

UX401

Installation Guide



UX401 Installation Guide
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Verifone Part Number DOC159-036-EN-A, Revision A



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This guide is the primary source of information for setting up and installing the UX401.

Audience

This guide describes the CTLS 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 reader.

[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 CTLS device.

[Chapter 4, Maintenance and Cleaning](#). Explains the maintenance of the CTLS 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.

[Appendix A, UX401 Caution and Warning Messages](#). Shows the UL/cUL Listing-compliant translations of all Warning and Caution messages in this installation guide.

Related Documentation

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




<i>UX401 Certifications and Regulations Sheet</i>	VPN DOC159-034-EN
<i>UX401 Quick Installation Guide</i>	VPN DOC159-035-EN
<i>UX301 Certifications and Regulations Sheet</i>	VPN DOC159-024-EN
<i>UX301 Quick Installation Guide</i>	VPN DOC159-025-EN
<i>UX301 Installation Guide</i>	VPN DOC159-026-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.	Avoid placing metallic objects at the front of the card reader
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
CTLS	Contactless
EMV	Europay, MasterCard and Visa
IC	Integrated Circuit
LED	Light-Emitting Diode
MRA	Merchandise Return Authorization
NFC	Near Field Communication
RF	Radio Frequency
RJ-45	Registered Jack 45 modular connector
Single CI	Single Contactless Interface
SMA	SubMiniature version A connector.



Device Overview

The UX401 device is a contactless payment device that works with the UX301 host device. The reader supports transactions in a variety of environments, specifically outdoor and unattended markets.

Features and Benefits

The UX401 is Verifone's contactless acceptance peripheral device, designed to connect with the UX301 unit. It creates an economical solution for merchants who are looking to expand their payment acceptance options. The contactless card reader allows a customer to quickly pay for items using their contactless card and tapping it near, or on the device, thus completing their transaction with speed and ease, without further input.

Exceptional Ease of Use

The following features of the device simplifies transactions in various environments:

- Integrated proximity sensors for system wake-up from low power mode with card presence.
- CTLS logo placement on device for optimized user experience.
- Bright LEDs to display card transaction progress.



NOTE The implementation of the LED color configuration varies by (or may not be present in some) regional locations.

- Buzzer for audio confirmation of contactless transactions.
- Compact, sleek, and stylish shape.
- Quick and easy to use.
- Rugged and reliable design.
- Conducive design supports payment transactions in a variety of payment situations, such as transportation, vending, and kiosk environments.

Compliance

The following EMVCo features of the device ensure secure contactless transactions:

- EMV CTLS Level 1 and Level 2 Type Approval

Contactless Capabilities

The device includes the following contactless capabilities:

- Verifone's advanced contactless architecture future-proofs your investment with Single Contactless Interface (SingleCI), and side-by-side application architecture systems.
- Supports contactless cards as well as NFC phones, supporting the following protocols:
 - ISO 14443 A&B
 - MiFare (MiFare + / DESfire)
 - ISO 18092 Active Communications (NFC - peer-to-peer mode)
 - FeliCa
 - PayPass
 - payWave.

Setup

This chapter describes the setup procedure for the UX401 contactless reader, in the following sections:

- Selecting Reader Location
- Unpacking the Shipping Carton
- Examining the CTLS Reader Features
- Connecting Unit to a Controlling Device
- Contactless Support
- Mounting the Reader
- Using the Reader

Selecting Reader Location

Use the following guidelines when selecting a location for your reader:

- Select a location convenient for the customer.
- Select a location near the controlling device for the contactless unit.

WARNING



For safety, do not string cables or cords across a walkway.

CAUTION



Avoid placing metallic objects at the front of the card reader.

Environmental Factors

The front panel of the device is dustproof and fade-proof. The UX401 is also water-resistant, in accordance with its IP65 ratings.

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 items from the shipping carton. The standard package contains:

- The UX401 contactless reader
- One SMA (RF) coaxial cable
- One RJ45 communication cable for connecting with the UX301 card reader.

Refer to [Accessories and Documentation](#) for more information about related accessories.

2 Remove any protective wrap before mounting the unit.



Remove any protective plastic over the front display before use, or the unit may not work properly.

3 Save the shipping carton and packing material for future repacking or moving of the device.



Do not use a unit that has been damaged.

If a label or component appears damaged, please notify the shipping company and your Verifone service provider immediately.

Examining the CTLS Reader Features

Before you continue the installation process, notice the features of the reader (see [Figure 1](#) and [Figure 2](#)).

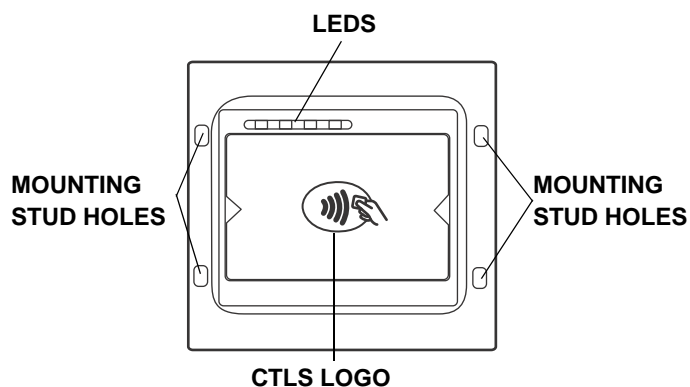


Figure 1 UX401 Front View

Front Functions

The front of the contactless device shows the following:

- Customer-view **indicator LEDs**
- The **CTLS logo**

- Mounting stud holes

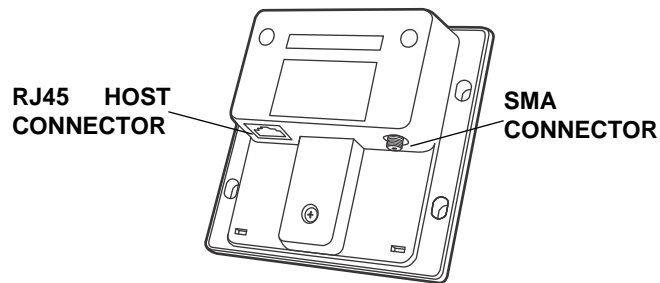


Figure 2 UX401 Rear View

Back Functions The rear of the contactless device shows the following connectors:

- **RJ-45** host communication connector
- **SMA** (RF) antenna connector

Connecting Unit to a Controlling Device

Use the following cables to connect the UX401 to the UX301 controlling device:

- 8-pin RJ45 to RJ45 (VPN CBL159-313-02-A)
- SMA cable, 0.8 m (VPN CBL159-302-03-A).



NOTE

For EMVCo L1 compliance, please use the provided cables.

Both connections are necessary for using the UX401 contactless unit.

- To connect to the UX301**
- 1 Connect the RJ-45 plug to the rear of the UX401.

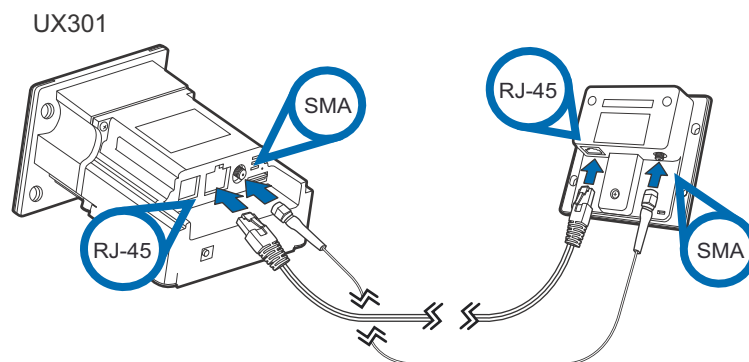


Figure 3 Connecting the UX401 to a Controlling Device

- 2 Connect the 8-pin connector to the UX401 and the other to the UX301 port labeled "Ux401".

- Screw in the SMA connector to the ports of the UX401 and UX301.

NOTE



To disconnect cables, use the same steps described above in reverse. If exchanging cables, use a Verifone-approved cable. See [Accessories and Documentation](#) for cable ordering information.

Contactless Support

This device supports the global contactless program specifications from American Express, MasterCard, Visa, Discover, ISIS SmartTap, and Google Wallet with virtually no changes to existing payment hardware or software.

Mounting the Reader

The UX401 is designed to be flush-mounted to the mounting surface, without further need for any external mounting devices.

CAUTION



Ensure that your mounting frame has a thickness of 2 mm.

NOTE



Your mounting surface may have different installation instructions. Refer to your mounting device's user guide for further instructions.

- To mount the UX401**
- Peel off the plastic liner from the front of the unit.

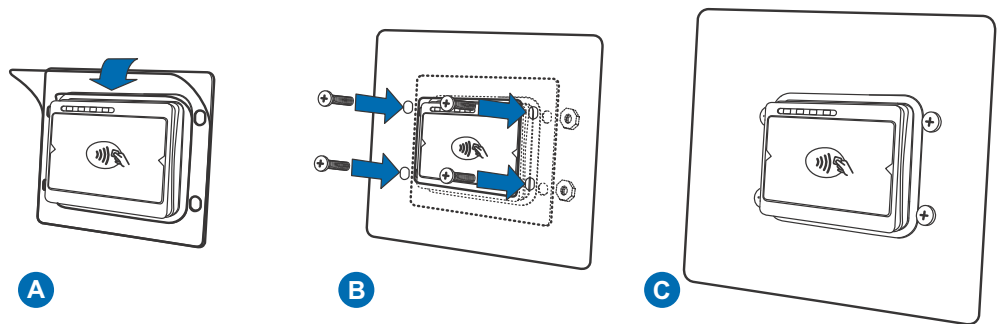


Figure 4 **Mounting the UX401**

- Align the unit's stud holes with the stud holes of your mounting surface.
- Flush-mount the reader and secure the unit with M5 nuts.

CAUTION



Avoid placing metallic objects at the front of the card reader.

NOTE




Use M5 mounting studs with a minimum length of 12 mm.
Tighten the nuts using a recommended tightening torque of 7.0 kgfcm.

Using the Reader

The contactless reader is only active when signaled by an application for the start of a contactless card transaction.

When active, the UX401's contactless logo lights up.

Conducting a Contactless Transaction

To conduct a contactless transaction, hold the card (within 4 cm) or gently tap against the surface of the contactless antenna, marked by the logo .

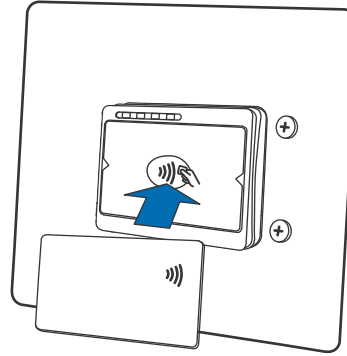


Figure 5 Conducting a Contactless Transaction

The contactless unit uses various audible and visual confirmations to confirm transactions.



The actual audible and visual confirmations may vary depending on regional and customer requirements.

Specifications

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

- Power Consumption**
- Power consumption mode: 450 mW, maximum
 - Card read mode
 - Idle mode
 - Sleep mode: 0.3 W

- Temperature**
- Operating temperature: -20 °C – 70 °C (-4 °F – 158 °F)
 - Storage temperature: -25 °C – 70 °C (-13 °F – 158 °F)
 - 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**
- Length: 96 mm (3.78 in)
 - Width: 99 mm (3.9 in)
 - Depth: 46 mm (1.81 in)

- Weight**
- Unit weight: 142 g (5 oz)

- CTLS Card Reader**
- 4 LEDs for CTLS indications

- Peripheral Ports**
- RJ45 host communication port
 - SMA (RF) antenna

- Communication**
- I²C.



Maintenance and Cleaning

Your contactless device is a product of superior design and craftsmanship and 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. Use only a soft, clean, dry cloth for cleaning.

These suggestions apply equally to your contactless 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.



CAUTION Never use thinner, trichloroethylene, or ketone-based solvents – they can deteriorate plastic or rubber parts.

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 UX401 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 CTLS reader to Verifone, you must obtain a Merchandise Return Authorization (MRA) number. The following procedure describes how to return one or more CTLS 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 6](#)) on the bottom of each unit to be returned:
 - Product ID, including the model and part number. For example, “M159-401-xx-WWB” and “PTID xxxxxxxx.”
 - Serial number (S/N xxx-xxx-xxx).
- 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 to 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.



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 bottom of the unit, see [Figure 6](#)).
 - 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 bottom of the unit).

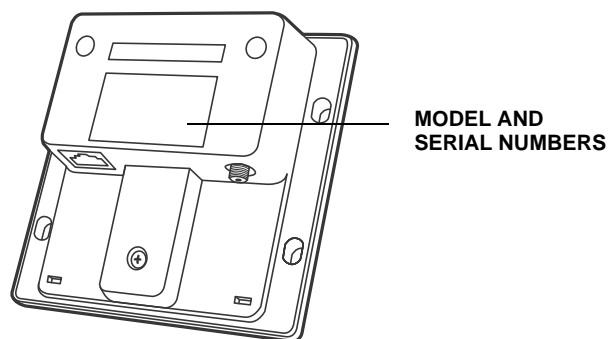


Figure 6 Information Labels on Unit Bottom

Accessories and Documentation

Verifone produces accessories and documentation for the contactless 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

Cables

The following cables can be used with the CTLS unit. Contact your local Verifone distributor to determine which cable fits your needs:

CBL159-313-02-A	RJ-45 to RJ-45 8-pin connector. UX401 to UX301 host communication cable.
CBL159-302-03-A	SMA connector (0.8 m). RF coaxial cable connector from UX401 to UX301.

NOTE



For EMVCo L1 compliance, please use the provided cables.

Various others, depending on what they connect to. Contact your local Verifone representative or service provider to identify the best cable for your needs.

Cleaning Kit

02746	Verifone Cleaning Kit
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Documentation

VPN DOC159-034-EN	<i>UX401 Certifications and Regulations Sheet</i>
VPN DOC159-035-EN	<i>UX401 Quick Installation Guide</i>
VPN DOC159-024-EN	<i>UX301 Certifications and Regulations Sheet</i>
VPN DOC159-025-EN	<i>UX301 Quick Installation Guide</i>
VPN DOC159-026-EN	<i>UX301 Installation Guide</i>



Troubleshooting Guidelines

This chapter lists possible malfunctions that may occur while operating a UX401 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.

Transactions Fail to Process

If a contactless transaction fails to process:

- Perform a test transaction using one or more different contactless cards to ensure the problem is not a defective card.
- Ensure that you are conducting the contactless transaction properly (see [Using the Reader](#)).
- Ensure that all cables and external power connections are connected properly to the contactless unit and all external devices (see [Connecting Unit to a Controlling Device](#)).
- If the problem persists, contact your local Verifone representative.



Caution and Warning Messages

UX401 Caution and Warning Messages Products with UL/cUL Listed should include French translations of Caution and Warning notices. The following table shows all notices found in the document, their location and the equivalent French translations.

Table 3 Caution and Warning Messages

Notice	Chapter	Page	English Text	French Text
Warning	Setup	page 9	For safety, do not string cables or cords across a walkway.	<i>Par sécurité, ne pas les câbles à cordes ou des cordons à travers une passerelle.</i>
Caution	Setup	page 9	Avoid placing metallic objects at the front of the card reader.	<i>Évitez de placer des objets métalliques à l'avant du lecteur de carte.</i>
Caution	Setup	page 10	Remove any protective plastic over the front display before use, or the unit may not work properly.	<i>Retirez tout le plastique de protection sur l'écran frontal avant utilisation, ou l'appareil peut ne pas fonctionner correctement.</i>
Caution	Setup	page 10	Do not use a unit that has been damaged. If a label or component appears damaged, please notify the shipping company and your Verifone service provider immediately.	<i>Ne pas utiliser un appareil qui a été endommagé. Si une étiquette ou d'un composant semble endommagé, se il vous plaît aviser la compagnie de navigation et votre fournisseur de services Verifone immédiatement.</i>
Caution	Setup	page 12	Ensure 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 12	Avoid placing metallic objects at the front of the card reader.	<i>Évitez de placer des objets métalliques à l'avant du lecteur de carte.</i>
Caution	Maintenance and Cleaning	page 17	Never use thinner, trichloroethylene, or ketone-based solvents – they can deteriorate plastic or rubber parts.	<i>Ne jamais utiliser de diluant, le trichloréthylène ou des solvants à base de cétone - ils peuvent détériorer les pièces en plastique ou en caoutchouc.</i>



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