Verifone®

UX400

Installation Guide

Verifone Part Number DOC159-033-EN-C, Revision C

UX400 Installation Guide

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Verifone, Inc.

1-800-Verifone

www.verifone.com

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CONTENTS

PREFACE 5

Audience 5
Organization 5
Related Documentation 5
Conventions and Acronyms 6
Document Conventions 6
Acronym Definitions 6

CHAPTER 1
Device Overview

Features and Benefits 7
Exceptional Ease of Use 7
Compliance 8
Contactless Capabilities 8

CHAPTER 2
Setup

Selecting Reader Location 9
Environmental Factors 9
Unpacking the Shipping Carton 10
Examining the CTLS Reader Features 10
Front Functions 10
Back Functions 11
Connecting Unit to a Controlling Device 11
Contactless Support 12
Mounting the Reader 12
Using the Reader 13
Conducting a Contactless Transaction 13

CHAPTER 3
Specifications

Power Consumption 15
Temperature 15
External Dimensions 15
Weight 15
CTLS Card Reader 15
Peripheral Ports 15
Communication 15

CHAPTER 4
Maintenance and Cleaning

Additional Safety Information 17
Potentially Explosive Environments 17

CHAPTER 5
Service and Support

Service Returns 19
Accessories and Documentation 21
Cables 21
Cleaning Kit 21
Documentation 21

CHAPTER 6
Troubleshooting Guidelines

Transactions Fail to Process 23

PREFACE

This guide is the primary source of information for setting up and installing the UX400.

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 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.

Related Documentation

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

UX400 Certifications and Regulations Sheet	VPN DOC159-031-EN
UX400 Quick Installation Guide	VPN DOC159-032-EN
UX300 Certifications and Regulations Sheet	VPN DOC159-021-EN
UX300 Quick Installation Guide	VPN DOC159-022-EN
UX300 Installation Guide	VPN DOC159-023-EN
UX300 Cable Retainer Quick Installation Guide	VPN DOC159-052-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.
SPI	Serial Peripheral Interface

CHAPTER 1

Device Overview

This chapter provides a brief description of Verifone's UX400.

The device is a contactless payment device that works with the UX300 host device. The reader supports transactions in a variety of environments, specifically outdoor and unattended markets.

Features and Benefits

The UX400 is Verifone's contactless acceptance peripheral device, designed to connect to the UX300 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

CHAPTER 2

Setup

This chapter describes the setup procedure for the UX400 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 and around the card reader.

Environmental Factors

The front panel of the device is dustproof and fade-proof. The UX400 is also water-resistant, according to 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 UX400 contactless reader.
- One SMA (RF) coaxial cable.
- One RJ-45 communication cable for connecting with the UX300 card reader.

Refer to Accessories and Documentation for more information about related accessories.

2 Remove any protective wrap before mounting the unit.

CAUTION

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.

WARNING

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).

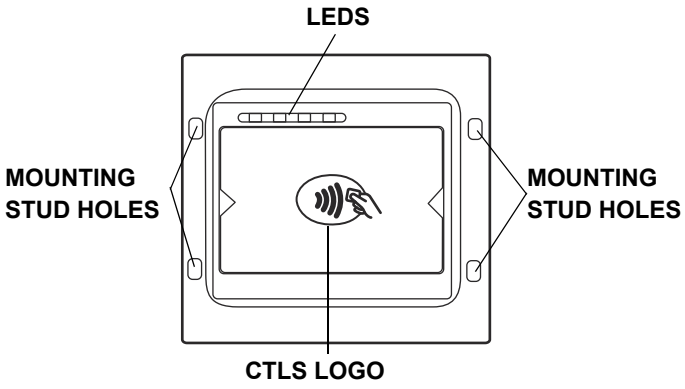

Figure 1 UX400 Front View

Front Functions

The front of the contactless device shows the following:

- Customer-view **indicator LED**s
- The **CTLS logo**

- **Mounting stud holes**

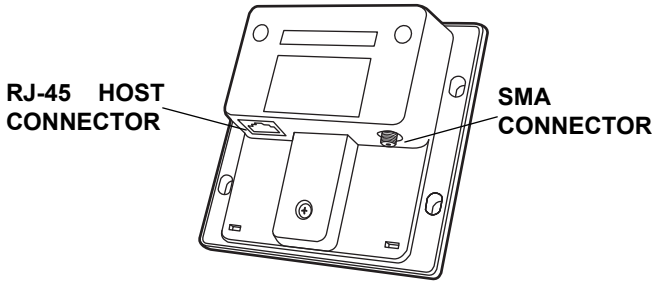

Figure 2 **UX400 Rear View**

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 UX400 to the UX300 controlling device:

- RJ-45 8-pin cable (VPN CBL159-301-01-A)
- SMA cable (VPN CBL159-302-02-A)

Both connections are necessary for using the UX400 contactless unit.

To connect to the UX300

1 Connect the RJ-45 plug to the rear of the UX400.

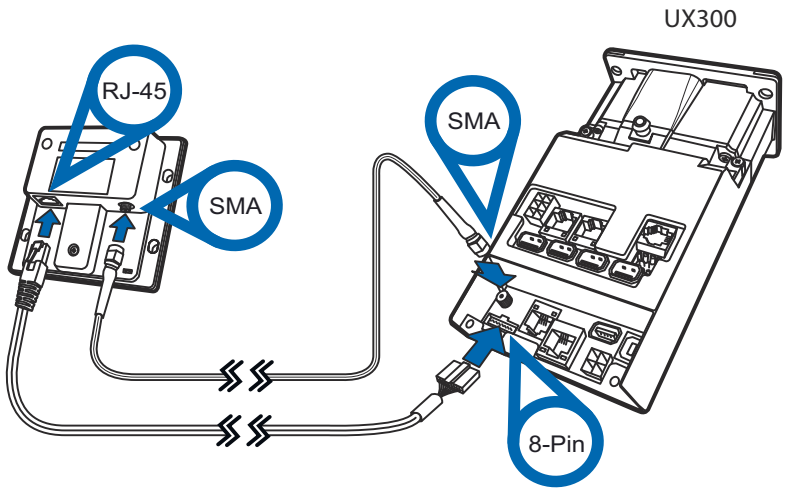

Figure 3 **Connecting the UX400 to a Controlling Device**

2 Connect the 8-pin connector to the UX400.

3 Screw in the SMA connector to the ports of the UX400 and UX300.

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 UX400 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 UX400

1 Peel off the plastic liner from the front of the unit.

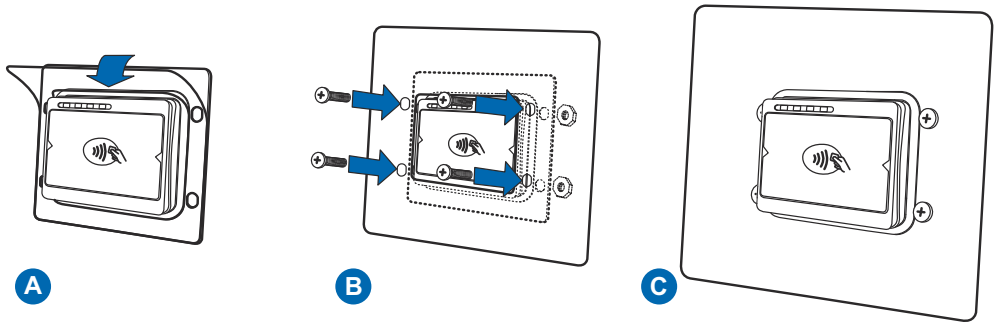

Figure 4 Mounting the UX400

2 Align the unit's stud holes with the stud holes of your mounting surface.

3 Flush-mount the reader and secure the unit with M5 nuts.

CAUTION

Avoid placing metallic objects at the front and around 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.

NOTE

Performance of RF devices are generally sensitive to metallic material. Metallic panels may affect the card or mobile phone's read performance as it is dependent on the type of fitting used (eg. type of metallic material, panel thickness, panel opening). To achieve optimal result in such installation, please contact Verifone for advice.

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 UX400'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 .

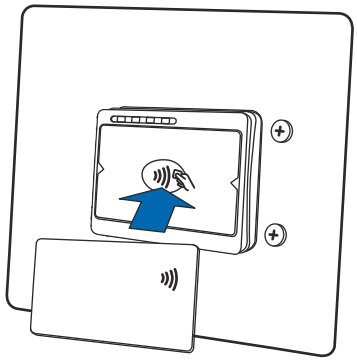

Figure 5 Conducting a Contactless Transaction

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

NOTE

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

CHAPTER 3

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

- Four LEDs for CTLS indications

Peripheral Ports

- RJ-45 host communication port
- SMA (RF) antenna

Communication

- SPI
- I^2C

CHAPTER 4

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, and 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.

CHAPTER 5

Service and Support

For UX400 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, “M159-400-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 - 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 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).

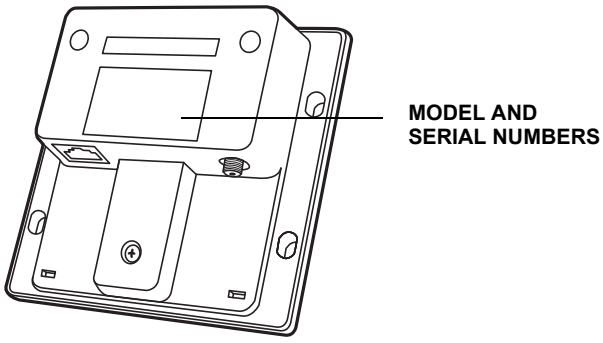

Figure 6 Information Labels on Unit Bottom

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:

CBL159-301-01-A	RJ-45 8-pin connector. UX400 to UX300 host communication cable.
CBL159-302-01-A	SMA connector. RF coaxial cable connector from UX400 to UX300.

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

Documentation

VPN DOC159-031-EN	UX400 Certifications and Regulations Sheet
VPN DOC159-032-EN	UX400 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 DOC159-052-EN	UX300 Cable Retainer Quick Installation Guide

CHAPTER 6

Troubleshooting Guidelines

This chapter lists possible malfunctions that may occur while operating a UX400 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.

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