

# UX301

## *Installation Guide*



UX301 Installation Guide  
© 2017 Verifone, Inc.

All rights reserved. No part of the contents of this document may be reproduced or transmitted in any form without the written permission of Verifone, Inc.

The information contained in this document is subject to change without notice. Although Verifone has attempted to ensure the accuracy of the contents of this document, this document may include errors or omissions. The examples and sample programs are for illustration only and may not be suited for your purpose. You should verify the applicability of any example or sample program before placing the software into productive use. This document, including without limitation the examples and software programs, is supplied "As-Is."

Verifone and the Verifone logo are registered trademarks of Verifone. Other brand names or trademarks associated with Verifone's products and services are trademarks of Verifone, Inc.

All other brand names and trademarks appearing in this manual are the property of their respective holders.

**Product Warranty:**

For product warranty information, go to <http://www.verifone.com/terms>.

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

Verifone, Inc.

1-800-Verifone

[www.verifone.com](http://www.verifone.com)



## CONTENTS

<b>PREFACE</b>	5
Audience	5
Organization	5
Related Documentation	5
Conventions and Acronyms	5
<b>CHAPTER 1</b> <b>Device Overview</b>	<b>7</b>
Features and Benefits	7
<b>CHAPTER 2</b> <b>Setup</b>	
Selecting Unit Location	10
Unpacking the Shipping Carton	10
Examining the Unit's Features	11
ARS and Service Switches	13
Installing or Replacing SAM Cards	13
Cable Connections	15
Mounting the Device	19
Grounding the Units	20
Connecting Power Supply	21
Using the Device	23
<b>CHAPTER 3</b> <b>Specifications</b>	<b>25</b>
Technical Specifications	25
<b>CHAPTER 4</b> <b>Maintenance and Cleaning</b>	<b>27</b>
Additional Safety Information	27
<b>CHAPTER 5</b> <b>Service and Support</b>	
Service Returns	29
Accessories and Documentation	30
<b>CHAPTER 6</b> <b>Troubleshooting Guidelines</b>	<b>33</b>
Transactions Fail To Process	33
<b>CHAPTER 7</b> <b>Port Pinouts</b>	<b>35</b>
UX301 Port Pinouts	35
<b>APPENDIX A</b> <b>Caution and Warning Messages</b>	<b>39</b>
UX301 Caution and Warning Messages	39





This guide is the primary source of information for setting up and installing the UX301 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 UX301 persistent board as well as model-dependent boards.

[Appendix A, 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).




<i>UX301 Certifications and Regulations Sheet</i>	VPN DOC159-024-EN
<i>UX401 Certifications and Regulations Guide</i>	VPN DOC159-034-EN
<i>UX401 Installation Guide</i>	VPN DOC159-035-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 <a href="#">Conventions and Acronyms</a> .
	The pencil icon is used to highlight important information.	If exchanging cables, use a Verifone-approved cable.
	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.
	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
PTS	PIN Transaction Security
RF	Radio Frequency
RJ45	Registered Jack 45 modular connector
RS-232	Recommended Standard 232
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



## Device Overview

The UX301 is a card reader processing device that works with UX1xx PIN pads, UX401 contactless readers, vending machines and the TG-2460H printer. The reader supports transactions in a variety of environments, specifically in the outdoor and unattended markets.

### **Features and Benefits**

---

The UX301 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, AMEX Expresspay2 and Discovery.

### **Device Capabilities**

The UX301 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 antennae and external printers.







## Setup

This chapter describes the setup procedures for the UX301 card reader and controller, under the following sections:

- Selecting Unit Location
- Unpacking the Shipping Carton
- Examining the Unit's Features
- ARS and Service Switches
- Installing or Replacing SAM Cards
- Cable Connections
- Mounting the Device
- Grounding the Units
- Connecting Power Supply
- Using the Device

## 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 0.8m away from the UX401 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 Switch (ARS) function. *Do not*, for instance, install the UX301 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 (VPN CBL159-309-01-B) 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).

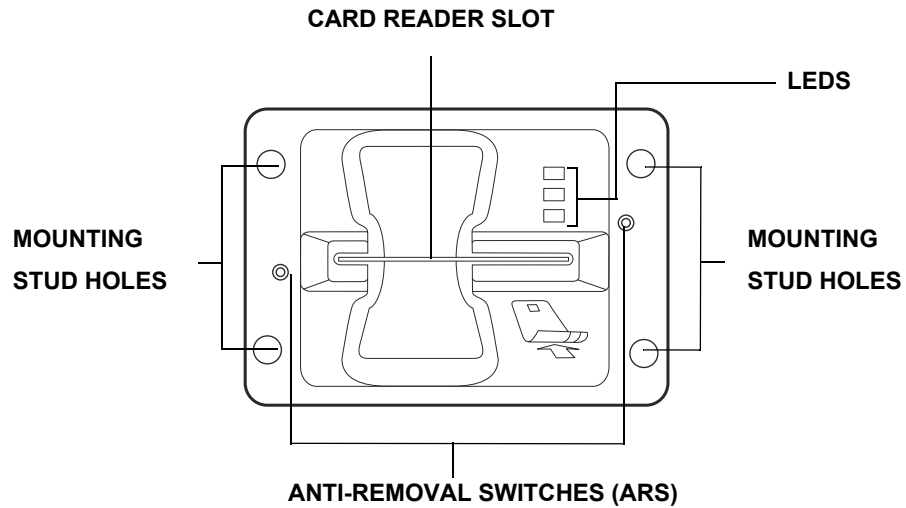


Figure 1 UX301 Front View

**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**.

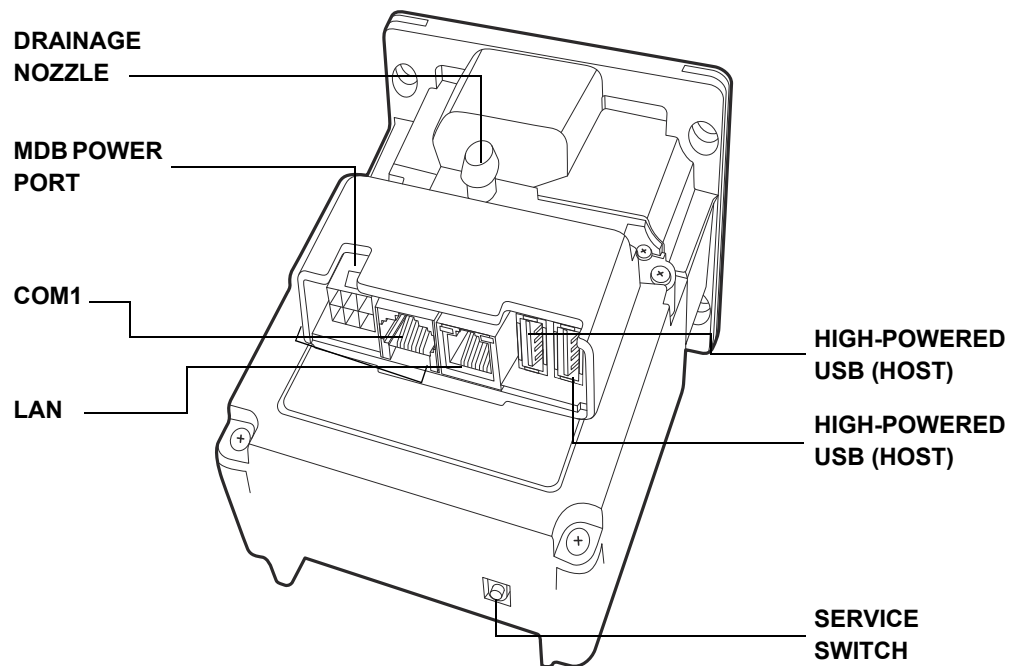
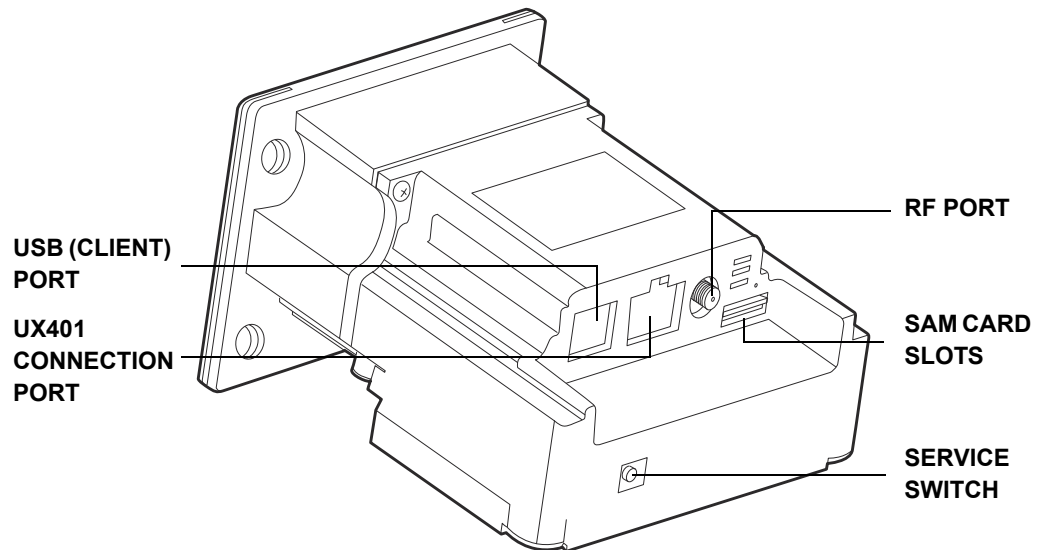


Figure 2 UX301 Underside View

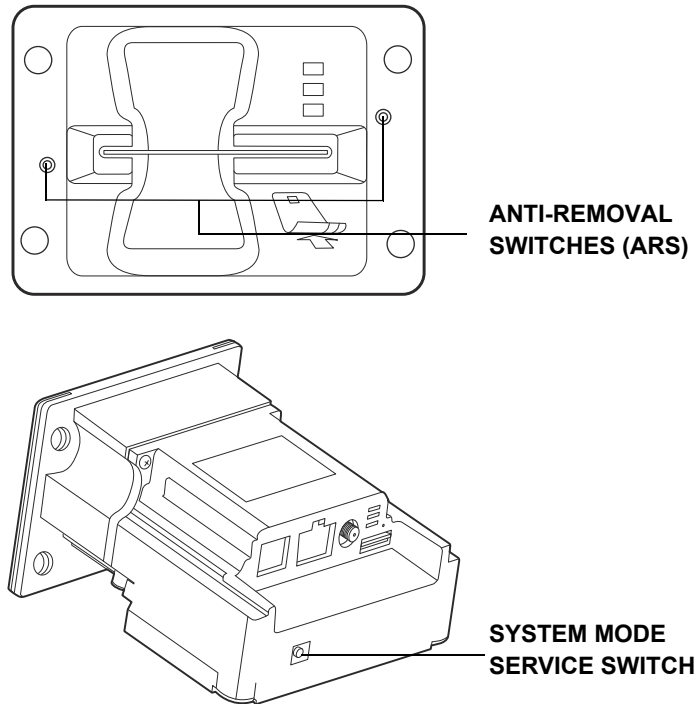
- Back Features**
- Nozzle for **water drainage**
  - Persistent board features:
    - **USB Device** (Type B) [client]
    - **2 Powered USB** ports (Type A) [host]
    - **Power** port (9 to 43V DC Power in)
    - **LAN** with 2 LEDs
    - **COM1** (RS-232)
    - **8-PIN** RF port
    - **SMA** (analog RF) **CTLS / NFC** antenna connector
    - **3 SAM** card slots
  - Model-dependent board features:
    - **MDB** power port (9 to 43V DC).



**Figure 3** UX301 Top View

## ARS and Service Switches

The following illustrations show the locations of the Anti-Removal Switches (ARS) and the service switch on the UX301.



**Figure 4 UX301 ARS and Service Switches**

**Removal Protection** The front Anti-Removal Switches 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 UX301 in a sub-chassis that can be removed from the main cabinet.

### System Mode Activation

The rear service switch provides administrators System Mode access to the UX301. System Mode is restricted to administrators and authorized users only. Please contact your Verifone representative for details.

### Installing or Replacing SAM Cards

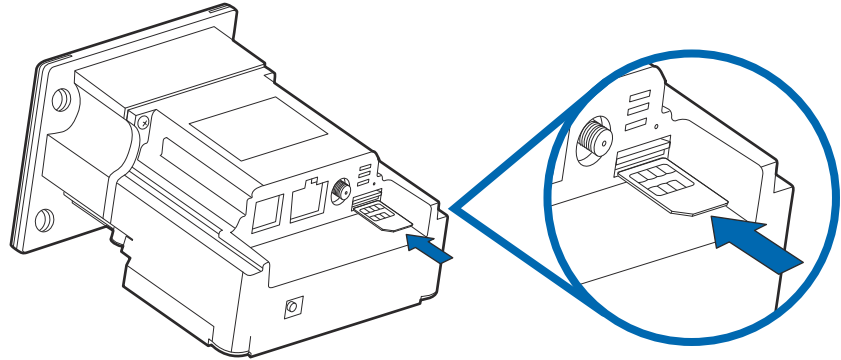
You may need to install a security access module (SAM) card or replace the old card. You can find three SAM slots on the UX301 (see [Figure 3](#)).



**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**

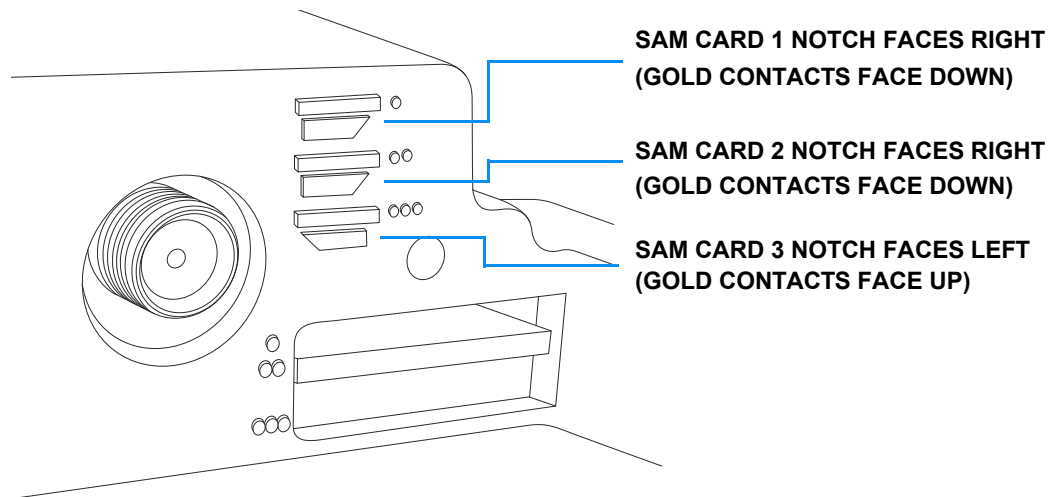
- 1 Disconnect the device from all power sources.
- 2 Disconnect the device from any external devices.
- 3 Carefully slide the SAM card into the slot, by aligning the card and carefully sliding into the slot until fully inserted.



**Figure 5 Installing SAM Card**



- The SAM card holders ensure that cards fit into the slots in only one way.
- The rectangular symbols show the SAM card's notched corners are always visible. These indicate which way the card notch should face before you insert the card into the SAM slot.
- The circular symbols indicate the SAM card slot numbers.



**Figure 6 SAM Slots and Card Orientation**

- 4 Install additional SAM cards in the available slots as necessary.

## Cable Connections

The UX301 rear panel holds several interface ports for power and communications. Use this section to see how the UX301 connects to various UX-series units, as well as other devices.

- [Connecting to a UX-Series Host Device](#)
- [Connecting to a UX401 CTLS Unit](#)
- [Connecting Optional Devices](#)



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 UX301 device with the following host units:

#### Connecting to a Vending Machine

You can connect the UX301 to a host vending machine (VM) with any of the following connection types:

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

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](#)).

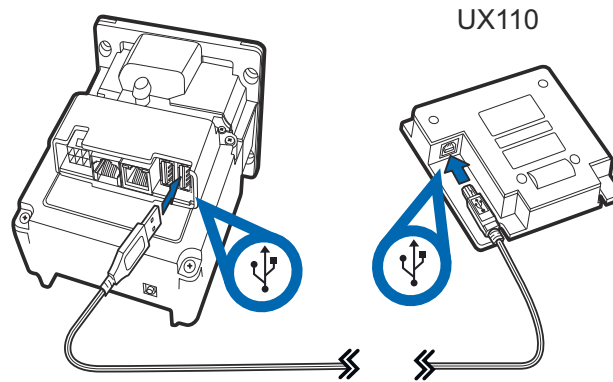
### Connecting to a UX-Series Peripheral Device

This section discusses the connection of the UX301 device with the following peripheral units:

- [Connecting to a UX1xx Series PIN Pad](#)
- [Connecting to a UX401 CTLS Unit](#).

### Connecting to a UX1xx Series PIN Pad

You can connect the UX301 to a UX1xx-series PIN pad device with a standard USB Type A to B connection (VPN CBL000-045-01-A).



**Figure 7** Connecting to a UX110 PIN Pad

Connect the Type A plug in the UX301 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 UX401 CTLS Unit

This section discusses connecting the UX301 device with the UX401 using UX301-UX401 comm cable (VPN CBL159-313-02-A) and a UX301-UX401 RF analog cable (VPN CBL159-302-03-A).

**CAUTION**



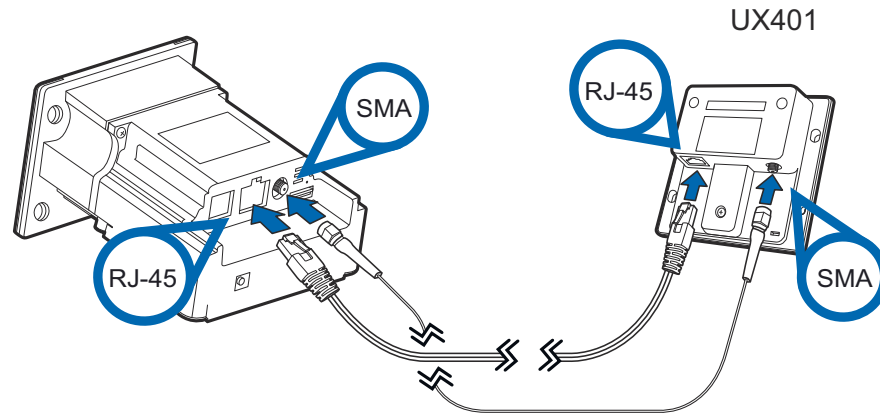
Do not enable the CTLS function by SW if the UX401 antenna isn't connected to the UX301.

Activating CTLS without a UX401 antenna attached can damage the UX301 RF front end.



**To connect the UX301 to a UX401 CTLS unit**

- 1 Attach one end of the RJ45 plug cable to the UX301 and the other end to the UX401.
- 2 Attach one end of the SMA cable to the UX301 and the other end to the UX401.



**Figure 8 Connecting to a UX401 CTLS Unit**



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

**Connecting Optional Devices**

The UX301 can connect to various peripheral devices outside the UX-Series product range.

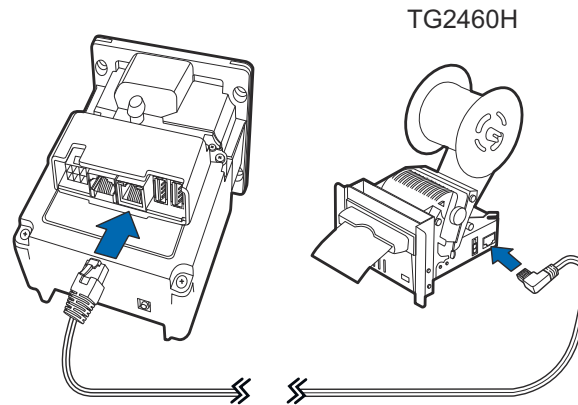
**Connecting to a TG-2460H Printer**

Use the following cables to connect to the UX301 to a TG2460-H printer:

- Y-cable (VPN CBL159-306-01-A)
- TG2460-H printer power cable (VPN 28580-01-R)
- RS-232 cable (VPN CBL013-005-01-A).

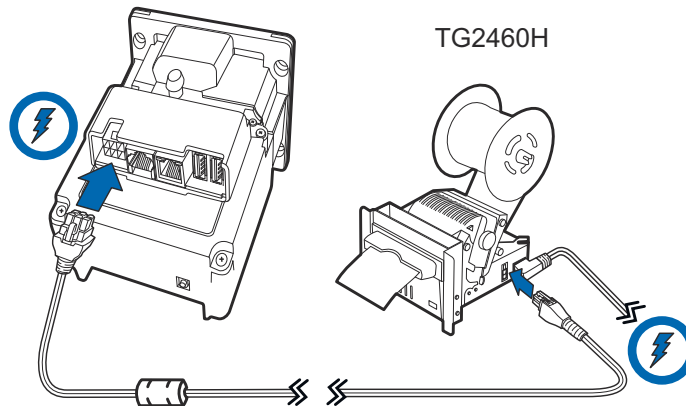
**To connect to a TG-2460H Printer**

- 1 Disconnect the device from all power sources.
- 2 Connect the RS-232 cable to the UX301 printer port and connect the RJ45 plug to the printer.



**Figure 9 Connecting TG-2460H Printer Cable**

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



**Figure 10 Connecting Power to UX301 and Printer**



Connecting the UX301 to the TG2460H printer requires 24 V DC power.

**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.

## Mounting the Device

Use the following procedure to mount the UX301 to a suitable mounting surface.



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

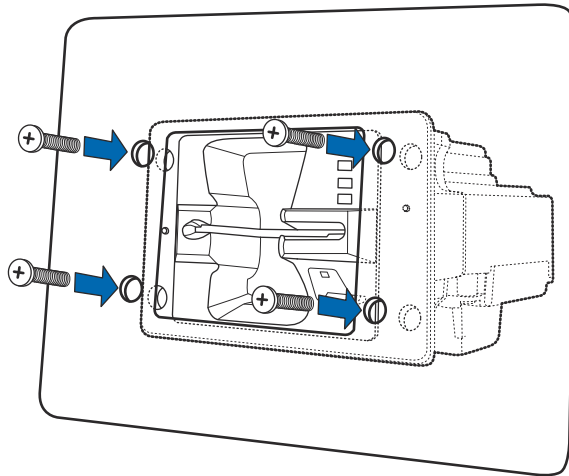


**CAUTION** Make sure that your mounting frame has a thickness of 2 mm.



**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 UX301 stud holes with the holes on the mounting surface.



**Figure 11** Mounting the UX301

- 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 UX301 using welded screw bolts on the inner side of the mounting plate. This prevents any vandalism of the screw heads on the outer surface.

- 4 Connect flexible tubing with 9mm inner diameter to the drain nozzle at the bottom of the UX301 (see Figure 2) and place the other end of the tubing at an appropriate drainage area.



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.

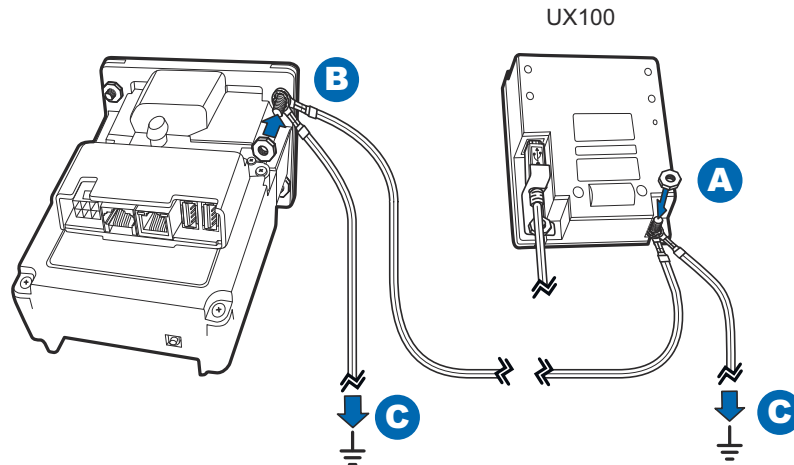
## Grounding the Units

If you connect the UX301 to a UX-series PIN pad, use the following steps to ground your units.



For cable use and ordering information, see [Accessories and Documentation](#).

- To ground the units**
- 1 Remove mounting nuts from the back of the UX301 and the PIN pad unit (do not remove the nut securing the PIN pad cable retainer).



**Figure 12** Grounding the UX301 and PIN Pad Units

- 2 Attach one end of the grounding cable (VPN WIR159-302-02-A) to the UX301 and connect the other end to a ground installation. See (C) in Figure 12.
- 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 12.
- 4 Connect the UX301 to the PIN pad with another grounding cable (VPN WIR159-302-01-A) using the same mounting bolts. See (A, B) in Figure 12.
- 5 Replace the nuts and tighten to the recommended torque of 7.0 kgfcm (6.1 lbf.in).

## Connecting Power Supply

Not all UX301 configurations and device contexts require the use of a power supply. Verifone ships power supplies with the UX301 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. The power rating for UX301 is 9 V DC to 43 V DC.

Verifone recommends the following PSUs:

- 12 V, 3.3 A L5 EEF PSU for UX301 (VPN PWR159-001-01-A)
- 12 V, 3.3 A L6 EEF PSU for UX301 (VPN PWR159-002-01-A)
- 24 V Rhino PSU for UX301 Petrol (VPN CPS12490-4A-R).

See [Specifications](#) for detailed power supply information.

---

Attach and route all cables between the UX301 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 UX301 connects to external power using 6-pin ferrite cable (VPN CBL159-309-01-B) from the power port on the model-dependent board (see B in [Figure 2](#)).

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 UX301 and the other end to your power source.

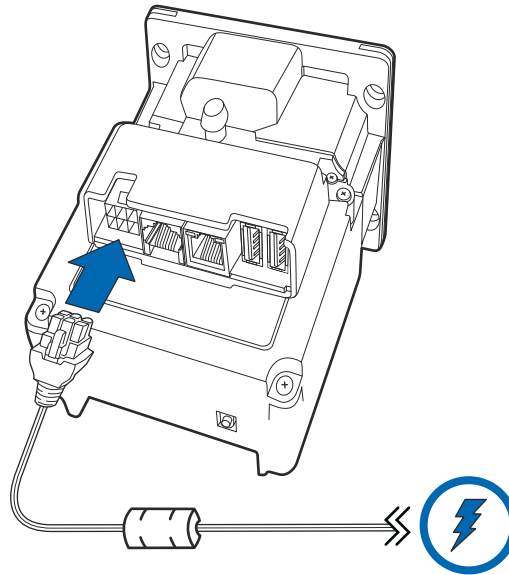
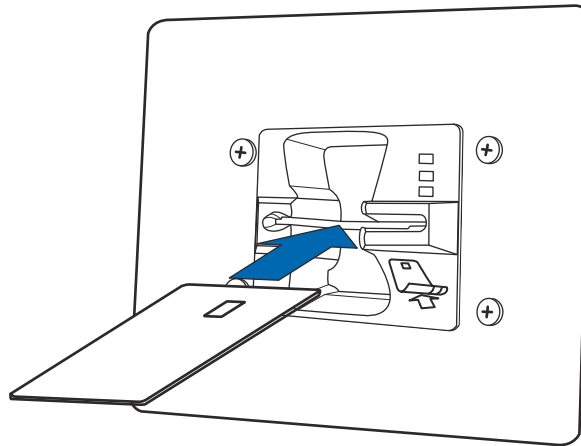


Figure 13 Connecting Power to the UX301

**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 UX301 supports magnetic stripe cards as well as smart cards. Use the following steps in conducting UX301 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 14](#)).



**Figure 14** 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 card removal can void the transaction.





## Specifications

This chapter discusses power requirements, dimensions, and other specifications of the UX301 card reader.

### Technical Specifications

Refer to the following information on the power, weight, temperature, memory, ports and other technical details about your UX301 card reader.

#### Unit Power Requirements

- Operation voltage: 9 to 43 V DC, 24 V DC for printer use
- Idle Power: 2 W
- Typical Power: 3 W (CTLS read), 10 W (RS232-V out), 4W (UX100 display heater), 0.5W (UX100/110), 2.5W(USB-Master), 70 W (printer)
- Sleep Mode: 15 mW@12 V with CTLS wakeup, 2.5 mW@12 V without CTLS wakeup

#### Temperature

- Operating temperature:
  - -30 °C to 70 °C (-22 °F to 158 °F) Standard unit
- Storage temperature: -30 °C to 80 °C (-22 °F to 176 °F)
- Power Supply rated for indoor use only: 12 V DC 3.3 A
- Power Supply rated for outdoor use: 24 V, DC 3.75 A up to 40 °C (DC 2.5 A up to 60 °C)
- Relative humidity: 5% to 90% rH at 55 °C (131 °F), non-condensing



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: 67 mm (2.64 in)
  - Width: 97 mm (3.82 in)
  - Depth 102 mm (4.02 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** • 3 SAM slots
- ID-000 format

- Peripheral Ports** • Consistent ports:
  - Power
  - 2x Powered USB Type A for external device (host)
  - USB Type B (client)
  - COM1 (powered, 12 V DC, 1 A)
  - ETH (LAN) connection with 2 colored LEDs for link state and speed indication
  - Analog RF CTLS antenna connector to the UX401 CTLS unit
  - 8-PIN to RJ45 connector to UX401 CTLS antenna unit

Model dependent board:

- MDB

- Communication** • COM: Up to 115200 bps, HW RTS/CTS handshake
- MDB: 9600 bps fix, 9E1. Optically isolated current loop.

- Display** • 3 status LEDs on the front (payment application controlled).



## 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 3      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 UX301 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.

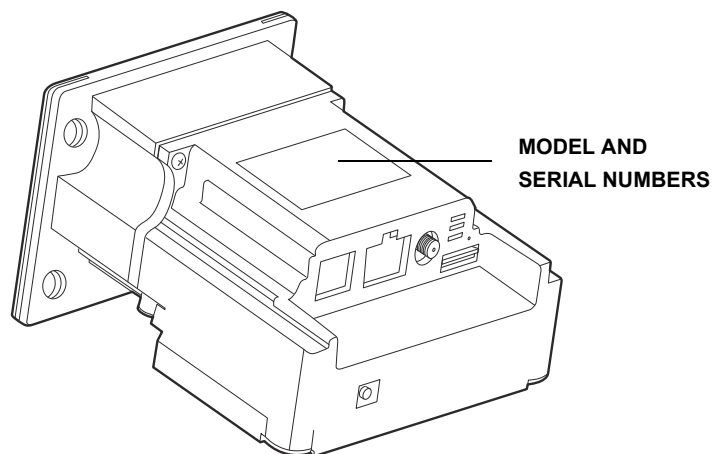
### Service Returns

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).



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 15](#)) on the underside of each unit to be returned:
  - Product ID, including the model and part number. For example, “M159-301-xx-WWB” and “PTID xxxxxxxx.”
  - Serial number (S/N xxx-xxx-xxx).



**Figure 15** 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 15](#)).
  - 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](http://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

CBL159-313-02-A	UX301-UX401 comm cable
CBL159-302-03-A	UX301-UX401 RF analog cable
CBL013-005-01-A	RS232 to TG-2460H printer connector
CBL159-312-01-A	LAN cable for Ethernet connections.
26264-01-R	Cash register cable, RJ45-SUBD9f, 1.0m
26264-02-R	Cash register cable, RJ45-SUBD9f, 2.0m
5557-04R	4-pin Molex-Mini Fit <b>Note:</b> Requires the 5556 series pins.
5557-06R	4-pin Molex-Mini Fit <b>Note:</b> Requires the 5556 series pins.

## Power Cables

CBL000-039-02-A	Australia power cord for PWR159-001-01-A PSU
CBL159-306-01-A	Y power cable for TG-2460H printer and UX301
CBL159-307-01-A	Interconnect power cable from CBL159-309-01-X to TRACO PWR cable 27556-10-R for printer external power
CBL159-309-01-B	6-pin ferrite cable for UX301
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
CPS12490-4A-R	24 V Rhino PSU for UX301 Petrol
PWR159-001-01-A	12 V, 3.3 A L5 EEF power supply unit (PSU) for UX301
PWR159-002-01-A	12 V, 3.3 A L6 EEF power supply unit (PSU) for UX301
27556-10-R	Power cable for printer external power supply
28580-01-R	TG2460-H Printer Power cable for UX301

## Printers

P013-010-01-R	TG2460-H Printer
---------------	------------------

## ARS Kit

MET159-502-01-A	UX301 Anti Removal Switch (ARS) kit for development assembly
-----------------	--

## Cleaning Kit

02746	Verifone Cleaning Kit.
-------	------------------------

## Documentation

VPN DOC159-024-EN	<i>UX301 Certifications and Regulations Sheet</i>
VPN DOC159-034-EN	<i>UX401 Certifications and Regulations Guide</i>
VPN DOC159-035-EN	<i>UX401 Installation Guide</i>







## Troubleshooting Guidelines

This chapter lists possible malfunctions that may occur while operating a UX301 device and recommends appropriate corrective actions. 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 UX301 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.

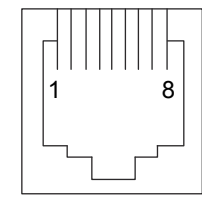
## Port Pinouts

This section contains port pinout tables for the UX301.

### UX301 Port Pinouts

Refer to the following UX301 port pinout diagrams.

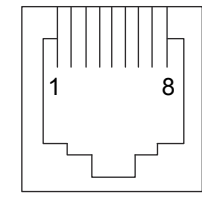
#### RS-232 Port (COM1)

Connector	PIN	Function	Description
	1	Portpwr (9 to12 V DC)	PowerOut, max 1 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

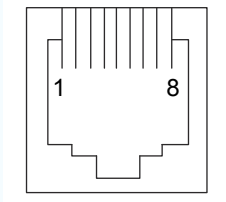


The 10-pin download cable (VPN 26264) connects to the 8-Pin RS-232 port of the device, wherein Pin 2 from the cable corresponds to Pin 1 on the RS-232 port.

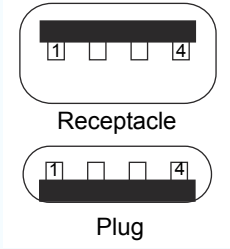
#### UX401 Port

Connector	PIN	Function	Description
	1	+5V	5 V Power
	2	Standby	+3, 3 V
	3	GND	Power ground
	4	IRQ	Motion detector IRQ
	5	SDA1	I2c LED driver
	6	SCL1	I2c LED driver
	7	SCLM3	I2c motion detector
	8	SDAM3	I2c motion detector

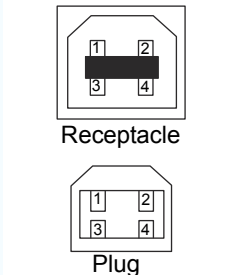
**Ethernet Port (LAN)**

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

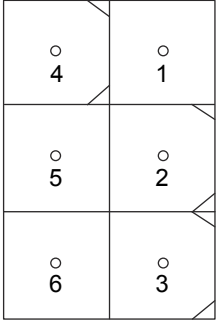
**USB Pinout (Host Port)**

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

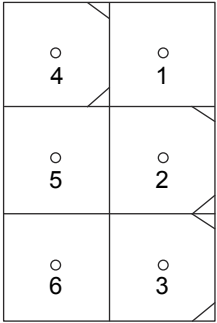
**USB Pinout (Client Port)**

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

**Power Port (DC-in or Printer)** Applies to UX301 STD version.

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	NC	Unused
	5	NC	Unused
	6	GND - Printer	Printer ground

**Power Port (DC-in or Printer)** Applies to UX301 MDB version.

Connector	PIN	Function	Description
	1	+DC 9-43 V	External power from cable
	2	GND	Power ground
	3	WAKE	Signal
	4	Slave TX	Slave TX
	5	Slave RX	Slave RX
	6	MDB GND	Ground





## Caution and Warning Messages

### UX301 Caution and Warning Messages

Products with UL/cUL certification 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 4 Caution and Warning Messages**

Notice	Chapter	Page	English Text	French Text
Caution	Setup	page 10 & 13	Make sure the installation method does not invalidate the Anti-Removal Switch (ARS) function. <i>Do not</i> , for instance, install the UX301 in a sub-chassis that can be removed from the main cabinet.	<i>Assurez-vous que la méthode d'installation ne remet pas le commutateur anti-enlèvement fonction (ARS). Ne pas, par exemple, installer la UX301 dans un sous- châssis qui peut être retiré de l' armoire principale.</i>
Warning	Setup	page 10	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.	<i>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.</i>
Caution	Setup	page 13	Observe standard precautions in handling electrostatically sensitive devices. Electrostatic discharges can damage the equipment. Verifone recommends using a grounded anti-static wrist strap.	<i>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.</i>
Caution	Setup	page 16	Do not enable the CTLS function by SW if the UX401 antenna isn't connected to the UX301.  Activating CTLS without a UX401 antenna attached can damage the UX301 RF front end.	<i>Ne pas activer la fonction CTLS par SW si l'antenne de UX401 est pas connecté à l' UX301.  Activation CTLS sans une antenne attachée UX401 peut endommager l'interface UX301 RF.</i>
Caution	Setup	page 19	For proper operation of the Anti-Removal Switch (ARS), do not use additional gaskets or washers. Use the unit and its accessories as they are upon removing from the packaging.	<i>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.</i>

**Table 4** Caution and Warning Messages (continued)

Notice	Chapter	Page	English Text	French Text
Caution	Setup	page 19	Make sure that your mounting frame has a thickness of 2 mm.	<i>Assurez-vous que votre cadre de montage a une épaisseur de 2 mm.</i>
Caution	Setup	page 21	Using an incorrectly rated power supply can damage the unit or cause it to malfunction. The power rating for UX301 is 9 V DC to 43 V DC.  Verifone recommends the following PSUs: <ul style="list-style-type: none"> <li>• 12 V, 3.3 A L5 EEF PSU for UX301 (VPN PWR159-001-01-A)</li> <li>• 12 V, 3.3 A L6 EEF PSU for UX301 (VPN PWR159-002-01-A)</li> <li>• 24 V Rhino PSU for UX301 Petrol (VPN CPS12490-4A-R)</li> </ul> See <a href="#">Specifications</a> for detailed power supply information.	<i>Utilisation d'une alimentation mal classé peut endommager l'appareil ou provoquer des dysfonctionnements. La puissance pour UX301 est 9 V DC à 43 V DC.</i>  <i>Verifone recommande les UAR suivantes:</i> <ul style="list-style-type: none"> <li>• 12 V, 3.3 A L5 EEF PSU for UX301 (VPN PWR159-001-01-A)</li> <li>• 12 V, 3.3 A L6 EEF PSU for UX301 (VPN PWR159-002-01-A)</li> <li>• 24 V Rhino PSU pour UX301 Essence (VPN CPS12490-4A -R)</li> </ul> <i>Voir les caractéristiques pour des informations détaillées d'alimentation.</i>
Warning	Setup	page 23	You will lose transaction data files not yet stored in memory if there is a disruption in power supply during a transaction.	<i>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.</i>
Caution	Setup	page 23	When using a smart card, leave the card in the reader until the transaction is complete.  Premature card removal can void the transaction.	<i>Lorsque vous utilisez une carte à puce, laissez la carte dans le lecteur jusqu'à ce que la transaction est terminée.</i>  <i>Retrait prématuré de la carte peut annuler la transaction.</i>
Caution	Troubleshooting Guidelines	page 33	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 <a href="#">Specifications</a> for detailed power supply specifications). If not, obtain the appropriately rated power supply before continuing with troubleshooting.	<i>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.</i>







Verifone, Inc.  
Tel: 1-800-Verifone  
[www.verifone.com](http://www.verifone.com)

# UX301

## *Installation Guide*

