



QX100

Contactless Reader

Installation Manual



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Forward

Thank you for purchasing the QX100 Contactless Reader. This manual includes basic installation instructions in addition to safety, care, and maintenance instructions.

It is recommended that you store this manual in a safe place for future reference.

Note

All graphic images in this manual are for illustrative purposes only. Different models of the contactless reader may vary in appearance according to country of use or particular customer requirements. The basic installation procedure is the same for most units. The operation of the reader is application-dependent.

Document Conventions

Warning	Failure to follow specific procedures and practices may result in personal injury.
Caution	Failure to follow specific procedures and practices may result in damage to the reader or other equipment.
Note	Helpful hints and other important information about the use of the reader.

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1. Product Regulatory Information

FCC Compliance Statement



Manufacturer: VeriFone, Inc.

Model: QX100

FCC Part 15 Requirements

This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is installed and operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult your representative or an experienced technician for help.

Connection of peripherals to this unit requires the use of grounded, shielded cables to ensure compliance with the Class B limits.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.



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Note

Changes or modifications to this equipment, not expressly approved by VeriFone, could void the user's authority to operate this equipment.

In Canada

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatuses set forth in the Radio Interference Regulations of the Canadian Department of Communications.

Cet appareil digital n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils de la Classe B, déterminée par la Réglementation d'Interférence Radio du Ministère Canadien des Communications.

EU Directives Compliance Statement



This product complies with the requirements of applicable EU Council Directives.

Note

Disposal of this product or any of its components must be performed in full compliance with all EU and/or local directives and regulations. For more information, contact your local VeriFone representatives or service provider.



2. General Safety Instructions

Warning

Failure to observe these instructions may result in severe personal injury or damage to the QX100 or other equipment.

Note

These safety instructions are based in general on those provided by Underwriters Laboratories (UL) Inc. U.S.A.

When using the QX100 or any associated device, the following basic safety precautions should always be observed to reduce the risk of fire, electric shock or personal injury.

- Read and make sure you understand all instructions.
- Follow all warnings and instructions marked on the device and in this manual.
- Before cleaning, disconnect the device from the power supply and any device to which the contactless reader is connected.
- Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning and/or a soft brush.
- Never spill any liquid on the device.
- Place the device in a stable position on a solid surface or make sure that the reader is mounted properly. Serious damage may result if the device falls.
- Do not place objects on the interconnection cable. Install the device where no one can step on the cable.
- To reduce the risk of electric shock, do not disassemble any of the equipment or accessories referred to in this manual. If required, take the equipment to a qualified service representative. Incorrect reassembly or opening or removing covers may expose you to dangerous voltages or other risks.
- Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.



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3. Specifications

<i>Specification</i>	<i>Details</i>
Power	<ul style="list-style-type: none">• Reader when connecting to another device through an RS-232 connector to an 8-pin socket (COM): 7-20 V at minimum 250 mA• External power adapter (safety approved): Input: 100-240 VAC at 50-60 Hz (0.15 A) Output: 9 VDC at 0.5 A
Dimensions	<ul style="list-style-type: none">• Height: 167.8 mm (6.6 in)• Width: 105.3 mm (4.1 in)• Depth: 125.9 mm (5 in)
Weight	<ul style="list-style-type: none">• 270 g (9.52 oz)
Memory	<ul style="list-style-type: none">• 2 MB Flash
Environment Requirements	<ul style="list-style-type: none">• Operational temperature: 0°C to +50°C (+32°F to +122°F)• Storage temperature: -20°C to +60°C (-4°F to +140°F)• Relative humidity: 5 to 95% non-condensing

Note

Specifications are subject to change without notice following technological improvement of the device and its components.



4. Initial Setup

Caution

- Carefully inspect the contents of the box for any damaged or missing components. Do not use a device that shows any signs of damage.
- VeriFone has taken all measures to provide you with a complete device. If shipping damage is evident, file a claim with the shipping company. Notify your VeriFone representative or service provider concerning this damage, and if any components are missing.

Contents Checklist

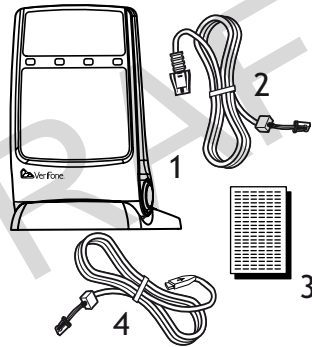


Figure 4-1 Box Contents

1	Contactless reader	2	RS-232 connector cable (model dependent)
3	Documentation pack	4	USB connector cable (model dependent)

Note

The included cable comes attached to the reader.



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Note

The contents of the documentation pack may vary depending on specific customer documentation requirements.

Selecting a Point-of-Sale Location

Warning

Do not locate the reader where it is exposed to the following:

- Devices that radiate excessive electrical noise or voltage fluctuations, such as air conditioners, fans, electric motors, neon signs, or high-frequency security devices.
 - Water containers, such as a sink, a laundry tub or a pool.
 - Areas of excessive moisture, heat, oil, dust or debris.
 - Direct sunlight or objects that radiate heat.
- Place the QX100 on a flat table or countertop close to the POS terminal or ECR to which it is to be connected, in an easily accessible place for the cardholder.
 - The contactless reader may also be mounted in a fixed position. See "Mounting the Contactless Reader" for mounting information.
 - Do not cover the QX100.

Caution

Overextending the interconnection cable may cause damage to the contactless reader and to the device to which it is connected.

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5. Optional Accessories

The QX100 package may include additional optional accessories packed in its box or boxed separately.

<i>Accessory</i>	<i>Details</i>
RS-232 socket–9-pin D-type connector with power connector	<ul style="list-style-type: none">Connects to the RS-232 connector cable, enabling the reader to be connected to a PC-POS as well as an external power.

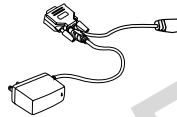


Figure 5-1 RS-232 Socket–9-Pin D-Type Connector with Power Connector

Caution

Connection of any accessory that is not explicitly approved by VeriFone may cause damage and thus void the Limited Warranty of this equipment.

Note

Consult your authorized VeriFone representative or service provider for information regarding availability of current or future optional accessories.



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6. General Features

<i>Feature</i>	<i>Description</i>
LED Indicators	<ul style="list-style-type: none">Colors are model and application dependent

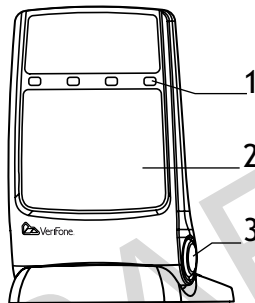


Figure 6-1 Front View

1 LED indicators	2 Landing zone
3 Positioning button	

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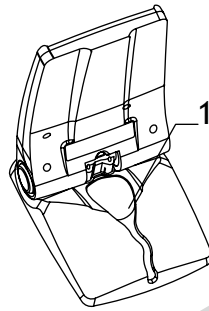


Figure 6-2 Back View

1 Cable channel



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7. Connecting to a POS Terminal or ECR

The QX100 includes an integrated power/communication cable, which has either an RS-232 plug or a USB plug at one end for connection to a POS terminal or ECR (or PC-POS).

There is also an optional RS-232-9-pin D type connection/power cable, that allows you to plug a contactless reader with the RS-232 cable into a PC-POS as well as an external power supply. This can be used with a host device that is not capable of supplying power through the connector cable.

Caution

- Turn off the POS terminal or ECR whenever you connect or disconnect the contactless reader.
- Do not disconnect the contactless reader when the POS terminal or ECR is processing data.

Note

Refer to the documentation of the device to which the reader is to be connected for specific connection instructions.

To connect to a POS terminal or ECR:

1. Disconnect the POS terminal or ECR from its electrical power supply.
2. Insert the contactless reader RS-232 or USB plug into the RJ-45 (COM) or USB connector on the POS terminal or ECR.
3. Reconnect the POS terminal, ECR, or PC-POS to its electrical power supply.

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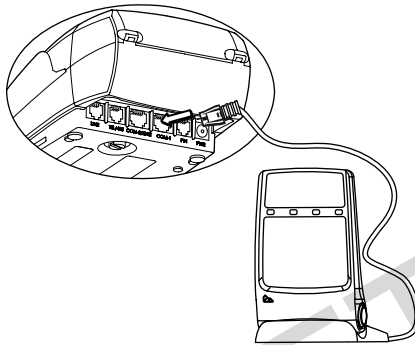


Figure 7-1 Typical connection to a POS Terminal When Serial Port has a Power Pin

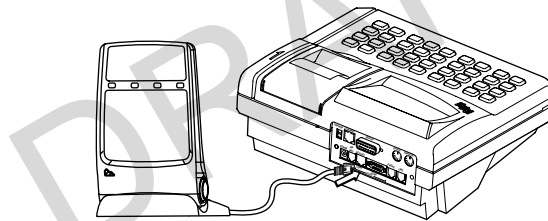


Figure 7-2 Typical connection to an ECR When Serial Port has a Power Pin

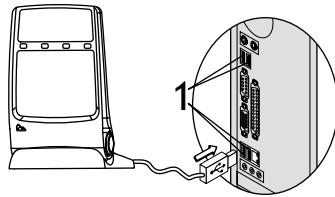
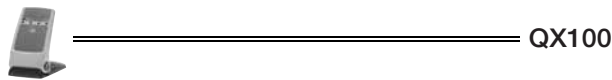


Figure 7-3 USB Connection to a PC-POS

1 USB sockets

To connect the QX100 to an ECR or PC-POS and to an external power supply:

1. Disconnect the ECR or PC-POS from its electrical power supply.
2. Insert the RS-232 cable plug from the contactless reader (VeriFone supplied) into the RS-232 socket on the D-type-RS-232 connector cable.
3. Insert the 9-pin D-type serial plug into the connector on the ECR or PC-POS and tighten the plug's fastening screws to secure it in place.
4. Insert the AC/DC power adapter barrel plug into the DC power connector on the back of the D-type plug.
5. Connect the AC/DC power adapter to an AC electrical outlet.
6. Reconnect the PC-POS terminal or ECR to its electrical power supply.

Warning

Do not plug the AC/DC power adapter into an outdoor electrical power outlet.

Caution

It is recommended that you install a power surge arrester at the power outlet to prevent possible damage caused by electrical spikes or local lightning strikes.

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Caution

Use a safety-approved Limited Power Supply (LPS) adapter.

Note

The external power connection is only needed when there is no power supply via the serial port.

Note

It is recommended to use the VeriFone-supplied AC/DC power adapter, which provides electrical power to the QX100 as follows:

- Input (AC): 100-240 V 50/60 Hz (0.15 A maximum)
- Output (DC): 9 VDC at 0.5 A (maximum)



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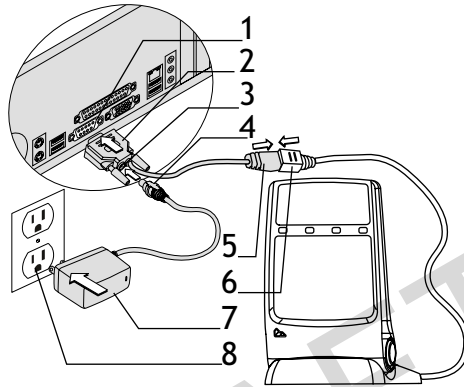


Figure 7-4 Typical D-Type Connection to an ECR or PC-POS with External Power Source

1	D-type serial connector on an ECR or PC-POS	2	9-Pin D-type serial plug
3	DC power connector	4	AC/DC power adapter barrel plug
5	RS-232 connector	6	RS-232 plug
7	AC/DC power adapter	8	AC electrical outlet

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8. Mounting the Contactless Reader

The QX100 is able to lie flat, at a 180° angle, with two key holes on the bottom panel for mounting the reader on a wall.

Note

When mounting the contactless reader, it must be close enough to the POS terminal or ECR, for the connecting cables, and in an easily accessible location for the customer.

Note

The recommended screws for mounting the QX100 are flat head screws with a thread diameter of approximately 4 mm (0.157 in) and head diameter of approximately 8 mm (0.315 in).

Note

The manual includes a drilling pattern in the back, for your convenience.

To mount the QX100:

1. Drill two holes in the wall for screws, with a 5.5 cm (2.165 in) between them, according to the drilling pattern.
2. Insert wall inserts with screws.
3. Adjust the mounting screw heads until they are firmly in place.
4. Take the reader and face the bottom of the base towards the wall, with the narrow part of the key hole facing upwards.
5. Push the base, so that the mounting holes at the bottom of the base are around the screw heads.



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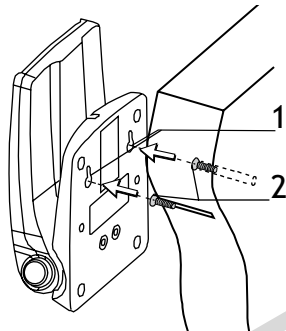


Figure 8-1 Mounting the Contactless Reader

1 Mounting key holes 2 Mounting screws

- 6.** Slide the base down, so that the screws are supporting the base.



9. General Care and Maintenance

The QX100 has been designed to give you long and trouble-free service with minimal operator care.

To maintain proper functioning of the reader:

- Keep the reader in the cleanest possible working and storage environment.
- Protect the reader from direct sunlight, extreme heat, damp and dust.
- Do not open the AC/DC Power Adapter.
- Do not shake or drop the reader.
- Do not attempt to open the reader.

Technical Assistance

Contact your VeriFone representative or service provider for technical assistance and ordering information regarding specific components.

Cleaning the Contactless Reader

Caution

- Never use abrasive compounds or solvents, thinners, benzene, or synthetic cleansers as they may distort or damage the plastic and critical parts.

To clean the contactless reader:

- Gently wipe off dirt from the reader with a soft, damp, lint-free cloth.
- A very mild dishwashing detergent can be used to dampen the cloth.
- Alcohol or alcohol-based cleansers may also be used for stains that are more difficult.
- When necessary, gently wipe the display with a soft cloth or eyeglass lens wiper.



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Shipping the Contactless Reader

In exceptional circumstances, you may be required to ship your reader to a servicing facility.

To ship the QX100:

1. Carefully pack the reader, preferably in the original box.
2. Send the package prepaid and adequately insured.

Note

- Notify your VeriFone representative or service provider before shipping the contactless reader. In some cases, you may be required to attach a letter to the package detailing the problem and including product information such as the serial number and the date of purchase.
- Shipment must be to an authorized dealer or service center only. Contact your VeriFone representative for the correct address.



10. Troubleshooting

The QX100 has been designed for trouble-free operation, though minor problems may occur during installation and use.

This section briefly describes how to troubleshoot some possible common problems that may arise during the normal operation of the contactless reader.

Before requesting service for the reader, read this section to find a possible remedy for the problem. If you are still unable to solve the problem, contact a service representative.

Do not try to solve the problem by opening the reader yourself.

The reader appears to have no power	
1.	Check that the buzzer on the QX100 beeps when you turn on the reader.
2.	When using an RJ-45 molten cable (RS-232): <ul style="list-style-type: none">• Make sure that the device which supplies the QX100 with power is turned on.• Make sure that the RJ-45 connector is fully plugged into the socket.
3.	When using an RS-232-9-pin D type connection/power cable and AC/DC adapter: <ul style="list-style-type: none">• Make sure that the AC adapter is fully plugged into the AC main power outlet.• Make sure that the AC adapter's barrel connector is fully connected with the PWR connector.• Try plugging the AC adapter into another AC power outlet.
4.	If the problem persists, contact a VeriFone certified service representative.



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The LEDs are not lighting up

- | |
|--|
| <ol style="list-style-type: none">1. Check that the buzzer on the QX100 beeps when you turn on the reader.<ul style="list-style-type: none">• If NO, act according to "The reader appears to have no power".• If YES, hold a PICC card up to the landing zone on the reader. If some of the LEDs light up, the ones that do not are burnt out. To change a LED, contact a VeriFone certified representative.2. If the problem persists, contact a VeriFone certified service representative. |
|--|

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Appendix A: Using the Contactless Reader

Note

The card must be within 4 cm (1.57 in) of the landing zone for the QX100 to read the card.

Positioning the Contactless Reader

The contactless reader can be moved to four positions:

- Laying flat
- 30°
- 60°
- 90°

To position your reader:

1. With your thumb and middle finger, press the buttons on both sides of the reader.

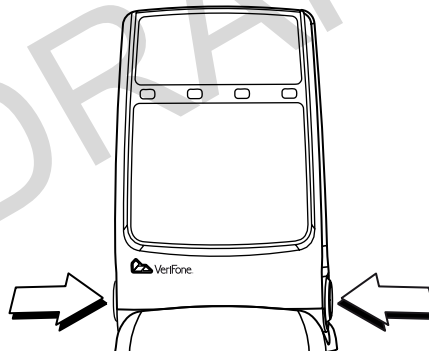


Figure A-1 Pressing the Positioning Buttons

2. While holding down the positioning buttons, with your other hand, hold the top of the reader, pushing or pulling to the desired position.



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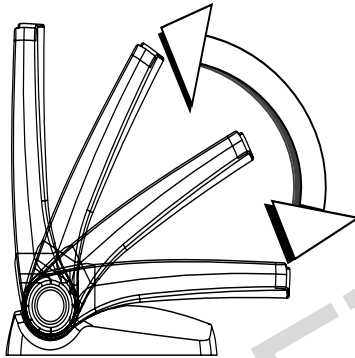


Figure A-2 Positioning the Reader

Startup of the QX100

The QX100 starts up automatically when:

- The reader is plugged into a terminal with a power source, and the terminal is first powered-up.
- The reader is first plugged into an electrical outlet.

To recognize the QX100 is powered-up:

1. The reader's lights being activated, blinking from left to right, sequentially.
2. The lights are then followed by a short audio indication.
3. The LEDs go to their "ready for the next transaction" state.

LED Indicator Status

Note

The LED indicator colors are credit card application dependent. For information on what cards are accepted and which application is being used, contact your local VeriFone service provider.

There are two common color schemes for the LED indicators.

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LED Indication Status One

<i>Indicator</i>	<i>Payment Status</i>
Blue	Ready for next transaction
Yellow	Processing the transaction
Green	Transaction accepted
Red	Transaction failed

LED Indication Status Two

All four LEDs are green:

- When ready for the next transaction, there is a single green indicator light.
- While the transaction is being processed, the LED indicators light up from left to right.

Audio Indication Status

There are audio indications to let the cardholder know the status of the reading of his/her card.

- The first beep is to indicate the reading of the card.
- There are three sequential beeps, as the remainder LEDs light up.



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