Connect the Type A plug in the UX300 high-powered port and connect the type B plug to the USB port of the UX110. Use the same procedure for connecting to other UX1xx-series PIN pads.

Connecting to a UX400 CTLS Unit

You can connect the UX300 to a UX400 contactless unit using an 8-pin to RJ45 cable (VPN CBL159-301-01-A) and an SMA connector (VPN CBL159-302-02-A).

To connect the UX300 to the UX400 CTLS unit

1. Connect the 8-pin connector to the UX300 and connect the RJ45 plug to the UX400, make sure both devices are not more than 0.5 m away from each other.
2. Attach one end of the SMA cable to the UX300 and the other end to the UX400.

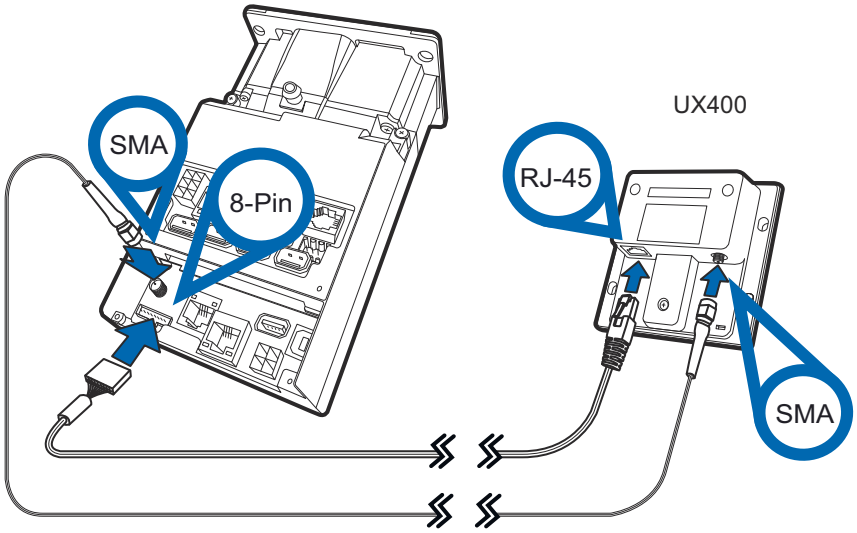


Figure 12 Connecting to a UX400 CTLS Unit

NOTE

Tighten the SMA cable at both ends by holding the end cap and turning. Avoid holding the strain relief cord while tightening the end caps.

The UX300 host device installs the UX400 upon startup.

Connecting Optional Devices

The UX300-Petrol can connect to various peripheral devices outside of the UX-Series product range.

Connecting to a TG-2460H Printer

You can connect a UX300-Petrol unit to an external printer, such as Verifone's TG-2460H printer, using a combination RS-232 to RJ45 cable (VPN CBL159-305-01-A).

To connect to a TG-2460H Printer

1. Disconnect the device from all power sources.
2. Disconnect the device from any external devices.
3. Connect the RS-232 cable to the UX300-Petrol printer port and connect the RJ45 plug to the printer.

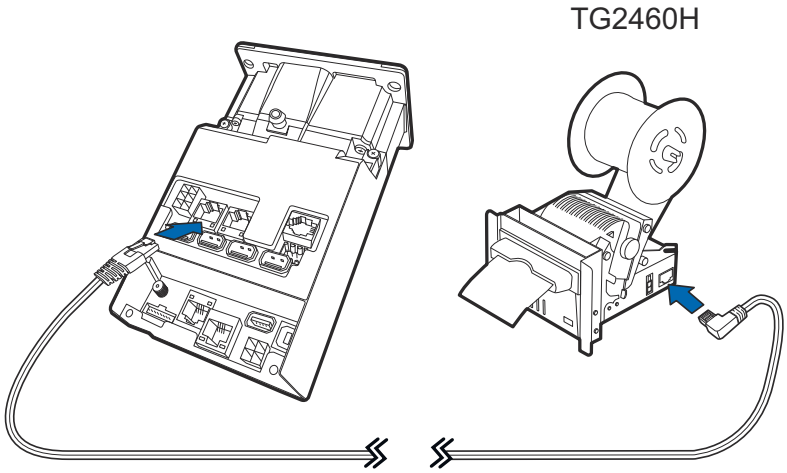


Figure 13 Connecting TG-2460H Printer Cable

4. Connect power to the printer using the CBL159-306-01-A and 28580-01-R cables.

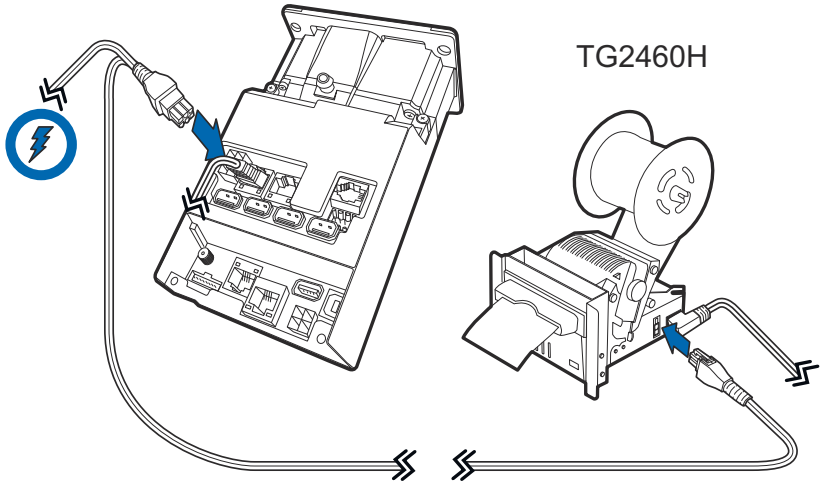


Figure 14 Connecting Power to UX300-Petrol and Printer

Disconnecting Cables

To disconnect cables, use the same steps described above in reverse. If exchanging cables, use Verifone-approved cables. See Accessories and Documentation for cable part numbers and ordering information.

Installing USB Cable Retainers

After connecting peripherals and other devices to the UX300, you can secure USB cables by installing retainers (VPN SUB159-305-01-A). Use the following steps to install the cable retainers.

NOTE

We recommend using Verifone USB cables (see Accessories and Documentation) for uniformity in cable connector sizes.

To install USB cable retainers

After you connect USB cables to the UX300, install the following retainers to secure the cables in place.

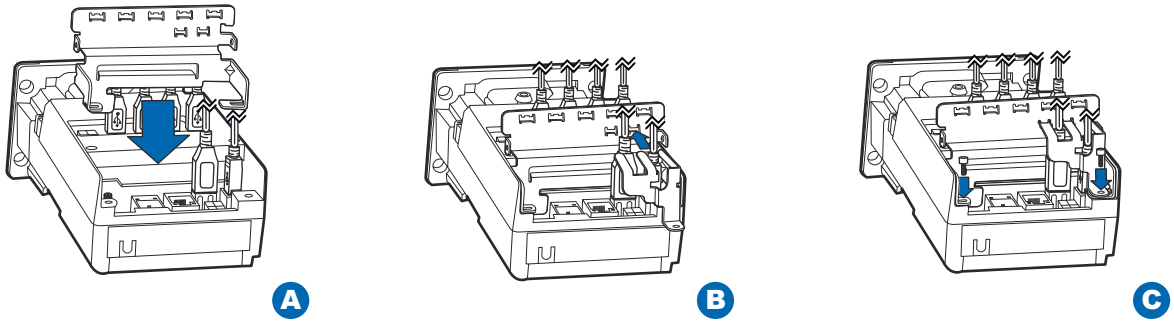


Figure 15 Installing First Two Cable Retainers

1. Position the main cable retainer on the lip of the persistent board. See A in Figure 15.
2. Place the three-pronged cable retainer over the two USB cables on the persistent board. See B in Figure 15.
3. Fasten two hex screws to hold down the two retainers. See C in Figure 15.

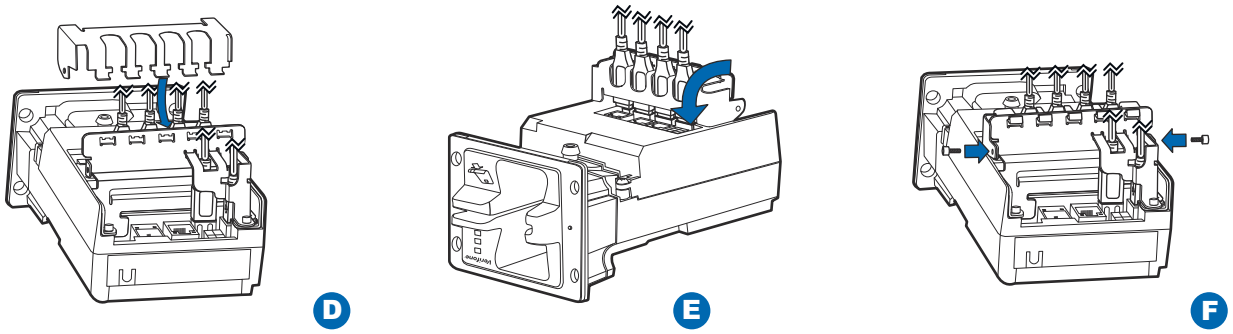


Figure 16 Installing Third Cable Retainer

4 Slot the third retainer's legs in the holes of the main retainer, over the installed USB cables on the model-dependent board. See D in Figure 16.

NOTE

We recommend using Verifone USB cables (see Accessories and Documentation) for uniformity in cable connector sizes.

5 Swing the retainer down to lock in place over the USB cables and make sure the screw holes align with the main cable retainer. See E in Figure 16.

6 Secure the retainer with two hex screws to lock the USB cables in place. See F in Figure 16.

Mounting the Device

Use the following procedure to mount the UX300 to a suitable mounting surface.

CAUTION

For proper operation of the Anti-Removal Switches (ARS), do not use additional gaskets or washers. Use the unit and its accessories as they are upon removing from the packaging.

CAUTION

Make sure that your mounting frame has a thickness of 2 mm.

NOTE

Your mounting surface may have different installation instructions. Refer to the user guide of your mounting device for further information.

To mount the unit

1 Align the UX300 stud holes with the holes on the mounting surface.

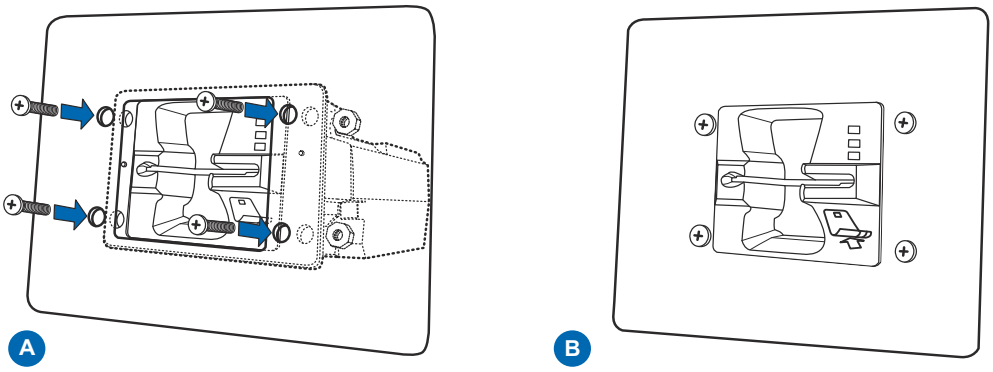


Figure 17 Mounting the UX300

2 Place the reader flush onto the mounting slot.

3 Secure the unit with M5 nuts with a minimum length of 12 mm. Tighten the nuts using to the recommended torque of 7.0 kgfcm (6.1 lbf.in).

NOTE You can also mount the UX300 using welded screw bolts on the inner side of the mounting plate. This prevents any vandalism of the screw heads on the outer surface.

5 Connect flexible tubing with 9mm inner diameter to the drain nozzle at the bottom of the UX300 (see Figure 2) and place the other end of the tubing at an appropriate drainage area.

NOTE The nozzle drains water out of the bezel area through the flexible tube. Ensure that the tubing is properly dressed and mounted as vertical as possible (without any loops) to ensure smooth water drainage.

Grounding the Units

If you connect the UX300 to a UX-series PIN pad, use the following steps to ground your units.

NOTE For cable use and ordering information, see Accessories and Documentation.

To ground the units

1 Remove mounting nuts from the back of the UX300 and the PIN pad unit (do remove the nut securing the PIN pad cable retainer).

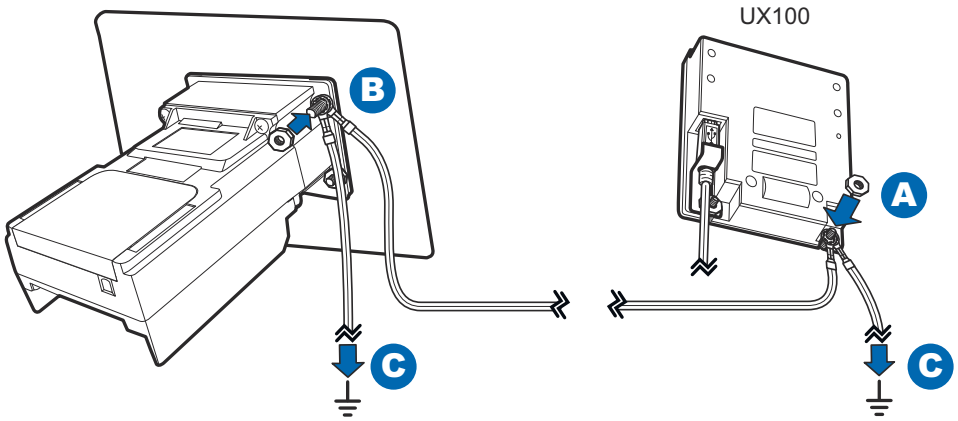


Figure 18 Grounding the UX300 and PIN Pad Units

2 Attach one end of the grounding cable (VPN WIR159-302-02-A) to the UX300 and connect the other end to a ground installation. See (C) in Figure 18.

3 Use another grounding cable (VPN WIR159-302-02-A) and attach one end to the PIN pad mounting bolt. Connect the other end to a ground installation. See (C) in Figure 18.

4 Connect the UX300 to the PIN pad with another grounding cable (VPN WIR159-302-01-A) using the same mounting bolts. See (A, B) in Figure 18.

5 Replace the nuts and tighten to the recommended torque of 7.0 kgfcm (6.1 lbf.in).

Connecting Power Supply

Not all UX300 configurations and device contexts require the use of a power supply. Verifone ships power supplies with the UX300 as required.

If you have questions about which power supply to use, contact your Verifone representative. For more information, see Accessories and Documentation.

CAUTION

Using an incorrectly rated power supply can damage the unit or cause it to malfunction.

Verifone recommends the PWR159-001-01-A or CPS12490-4A-R power pack. See Specifications for power supply information.

Attach and route all cables between the UX300 and all peripheral units before connecting to the power source.

NOTE

To protect against possible damage caused by lightning strikes and electrical surges, Verifone recommends installing a power surge protector.

Power Connections

The UX300 connects to external power in the following ways:

- With a 4-pin cable (VPN CBL159-308-01-A) from the power port on the persistent board (see A in Figure 19), or
- With a 6-pin cable (VPN CBL159-309-01-A) from the power port on the model-dependent board (see B in Figure 19).

Your power connection depends on your specific card reader configuration.

NOTE

Verifone ships variants of the UX300 for different markets. Your unit may have a different configuration and may look different from the illustrations in this guide. However, the basic process described in this guide remain the same, regardless of the configuration.

For more information regarding your card reader configuration, contact your local Verifone service provider. For cable ordering information, see Accessories and Documentation).

To connect to a power source

Connect the power cable to the power port on the UX300 and the other end to your power source.

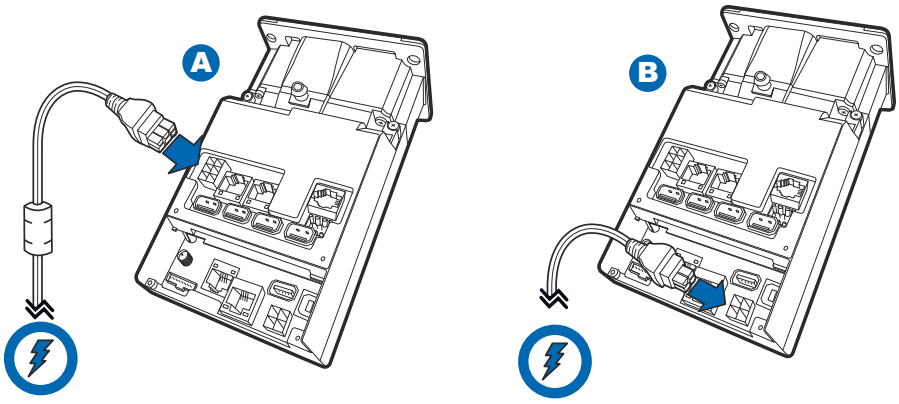


Figure 19 Power Connection Options for the UX300 Series

Using the Device

Card transaction procedures vary depending on the application. Verify the proper procedure with your application provider before performing a card transaction.

Using the Multi-Card Reader

The UX300 supports magnetic stripe cards as well as smart cards. Use the following steps in conducting UX300 card transactions.

To conduct a card transaction

Position the card with the magnetic stripe facing downward and to the right of the card, or with the chip on top of the card and towards the card slot (see Figure 20).

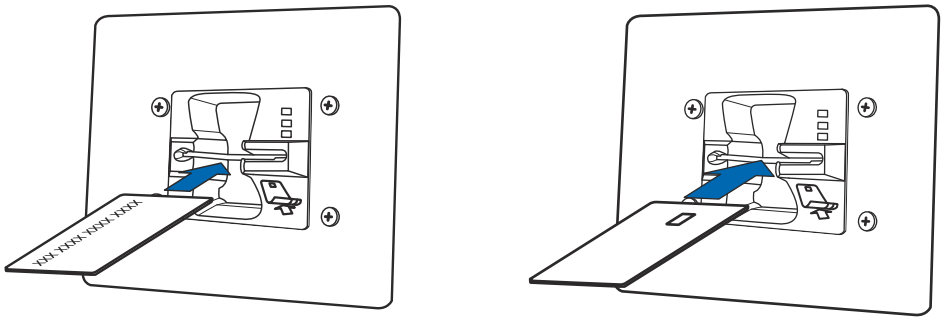


Figure 20 Using the Multi-Card Reader

1 If using a magnetic stripe card, insert the card fully into the slot, then remove the card in a smooth continuous motion.

WARNING

You will lose transaction data files not yet stored in memory if there is a disruption in power supply during a transaction.

The LEDs or peripheral display will indicate if the transaction is complete.

NOTE

With magnetic stripe cards, card removal usually completes the transaction.

2 If using a smart card, insert the card and follow the on-screen instructions before removing the card.

CAUTION

When using a smart card, leave the card in the reader until the transaction is complete.
Premature removal can void the transaction.

CHAPTER 3

Specifications

This chapter discusses power requirements, dimensions, and other specifications of the UX300-series card reader.

UX300 Models

The following table shows the various models and specifications of UX300-series units.

Table 3 UX300 Models and Specifications

Model Name	Part Number	Specifications
UX300-Standard	M159-300-000-WWA M159-300-000-WWA-B M159-300-100-WWA-B	UX300-Standard, Mag/Chip Reader and controller interface: 12 V in, LAN, RS232, USB-Slave, USB-Master, NFC-Antenna.
UX300-MDB	M159-300-010-WWA-B	UX300-MDB; UX300-Standard plus following interface: MDB, 4xUSB-Master, 2xRS232 Powered.
UX300-PSTN	M159-300-020-WWA-B	UX300-PSTN; UX300-Standard plus following interface: MDB, 4xUSB-Master, 1xRS232 Powered, PSN.
UX300-ISDN	M159-300-030-WWA-B	UX300-ISDN; UX300-Standard plus following interface: MDB, 4xUSB-Master, 1xRS232 Powered, ISDN.
UX300-GPRS	M159-300-040-WWA-B	UX300-GPRS; UX300-Standard plus following interface: MDB, 4xUSB-Master, 1xRS232 Powered, GPRS.
UX300-Petrol	M159-300-050-WWA-B	UX300-Petrol; UX300-Standard plus following interface: 24V, 4xUSB-Master, 2xRS232 Powered, RS485.
UX300-LAN	M159-300-060-WWA-B	UX300-LAN; UX300-Standard plus following interface: MDB, 4xUSB-Master, 2xRS232 Powered, 2nd LAN.
UX300-WPWR	M159-300-070-WWA-C	UX300-WPWR; UX300-Standard plus following Interface; 9 to 43 V Power In; PCI 3.1 and UKCC compliant.

Unit Power Requirements

UX300-Standard

- Operation voltage: 9 V DC to 12 V DC
- Idle Power: 2 W

- Typical Power: 3 W (CTLS read), 4W (UX100 display heater), 0.5W (UX100/110), 5W (RS232-vout)
- Sleep Mode: Approximately 30 to 50 mW, wakeup time 7 sec.

UX300-MDB, UX300-PSTN, UX300-ISDN, UX300-GPRS, UX300-LAN, UX300-WPWR

- Operation voltage: 9 V DC to 43 V DC
- Idle Power: 4 W
- Typical Power: 3 W (CTLS read), 4 W (UX100 display heater), 0.5 W (UX100/110), 5 W (RS232-vout),
- 10W(USB-Master), 3 W (GPRS connect)
- Sleep Mode: Approximately 30 to 50 mW, wakeup time 7 sec.

UX300-Petrol

- Operation voltage: 24 V DC
- Idle Power: 4 W
- Typical Power: 3 W (CTLS read), 4 W (UX100 display heater), 0.5 W (UX100/110), 5 W (RS232-vout),
- 10W(USB-Master), 70 W (printer)
- Sleep Mode: Approximately 30 to 50 mW, wakeup time 7 sec.

Temperature

- Operating temperature:
  - -20°C to 70°C (-4°F to 158°F) Standard unit
  - -20°C to 65°C (-4°F to 149°F) MDB, LAN, Petrol units
  - 0°C to 65°C (32°F to 149°F) PSTN, ISDN units
- Storage temperature: -25°C to 70°C (-13°F to 158°F)
- Power Supply rated for indoor use only: 12 V DC 3.3A, operating temperature 0°C to 40°C (32°F to 104°F)
- Power Supply rated for outdoor use: 24 V, DC 3.75 A up to 40°C (DC 2.5 A up to 60°C), operating temperature -25°C to 60°C
- Relative humidity: 5% to 90% RH non-condensing

NOTE

If this device is to be used in the Nordic countries, or in any environment where the temperature range exceeds the product's operating temperature, it is the responsibility of the integrators to ensure that the ambient environment is controlled in such a way to ensure that the product operates within the specified temperature range.

- External Dimensions

- Height: 72 mm (2.83 in)
- Width: 96 mm (3.78 in)
- Depth 150 mm (5.9 in)

Weight

- Unit weight:750 g (26.46 oz)

Memory

- 128 MB DDRAM
- 256 MB NAND-Flash

Magnetic Stripe Card

- Triple-track

Smart Card Reader

- Non-sliding
- Card conserving plated landing contacts

SAM Requirements

- 2 SAM slots

Peripheral Ports

- Consistent ports:
  - Power
  - Powered USB Type A for UX PIN pads (host)
  - USB Type B (client)
  - COM1 (powered)
  - ETH (LAN) connection with 2 colored LEDs for link state and speed indication
  - Analog RF CTLS antenna connector to the UX400 CTLS unit
  - 8-PIN to RJ45 connector to UX400 CTLS antenna unit

Model-dependent cable connection board:

- 4 Powered USB Type A
- MDB
- Additional COM powered ports
- GPRS antenna
- ISDN
- PSTN
- RS-485
- An additional ETH connection with 2 colored LEDs for link state and speed indication
- Printer COM

Communication

- COM: Up to 115200 bps, HW RTS/CTS handshake
- MDB: 9600 bps fix, 9E1
- RS-485: Up to 115200 bps, half duplex

Display

- 3 status LEDs on the front (payment application controlled)

CHAPTER 4

Maintenance and Cleaning

Your card reader should be treated with care. It has no user-serviceable parts.

The following suggestions will help you protect your warranty coverage.

- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage batteries and warp or melt certain plastics.
- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not use harsh chemicals, cleaning solvents or strong detergents to clean the device.
  The following table lists the chemicals that you can use for cleaning. Chemicals that are not safe to use are also listed. Never use these chemicals as they can deteriorate plastic or rubber parts.

Table 4 Chemicals for Cleaning

Recommended	n-hexane, gasoline, ethyl-alcohol
Not Recommended	acetone, butanone, thinner, trichloroethylene, or ketone-based solvents

These suggestions apply equally to your device, or any of its attachments or accessories. If your device is not working properly, take it to the nearest Verifone-authorized service provider for servicing or replacement.

Additional Safety Information

The following is additional information for your safety in using this device.

Potentially Explosive Environments

When using the device in areas with potential risk of explosion, such as petrol stations, follow the advice of all signs and instructions. If there has been a leak, do not use this device.

Service and Support

For UX300 problems, contact your local Verifone representative or service provider.

For device product service and repair information:

- USA – Verifone Service and Support Group, 1-800-834-4366, Monday - Friday, 8 A.M. - 8 P.M., eastern time.
- International – Contact your Verifone representative.

Service Returns

Before returning the unit to Verifone, you must obtain a Merchandise Return Authorization (MRA) number. The following procedure describes how to return one or more card reading units for repair or replacement (U.S. customers only).

NOTE

International customers, please contact your local Verifone representative for assistance with your service, return, or replacement.

1. Gather the following information from the printed labels (see Figure 21) on the bottom of each unit to be returned:
   - Product ID, including the model and part number. For example, “M159-300-xx-WWB” and “PTID xxxxxxxx.”
   - Serial number (S/N xxx-xxx-xxx).

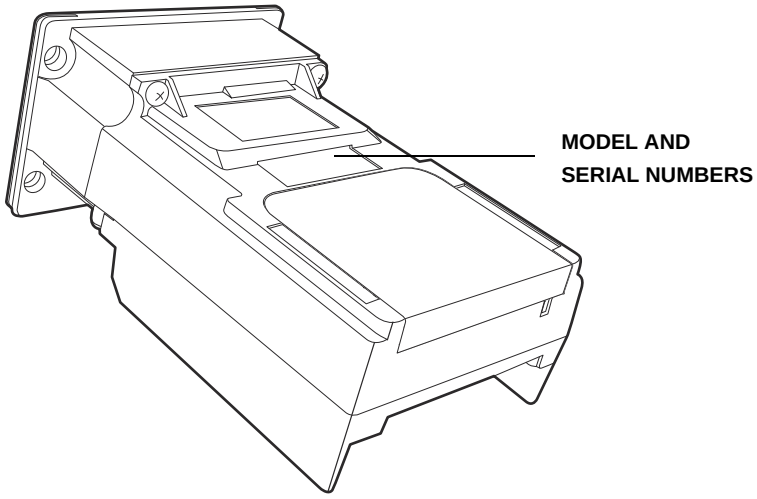


Figure 21 Information Labels on Unit Top

2. Within the United States, call Verifone toll-free at 1-800-834-4366.

3. Select the MRA option from the automated message. The MRA department is open Monday–Friday, 8 A.M.–8 P.M., eastern time.
4. Give the MRA representative the information gathered in Step 1.
   If the list of serial numbers is long, you can fax the list, along with the information gathered in Step 1, to the MRA department at 1-727-953-4172 (U.S.).
   - Please address the fax clearly to the attention of the “Verifone MRA Dept.”
   - Include a telephone number where you can be reached and your fax number.
   - You will be issued MRA number(s) and the fax will be returned to you.

NOTE

One MRA number must be issued for each unit you return to Verifone, even if you are returning several of the same model.

5. Describe the problem(s) and provide the shipping address where the repaired or replacement unit must be returned.
6. Keep a record of the following items:
   - Assigned MRA number(s).
   - Verifone serial number assigned to the unit you are returning for service or repair (serial numbers are located on the top of the unit, (see Figure 21).
   - Shipping documentation, such as air bill numbers used to trace the shipment.
   - Model(s) returned (model numbers are located on the Verifone label on the top of the unit).

Accessories and Documentation

Verifone produces accessories and documentation for the card reader. When ordering, please refer to the part number in the left column.

Verifone Online Store at *www.store.verifone.com*

- USA – Verifone Customer Development Center, 1-800-834-4366, Monday - Friday, 7 A.M. - 8 P.M., eastern time
- International – Contact your Verifone representative

Connection Cables

CBL000-045-01-A	USB Type A to B cable for UX1xx connection.
CBL159-301-01-A	8-PIN to RJ45 connector for UX300 and UX400 CTLS.
CBL159-302-02-A	SMA (RF) connector for UX400 CTLS unit.
CBL159-305-01-A	RS232 to RJ45 connector. For connection between TG-2460H printer and UX300-Petrol.
CBL159-310-01-A	RJ9, RJ49C 2.0m cable for UX300-ISDN.
CBL159-311-01-A	RJ9, RJ13 2.0m cable for UX300-PSTN.
CBL159-312-01-A	LAN cable for Ethernet connections.
SPP 08495-01-R	Cable adapter, Wayne RS-485, for UX300-Petrol.
SPP 08496-01-R	Cable adapter, Tokheim RS-485, for UX300-Petrol.
SPP 08497-01-R	Cable adapter, Gilbarco RS-485, for UX300-Petrol.
26264-01-R	Cash register cable, RJ45-SUBD9f, 1.0m.
26264-02-R	Cash register cable, RJ45-SUBD9f, 2.0m.
745C400X020	Modular cable, 1:1, 6-pin, RJ45–RJ45, 0.5m for UX300-MDB and UX300-LAN.
745C400X100	Modular cable, Y-Cable, MDB, Printer, for UX300-MDB and UX300-LAN.
5557-04R	4-pin Molex-Mini Fit **Note:** This cable require the 5556 series pins.
5557-06R	6-pin Molex-Mini Fit **Note:** This cable require the 5556 series pins

Power Cables

CBL000-039-02-A	Australia power cord for PWR159-001-01-A PSU
CBL159-203-01-A	Power cable to TRACO PWR for UX300-Petrol
CBL159-306-01-A	Y power cable for TG-2460H printer and UX300-Petrol unit
CBL159-307-01-A	Interconnect power cable from CBL159-309-01-X to TRACO PWR cable 27556-10-R for printer external power
CBL159-308-01-A	4-pin ferrite cable for UX300-Standard.
CBL159-309-01-A	6-pin ferrite cable for UX300-MDB, UX300-PSTN, UX300-ISDN, UX300-LAN, UX300-GPRS and UX300-Petrol
CBL258-001-01-A	EU power cord for PWR159-001-01-A PSU.
CBL258-006-01-A	US power cord for PWR159-001-01-A PSU.
CBL258-004-01-A	UK power cord for PWR159-001-01-A PSU.
CBL258-014-01-A	South Africa power cord for PWR159-001-01-A PSU
PWR159-001-01-A	12 V, 3.3 A L5 EEF power supply unit (PSU) for UX300

	PWR159-002-01-A	12 V, 3.3 A L6 EEF power supply unit (PSU) for UX300
	CPS12490-4A-R	24 V Rhino PSU for UX300-Petrol.
	27556-10-R	Power cable for printer external power supply.
	28580-01-R	TG2460-H Printer Power cable for UX300-Petrol.
Cable Retainers	SUB159-305-01-A	Cable retainer set for UX300.
Grounding Cables	WIR159-302-01-A	1 meter grounding cable for UX300 and UX1xx PIN pads.
	WIR159-302-02-A	2.5 meter grounding cable for UX300 and UX1xx PIN pads.
Antenna	ANT159-300-01-A	GPRS antenna for UX300-GPRS.
Printers	FV00018T	Modular Printer (front panel mounted) for UX300-MDB and UX300-LAN.
	P013-010-01-R	TG2460-H Printer for UX300-Petrol.
ARS Kit	MET159-107-01-A	UX100 Anti Removal Switch (ARS) kit for development assembly.
	MET159-117-01-A	UX110 Anti Removal Switch (ARS) kit for development assembly.
	MET159-502-01-A	UX300 Anti Removal Switch (ARS) kit for development assembly.
Cleaning Kit	02746	Verifone Cleaning Kit.

Documentation

VPN DOC159-001-EN	*UX1xx Series Certifications and Regulations Sheet*
VPN DOC159-002-EN	*UX100 Quick Installation Guide*
VPN DOC159-003-EN	*UX1xx Series Installation Guide*
VPN DOC159-007-EN	*UX110 Quick Installation Guide*
VPN DOC159-021-EN	*UX300 Certifications and Regulations Sheet*
VPN DOC159-022-EN	*UX300 Quick Installation Guide*
VPN DOC159-023-EN	*UX300 Installation Guide*
VPN DOC159-031-EN	*UX400 Certifications and Regulations Guide*
VPN DOC159-032-EN	*UX400 Quick Installation Guide*
VPN DOC159-033-EN	*UX400 Installation Guide*
VPN DOC159-052-EN	*UX300 Cable Retainer Quick Installation Guide*
VPN DOC159-061-EN	*UX300-GPRS Certifications and Regulations Sheet*

CHAPTER 6

Troubleshooting Guidelines

This chapter lists possible malfunctions that may occur while operating a UX300-Standard device and the appropriate corrective action. If the problem persists - even after performing the outlined guidelines, or if the problem is not described, contact your local Verifone representative for assistance.

NOTE

The unit comes equipped with tamper-evident labels. The reader contains no user-serviceable parts. Do not, under any circumstance, attempt to disassemble the unit. Perform only those adjustments or repairs specified in this guide. For all other services, contact your local Verifone service provider. Service conducted by parties other than authorized Verifone representatives may void any warranty.

CAUTION

Using an incorrectly rated power supply may damage the unit or cause it to not work properly. Before troubleshooting, ensure that the power supply used to power the unit matches the specified requirements (see Specifications for detailed power supply specifications). If not, obtain the appropriately rated power supply before continuing with troubleshooting.

Transactions Fail To Process

There are several reasons why the card reader may not be processing transactions. Use the following steps to troubleshoot failures.

Check the Magnetic Card Reader

- Perform a test transaction using one or more different magnetic stripe cards to ensure the problem is not a defective card.
- Ensure that you are swiping cards properly. With the card reader, the black magnetic stripe should face down.

NOTE

The UX300 reads the card upon card removal or withdrawal from the slot.

- If possible, process a transaction manually, using an external keypad, instead of the card reader. If the manual transaction works, the problem may be a defective reader.
- If the problem persists, contact your local Verifone representative.

Check the Smart Card Reader

- Perform a test transaction using several different smart cards to ensure the problem is not a defective card.
- Ensure that the card is inserted correctly and that the card is not removed prematurely.
- Ensure the SAM cards are properly inserted in the cardholders and that the cardholders are properly secured (see Installing or Replacing SAM Cards).
- If the problem persists, contact your local Verifone representative.

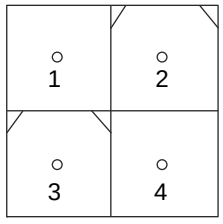
Port Pinouts

The following tables list the port pinouts for the UX300-series persistent board (see Figure 2) and the model-dependent boards.

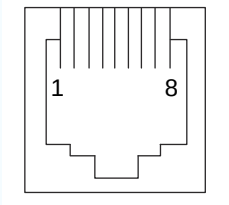
Persistent Board Ports

Refer to the following port pinout diagrams for the persistent board.

Power Port

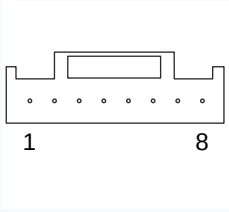
Connector	PIN	Function	Description
	1	9 V to 12 V	External power from cable
	2	GND	Power ground
	3	WAKE_VMC_MF	Low active wake up signal
	4	NC	No connection

RS-232 Port (COM1)

Connector	PIN	Function	Description
	1	Portpwr (9 V to 12 V)	Power Out Imax = 0.5 A
	2	NC	No connection
	3	NC	No connection
	4	GND	Power ground
	5	RXD	Receive data
	6	TXD	Transmit data
	7	CTS	Clear to send
	8	RTS	Request to send

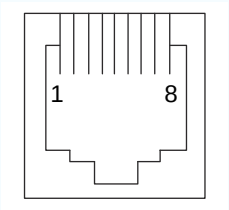
NOTE The 10-pin download cable (VPN 26264) connects to the 8-Pin RS-232 port of the device, wherein Pin 2 from the cable corresponds to Pin 1 on the RS-232 port.

UX400 8-Pin Port



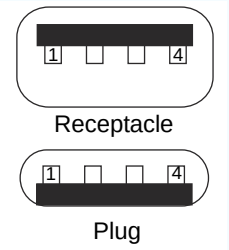
Connector	PIN	Function	Description
	1	+5 V	Power
	2	STBY 3.3 V	Standby
	3	GND	Power ground
	4	nNT_Proximity	Signal
	5	SDA	Signal
	6	SCL	Signal
	7	M3_SCL	Signal
	8	M3_SDA	Signal

Ethernet Port (LAN)



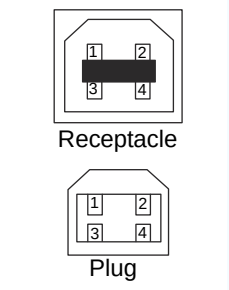
Connector	PIN	Function	Description
	1	TXD+	Transmit data +
	2	TXD-	Transmit data -
	3	RXD+	Receive data +
	4	NC	No connection
	5	NC	No connection
	6	RXD-	Receive data -
	7	NC	No connection
	8	NC	No connection

USB Pinout (Host Port)



Connector	PIN	Function	Description
	1	+5 V	5 V USB Power (500 mA)
	2	DATA-	USB Host Signal -
	3	DATA+	USB Host Signal +
	4	GND	USB ID pin/Ground

USB Pinout (Client Port)



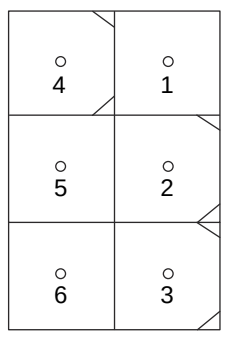
Connector	PIN	Function	Description
	1	+5 V	5 V USB Power
	2	DATA-	USB Device Signal -
	3	DATA+	USB Device Signal +
	4	GND	USB Ground

Model-Dependent Board Ports

Refer to the following diagrams for the model-dependent board ports.

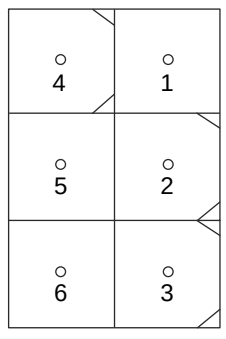
Power Port (DC-in MDB)

Applies to UX300-LAN, UX300-PSTN, UX300-ISDN and UX300-MDB.

Connector	PIN	Function	Description
	1	V_MDB	9 V to 43 V, external power from cable
	2	MDB_PGND	Power ground
	3	MDB_WAKE	Wake signal
	4	MDB_RxD	Receive
	5	MDB_TxD	Transmit
	6	MDB_GND	Signal Ground

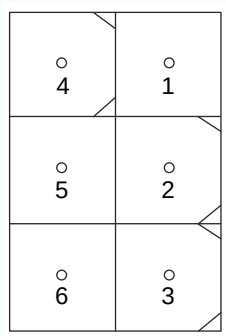
Power Port (DC-in)

Applies to UX300-WPWR.

Connector	PIN	Function	Description
	1	V_MDB	9 V to 43 V, external power from cable
	2	MDB_PGND	Power ground
	3	NC	No connection
	4	NC	No connection
	5	NC	No connection
	6	NC	No connection

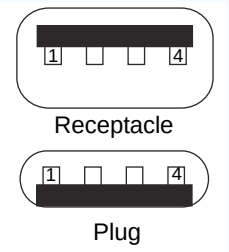
Power Port (DC-in or Printer)

Applies to UX300-Petrol.

Connector	PIN	Function	Description
	1	+24 V	External power from cable
	2	GND	Power ground
	3	+24 V - Printer	Power to TG-2460H printer
	4	GND - Printer	Printer ground
	5	NC	No connection
	6	NC	No connection

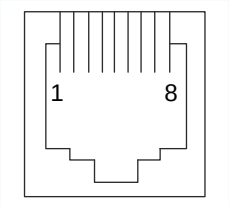
USB Pinout (Host Port)

Applies to all variants, except UX300-WPWR.

Connector	PIN	Function	Description
	1	+5 V	5 V USB Power (500 mA)
	2	DATA-	USB Host Signal -
	3	DATA+	USB Host Signal +
	4	GND	USB ID pin/Ground

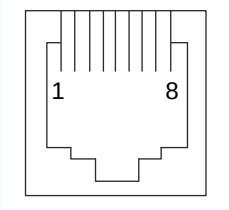
Ethernet Port (LAN)

Applies to UX300-LAN.

Connector	PIN	Function	Description
	1	TXD+	Transmit data +
	2	TXD-	Transmit data -
	3	RXD+	Receive data +
	4	NC	No connection
	5	NC	No connection
	6	RXD-	Receive data -
	7	NC	No connection
	8	NC	No connection

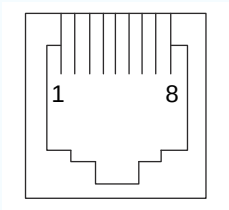
RS-232 Port (COM2)

Applies to UX300-LAN, UX300-MDB, UX300-Petrol.

Connector	PIN	Function	Description
	1	V_MDB	9 V to 43 V
	2	NC	No connection
	3	NC	No connection
	4	GND	Power ground
	5	RXD	Receive data
	6	TXD	Transmit data
	7	CTS	Clear to send
	8	RTS	Request to send

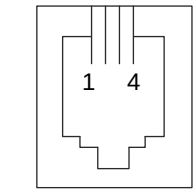
Printer Port (COM3)

Applies to UX300-LAN, UX300-Petrol, UX300-PSTN, UX300-ISDN and UX300-MDB.

Connector	PIN	Function	Description
	1	RTS	Ready to send
	2	CTS	Clear to send
	3	V_MDB	9 V to 43 V
	4	V_MDB	9 V to 43 V
	5	GND	Receive data
	6	NC	No connection
	7	RXD	Receive data
	8	TXD	Transmit data

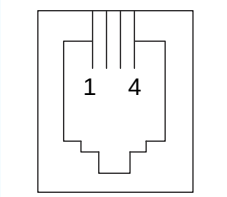
RS-485 RJ9 Port (COM4)

Applies to UX300-Petrol.

Connector	PIN	Function	Description
	1	485-	RS485 Signal -ve
	2	GND_ISOLATE	Isolated Ground
	3	485+	RS485 Signal +ve
	4	NC	No connection

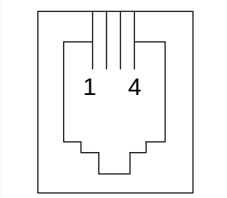
PSTN RJ9 Port (Line)

Applies to UX300-PSTN.

Connector	PIN	Function	Description
	1	a	No Connect
	2	La	Tip
	3	Lb	Ring
	4	b	No Connect

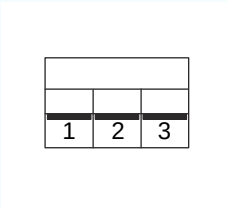
ISDN RJ9 Port (Line)

Applies to UX300-ISDN.

Connector	PIN	Function	Description
	1	a1	RX+
	2	a2	TX+
	3	b2	TX-
	4	b1	RX-

RS-485 3-Pin Port

Applies to UX300-Petrol.

Connector	PIN	Function	Description
	1	485-	RS485 Signal -ve
	2	485+	RS485 Signal +ve
	3	GND_ISOLATE	Isolated Ground

APPENDIX A

UX300 Caution and Warning Messages

Products with UL/cUL certification should include French translations of Caution and Warning notices. The following table lists all notices found in the document, their location and the equivalent French translations.

Table 5 Caution and Warning Messages

Notice	Chapter	Page	English Text	French Text
Caution	Setup	page 14 & 18	Make sure the installation method does not invalidate the Anti-Removal Switch (ARS) function. *Do not*, for instance, install the UX300 in a sub-chassis that can be removed from the main cabinet.	*Assurez-vous que la méthode d'installation ne pas invalider les commutateurs Anti- suppression de la fonction (ARS). Ne pas, par exemple, installer la UX300 dans un sous-châssis qui peut être retiré de l' armoire principale.*
Warning	Setup	page 14	Do not use a unit that has been tampered with or otherwise damaged. This unit comes equipped with tamper-evident labels. If a label or component appears damaged, immediately notify the shipping company and your Verifone representative or service provider.	*Ne pas utiliser un appareil qui a été altéré ou endommagé. Cet appareil est équipé d'étiquette d'inviolabilité. Si une étiquette ou d'un composant semble être endommagé, en aviser immédiatement la compagnie maritime et votre représentant Verifone ou prestataire de services.*
Caution	Setup	page 18	Observe standard precautions in handling electrostatically sensitive devices. Electrostatic discharges can damage the equipment. Verifone recommends using a grounded anti-static wrist strap.	*Respecter les précautions standard dans la manipulation d'appareils sensibles aux décharges électrostatiques. Les décharges électrostatiques peuvent endommager le matériel. Verifone recommande d'utiliser un bracelet anti-statique à la terre.*
Caution	Setup	page 25	For proper operation of the Anti-Removal Switches (ARS), do not use additional gaskets or washers. Use the unit and its accessories as they are upon removing from the packaging.	*Pour un bon fonctionnement des commutateurs Anti-suppression (ARS), ne pas utiliser des joints ou des rondelles supplémentaires. Utilisez l'appareil et de ses accessoires car ils sont lors de l'enlèvement de l'emballage.*
Caution	Setup	page 25	Make sure that your mounting frame has a thickness of 2 mm.	*Assurez-vous que votre cadre de montage a une épaisseur de 2 mm.*

Table 5 Caution and Warning Messages (continued)

Notice	Chapter	Page	English Text	French Text
Caution	Setup	page 27	Using an incorrectly rated power supply can damage the unit or cause it to malfunction. Verifone recommends the PWR159-001-01-A or CPS12490-4A-R power pack. See Specifications for power supply information.	*Utilisation d'une alimentation mal classé peut endommager l'appareil ou provoquer des dysfonctionnements.* *Verifone recommande l' PWR159-001-01 - A ou bloc d'alimentation CPS12490-4A - R. Voir les caractéristiques d'information de l'alimentation.*
Warning	Setup	page 28	You will lose transaction data files not yet stored in memory if there is a disruption in power supply during a transaction.	*Vous allez perdre des fichiers de données de la transaction n'est pas encore en mémoire si il ya une perturbation dans l'alimentation lors d'une transaction.*
Caution	Setup	page 29	When using a smart card, leave the card in the reader until the transaction is complete. Premature removal can void the transaction.	*Lorsque vous utilisez une carte à puce, laissez la carte dans le lecteur jusqu'à ce que la transaction est terminée.* *Retrait prématuré peut annuler la transaction.*
Caution	Maintenance and Cleaning	page 35	Never use thinner, trichloroethylene, or ketone-based solvents – they can deteriorate plastic or rubber parts.	*N'utilisez jamais de diluant, le trichloréthylène ou des solvants cétoniques - ils peuvent détériorer les pièces en plastique ou en caoutchouc.*
Caution	Troubleshooting Guidelines	page 41	Using an incorrectly rated power supply may damage the unit or cause it to not work properly. Before troubleshooting, ensure that the power supply used to power the unit matches the specified requirements (see Specifications for detailed power supply specifications). If not, obtain the appropriately rated power supply before continuing with troubleshooting.	*Utilisation d'une alimentation mal classé peut endommager l'appareil ou provoquer sa ne fonctionne pas correctement. Avant de dépannage, assurez-vous que l'alimentation utilisée pour alimenter l'appareil répond aux exigences spécifiées (voir spécifications pour les caractéristiques de l'alimentation). Si non, obtenir l'alimentation nominale appropriée avant de poursuivre le dépannage.*

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UX300

Installation Guide

Verifone Part Number DOC159-023-EN-C, Revision C