

RCLI-DC Mobile Charger Installation Guide

INSTALLATION INSTRUCTIONS



READ THIS MANUAL CAREFULLY! FAILURE TO INSTALL THIS EQUIPMENT PER THESE INSTRUCTIONS WILL VOID THE WARRANTY.



Zebra Technologies Corporation

Mobile Printer Center of Excellence

SPECIAL NOTICES

The following notices emphasize certain information in the guide. Each serves a special purpose and is displayed in the format shown:

Note: Note is used to emphasize any significant information.

Caution: Indicates information that, if not followed, can result in damage to software, hardware, or data.



Caution: This symbol indicates a potentially hazardous situation which, if not avoided, can result in personal injury.



Caution: This warning symbol indicates a potentially hazardous situation which, if not avoided, may be a shock hazard.



Warning: This warning symbol indicates an imminently hazardous situation which, if not avoided will result in death or serious injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

GENERAL WARNINGS AND CAUTIONS



Caution: Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



Caution: Read the installation instructions before you connect the system to its power source.

Note: Zebra technologies Corporation is not liable for personal injury or damage to any equipment caused by the improper installation of this equipment to any power source. Check with the vehicle manufacturer or dealer for installation assistance in order to prevent the voiding of the vehicle warranty or maintenance contract.



Warning: Risk of ignition or explosion. Explosive gas mixture may be vented from the vehicle battery. Work only in a well ventilated area. Avoid creating arcs and sparks at the battery terminal

INSTALLATION

To ensure that the charger has proper cooling, do not place any padding or cushioning material under the unit or next to the back of the unit.

USE OF SHIELDED DATA CABLE

Printing systems comply with international regulations governing radiated emissions when using fully shielded data cables. Data cables must be fully shielded and fitted with metal or metallized connector shells. Shielded data cables and connectors are required to prevent radiation and reception of electrical noise. Use of un-shielded data cables may increase radiated emissions above the regulated limits.

DC POWER CONSIDERATIONS

Many vehicles of the world have specific power requirements. Choose a Mobile Mount Charger model from the three input voltage ranges based on vehicle battery voltage. Insure the power take off point can supply 20 Watts of power for extended periods of time.



Caution: Use caution on high voltage vehicles. All electrical connections should be performed with the vehicle's battery disconnected to prevent equipment damage and personal injury.

RCLI-DC Mobile Charger Installation Guide

INTRODUCTION

NOTE: Zebra Technologies Corporation is not liable for personal injury or damage to any equipment caused by the improper installation of this equipment to any power source.

The Zebra RCLI-DC Mobile Charger system is designed to integrate a Zebra™ QL series Printer into the electrical system of a vehicle. Once installed it will provide intelligent charging capabilities for the printer's battery and allow it to run off the power provided by the vehicle's electrical system.

The RCLI-DC series Mobile Chargers are designed to work in conjunction with the MMQ4 Mobile Mount installation Kit, which enables a QL 420 Mobile Printer to be mounted on a variety of vehicles. The chargers should be installed under the supervision of properly trained and qualified personnel. Follow these installation instructions closely to ensure safe, reliable performance of the QL 420 Printer in a mobile environment.

The printer is powered with its own battery which is charged by a RCLI-DC Series Mobile Charger System. Since the Mobile Charger runs off the vehicle's DC electrical system it is important that the vehicle's electrical system be functioning properly. The vehicle's power source and internal wiring must be capable of supplying up to 20W to the Mobile Charger for extended periods of time. The vehicle's charging circuit must work properly and vehicle-generated electrical "noise" must be minimized and within specifications.

The vehicle charging circuit must neither undercharge nor over-charge the vehicle battery. Defective ignition wiring, damaged insulation, or faulty vehicle electrical components can cause electrical noise and excess electrical noise can be severe enough to defeat the electrical filtering that is built into the printer. When this happens, printers and any data device communicating to them can behave unpredictably.

The RCLI-DC Mobile Charger is supplied with a output cable with a special plug for the printer's charging port, and an input power cable connection to the vehicle's power source. Refer to the installation section of this manual for more information.

All of these systems must be connected in strict accordance with the instructions in this document. Failure to install this equipment per these instructions will void the warranty.

REGULATORY INFORMATION

REGULATORY MARKINGS

Type-approval labels indicate compliance with country regulations. This product carries country-specific labels to indicate compliance.

RADIO FREQUENCY INTERFERENCE REGULATIONS

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential installation. 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. 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 receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician to help.

NOTIFICATION OF CANADIAN REQUIREMENTS

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

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicable aux appareils numériques de classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

PRODUCT SAFETY REGULATORY MARKING

Regulatory labels indicate compliance with safety standards. This product carries one or more of the following labels: UL, CE

INSTALLATION

TOOLS REQUIRED

- Wire Crimping and stripping tool.
- An electrical drill
- 5/32"[4 mm] drill bits (for clearance holes)
- Taps- #6-32 (M3) (optional).
- Common hand tools.

REFERENCES

- QL 420 User's Guide
- AM16629-1 MMQ4 Mobile Mount Installation Guide

CONTENTS OF THE PACKAGE

- The Mobile Charger Assembly including integrated input and output cables.
- A plastic bag containing crimps for the input cable
- This Guide

INTRODUCTION TO INSTALLATION

The RCLI Mobile Charger provides a source of power to run and charge the printer's battery from the vehicle's electrical system.

In all installations, the power cable is wired to the vehicle's battery power indirectly through a power take-off point.



CAUTION: Under no circumstances should the equipment be attached directly to the vehicle's battery without a proper fuse.

Since each situation or equipment type may pose unique requirements, mounting hardware selection and mechanical installation shall be the responsibility of the installer. Zebra recommends using self-locking (ESN) nuts, bolts, and/or lock washers for installing the mount.

NOTE: Hardware used to secure the Mobile Charger to the vehicle is not supplied in the kit. Recommended fasteners are #6-32 (3 mm) hex head or socket head bolts with flat washers, lock washers, nuts and/or locking nuts. You may optionally elect to drill and tap for a #6-32 or M3 screw.

Your tasks are to:

- Route and install the input power cable to the vehicle's power source
- Mechanically install the RCLI-DC Mobile Charger
- Decide where you will mount the printer, then proceed with the following instructions.
- Connect the output cable from the Mobile Charger to the Printer's battery charging connector.

POWER CABLE ROUTING

WHEN INSTALLING A TERMINAL

You most likely will be installing a terminal at the same time. Follow the terminal manufacturer's instructions for installing his unit. The printer and terminal usually are linked together with a data cable which typically is no longer than six (6) feet (1.8 m).

Some installations may require the terminal and printer to communicate via radio frequency (RF) rather than cables.

Plan your installation with these considerations in mind, and locate the printer so that the operator can easily load printing media and operate the printer's controls.

MOBILE CHARGER INSTALLATION

The RCLI-DC Series Mobile Charger is supplied in three different versions for different input power ranges, per Table 1 below.

The Mobile Charger must be located in the operator's compartment and within 12" [30.5 cm] of the printer. Do not locate near operator's feet or where it could hinder operation of the vehicle.



CAUTION: Locate the Charger in the vehicle so that it will avoid contact with the operator in case of an accident.

Refer to Figure 1 for Charger mounting dimensions. Recommended fasteners for the Mobile Charger are #6-32 [M3] bolts, flat washers and lock washers

The Mobile Charger is pre-wired with a standard 12' (3.7 m) input power cable. Splicing onto the input power cable is not recommended due to voltage drops encountered across splices and other discontinuities.

TABLE 1

DESCRIPTION	MOBILE CHARGER P/N	INPUT VOLTAGE
RCLI-DC Mobile Charger 12 VDC	CC16614-1	12 VDC
RCLI-DC Mobile Charger 9-30V	CC16614-2	9 to 30 VDC
RCLI-DC Mobile Charger 30-60V	CC16614-3	30 to 60 VDC

CHARGER USE

Once the charger is installed there is no user input needed for proper operation. The Mobile Charger has three indicators to allow the user to monitor the charging process and provide diagnostic information in case of a malfunction.

The RCLI-DC Series Mobile Charger contains an internal self re-setting PTC (Positive Temperature Coefficient) fuse-like device. Internal power to the charger will be removed for current, voltage or temperature faults. The device will reset once the fault and power are cleared. The time it takes a device to reset depends on a variety of factors: type of device; mounting; configuration; ambient temperature; and duration of the trip event. In general, most devices will reset within a couple of minutes, although many will reset within seconds. There is no internal user operation required.

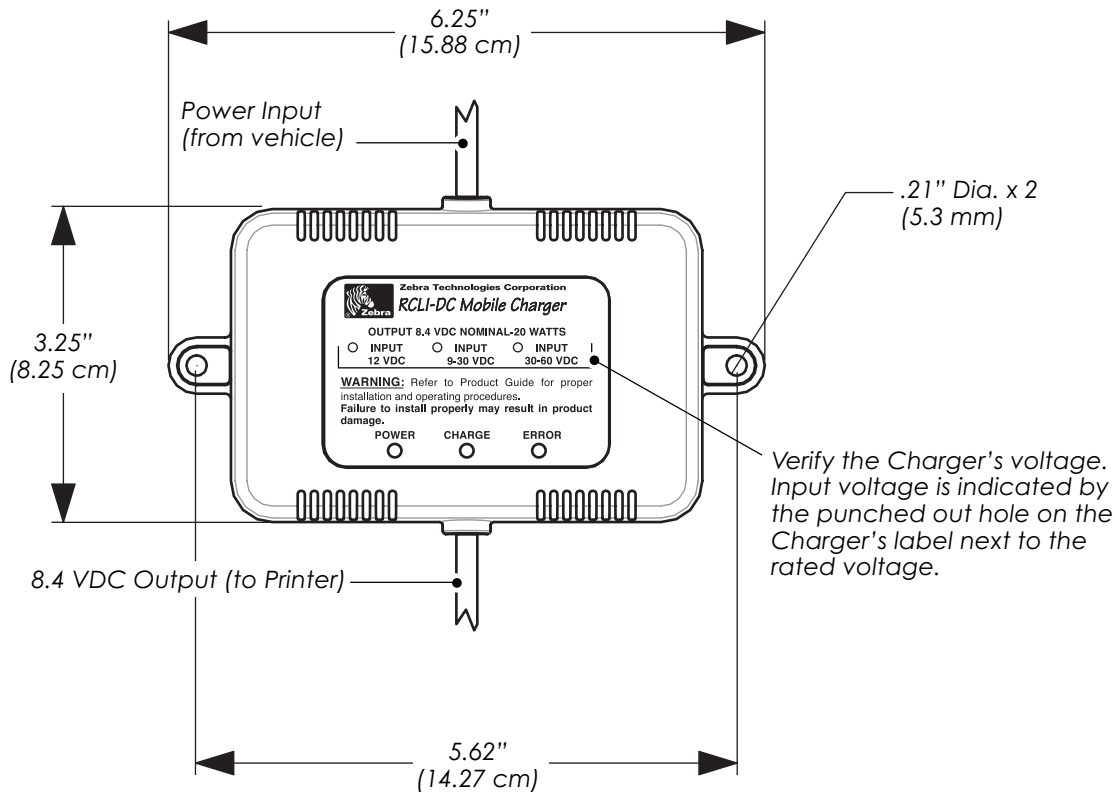


Figure 1
Mobile Charger Installation Dimensions



CAUTION: Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.

CHARGER INDICATORS

The three LED indicators on the Charger are interpreted Per Table 2:

TABLE 2

CONDITION	POWER	CHARGE	ERROR	DETAILS
Normal	Green	Amber	Off	Battery is charging
Normal	Green	Green	Off	Battery is charged
Error	Green	Green	Red	Battery is damaged: replace
Error	Off	Off	Off	No power to charger: allow PTC to reset and/or check power connections

INSTALLATION GUIDELINES (ALL CHARGER VERSIONS)

Follow the general guidelines below and other instructions closely when installing the Input Power.

CAUTION: Insure that the mobile charger and cable you are using for this installation are clearly labeled for use with the vehicle's voltage. Refer to Table 1 for the correct mobile charger/ input voltage match. The charger's voltage is indicated by the punched out hole on the charger's label next to the rated voltage.

Failure to match the charger capacity to the vehicle's voltage could result in improper printer operation, or severe damage to either the printer and/ or the mobile charger.

NOTE: It is the installer's responsibility to insure correct wiring and installation.

NOTE: Zebra is not liable for damage to any equipment caused by improper installation or wiring of the mobile charger, or damage resulting from use of the wrong charger for the intended application.

NOTE: Do not lengthen the converter's power cable or remove the cable's ferrite if equipped. Extending the cable or removing the ferrite will affect the converter's reliability and radio frequency interference (RFI). Do not attach any ground wires to the converter's housing.

Use care when attaching the converter's power cable to the power source. The red wire attaches to the positive (+) terminal and the black wire to the negative (-) terminal. If wired backwards, the converter will be rendered inoperable and will need to be sent back for service.



CAUTION: High voltages may be present. Always disconnect the vehicle's primary battery before installing the mobile mount.

GENERAL GUIDELINES

- Completely install the input power (battery) cable before connecting the unit(s).
- Route the Input Power from the general area where the unit(s) will be mounted.
- Use a snap-in bushing if the Input Power passes through the fire wall or other sheet-metal.
- Make sure that cable routing does not interfere with other equipment or vehicle controls.
- Make sure that cable routing does not invite damage to the cable.
- Secure the Input Power at least every 12 inches (30 cm) throughout the cable run.

INPUT POWER CABLE COMPLETION

You must cut the cable to length and strip the individual wire ends of the cable. Finally you must complete the connections to the vehicle power source.

The installer must find the nearest practical connection point to the main battery's voltage. It may be possible to use internal wiring supplied in the vehicle, but only if the wire gauge is equal to or greater than 18 AWG.



CAUTION: There must be a fuse between the vehicle's power source and the input power cable connection!

Consult the vehicle manufacturer or a dealer to determine the best power connection location.

CUT AND STRIP THE INPUT POWER CABLE:

1. Cut the RED wire as near the power source as practical
2. Cut the BLACK wire to length to the nearest practical chassis ground.

PREPARE THE CABLE ENDS:

NOTE: Actual cable termination used must be compatible with the power source. The following is a guideline

1. Strip 1/4" (6 mm) of insulation from the BLACK wire.
2. Securely crimp the supplied 3/8" terminal ring onto the BLACK wire.
3. Strip 1/4" (6 mm) of insulation from the RED wire.
4. Securely crimp the supplied 3/8" terminal ring onto the RED wire.

CONNECT CABLE TO THE POWER SOURCE

1. Ensure that cable terminals are well connected to the cable.
2. Connect black cable ground (-) terminal to vehicle ground location.
3. Connect red cable power (+) terminal to vehicle power source.

SECURE THE POWER CABLE

Secure the Input Power every 12 inches (30 cm) with adjustable cable clamps or nylon wire wraps. Make sure that the cable routing does not interfere with other equipment or vehicle controls. Insure that the cable routing protects the cable from damage during vehicle use.

FINISH THE INSTALLATION

CHARGER LOCATION

Locate the Mobile Charger in a location convenient to the printer. Follow these guidelines:

- Locate the Charger in the vehicle so that it will avoid contact with the operator in case of an accident.
- If you are using the Mobile Charger in conjunction with a Mobile Mount, place the Charger so that you can easily unplug the charger's output cable from the Printer's battery connection.
- Route the charger's output cable to prevent undue strain being placed on the connection to the printer's battery.
- Make sure that cable routing does not invite damage to the cable.
- Secure the Charger with #8 (4 mm) hardware using the mounting flanges molded into the Charger cover. Insure that the mounting hardware will not become loose due to vibration by using locking hardware or prevailing torque fasteners.

CONNECT THE PRINTER

- Plug the output cable from the Charger to the battery connection on the printer. (Refer to the QL 420 User's Manual for more information.) If you are using a MMQ4 Mobile mount, it may be easier to plug in the charger connector before mounting the Printer to the Mobile Mount bracket. See Figure 2.
- Turn the power source for the charger on, and verify that the indicator lights on the Charger's front panel are lit and the Charger is functioning properly. Refer to Table 2 for indicator display information.

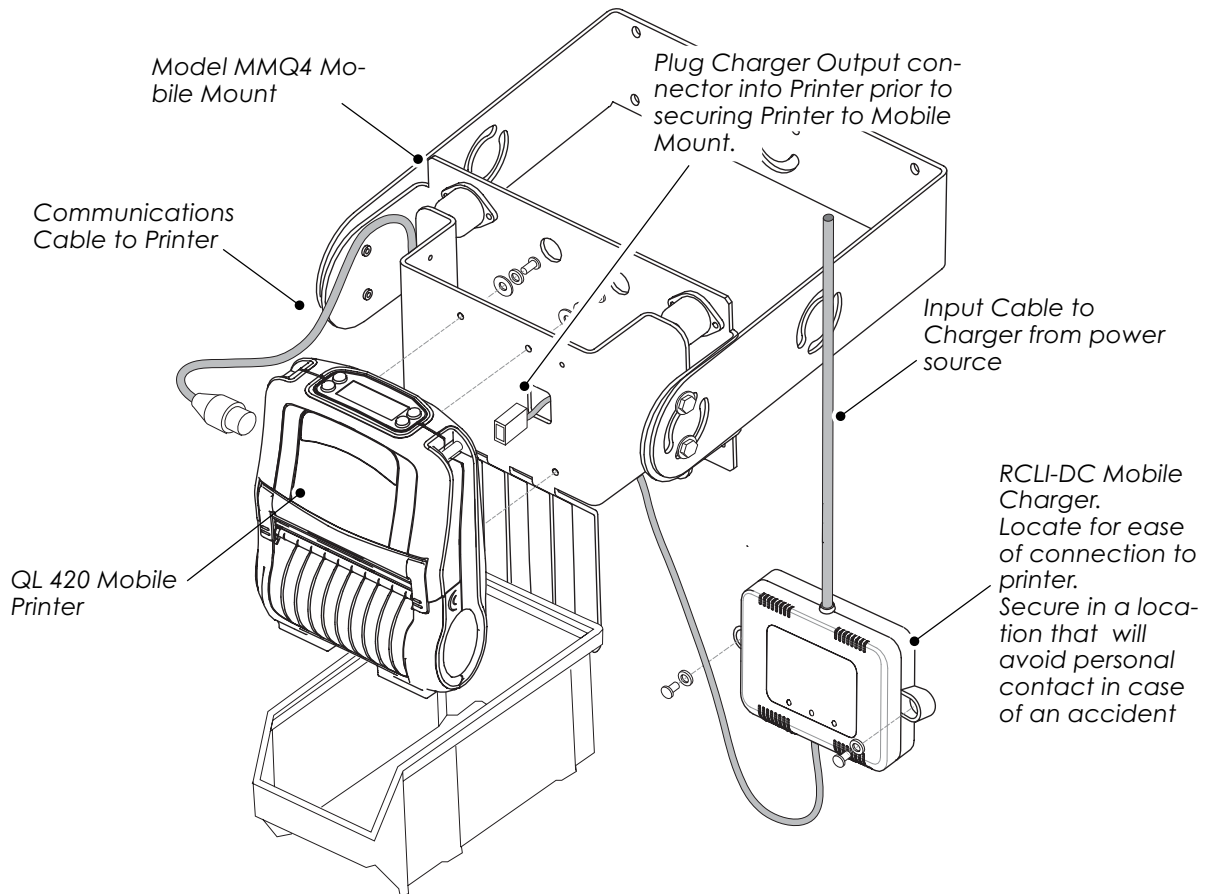


Figure 2
Mobile Charger, Printer and Mobile Mount Overview

TECHNICAL SUPPORT

U.S. ONLY

Zebra maintains a help line for questions involving installation of the RCLI-DC Mobile Chargers. Please have as much information as possible regarding your particular application ready when you call to enable the technical support personnel to help you. The number in the U.S. is (800)-556-7266. and is open Monday through Friday from 8:00 am to 4:30 P.M.. E.S.T.. Ask for Mobile Charger Technical Support.

ALL OTHERS

For Technical Support please contact your local Zebra sales representative.



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