

Rhein Tech Laboratories, Inc.
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
<http://www.rheintech.com>

Client: Zebra Technologies
FCC: Part 15.247
IC: RSS-210
FCC ID: I28MD-ZLAN11G
Model: ZLAN11G Radio Module

Appendix K: Manual

Please see the following pages, particularly page 45 of the attached user manual.

PRELIMINARY



**Zebra® QL™ and
QL Plus™ Series
Mobile Printer**

User Guide



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Since continuous product improvement is a policy of Zebra Technologies Corporation, all specifications and signs are subject to change without notice.

FCC Compliance Statement

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

WARNING: Exposure to Radio Frequency radiation. To conform to FCC RF exposure requirements this device shall be used in accordance with the operating conditions and instructions listed in this manual. Note that there are several radio options available with this printer. Additional regulatory information is contained in later sections devoted to each radio individually.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

Changes or modifications to this unit not expressly approved by Zebra Technologies Corporation could void the user's authority to operate this equipment.

Canadian Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

"IC:" before the equipment certification number signifies that the Industry Canada technical specifications were met. It does not guarantee that the certified product will operate to the user's satisfaction.

Agency Approvals and Regulatory Information

- Design certified by CSA
- Canadian STD RSS-210
- EN60950: 2000 Safety Standard
- C-Tick (Australia)
- FCC part 15
- EN55024:1998 European Immunity Standard
- NOM/NYCE (Mexico)
- EN55022:1998 Class B European Electromagnetic Radiation Standard

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continued

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Document Conventions

The following conventions are used throughout this document to convey certain information:

If you are viewing this guide online, click the *underlined text* to jump to a related Web site. Click on *italic text* (not underlined) to jump to that location in this manual..

Cautions, Important, and Note



Caution • Warns you of the potential for electrostatic discharge.



Caution • Warns you of a potential electric shock situation.



Caution • Warns you of a situation where excessive heat could cause a burn



Caution • Advises you that failure to take or avoid a specific action could result in physical harm to you.

Caution • Advises you that failure to take or avoid a specific action could result in physical harm to the hardware.



Important • Advises you of information that is essential to complete a task.



Note • Indicates neutral or positive information that emphasizes or supplements important points of the main text.

Introduction to the QL and QL Plus Series

Thank you for choosing one of our Zebra® QL™ series Mobile Printers. These rugged printers are sure to become productive and efficient additions to your workplace thanks to their innovative design. Because they are made by Zebra Technologies, you're assured of world-class support for all of your bar code printers, software, and supplies.

- This user's guide gives you the information you will need to operate all QL series printers.
- The QL series uses the CPCL programming language. To create and print labels using the CPCL language, refer to the Mobile Printer Programming Guide and our Label Vista™ label creation program which are both available on our Web site at www.zebra.com.
- The QL series offers optional interpreters for the EPL™ and ZPL II® (up to Version 30.8.4) Programming Languages. The printer must be equipped with the optional memory upgrade and an appropriate application in order to use this function. QL Plus™ series printers have EPL and ZPL II emulation as a standard feature.

Manuals for the ZPL II or EPL2 label design programming languages are also available on our Web site .

Unpacking and Inspection

Inspect the printer for possible shipping damage:

- Check all exterior surfaces for damage.
- Open the media cover (refer to "Loading the Media" in the Getting Ready to Print section) and inspect the media compartment for damage.

In case shipping is required, save the carton and all packing material.

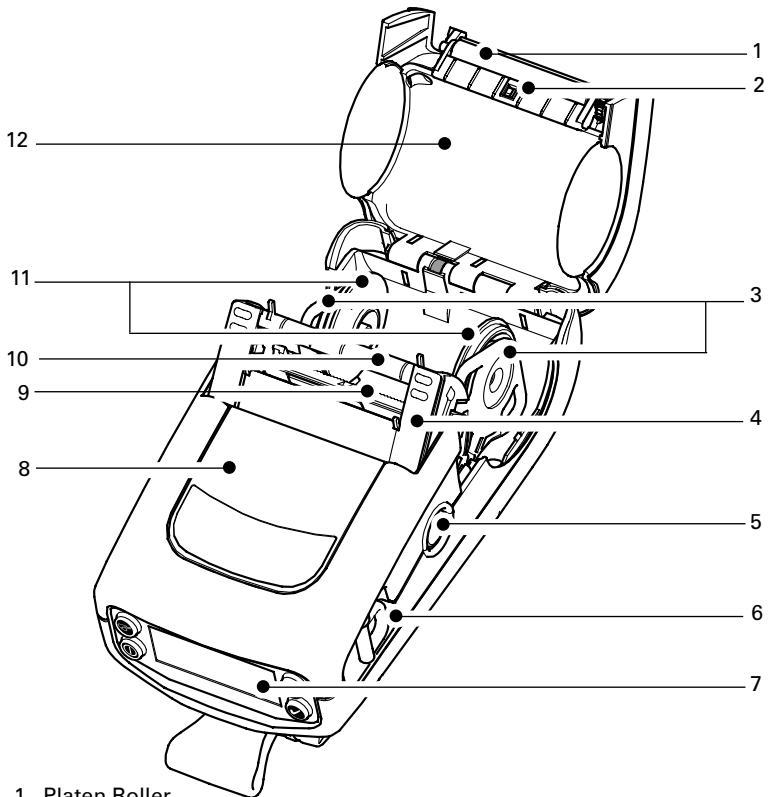
Reporting Damage

If you discover shipping damage:

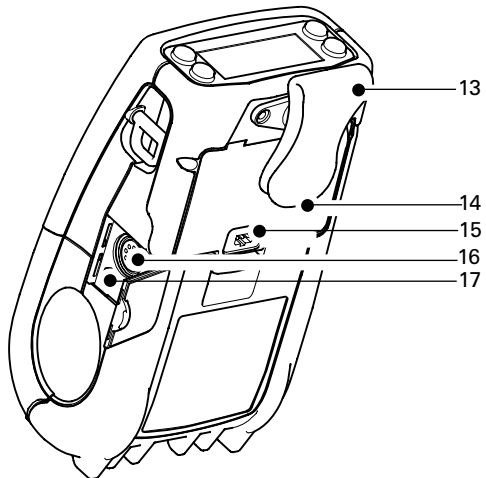
- Immediately notify and file a damage report with the shipping company. Zebra Technologies Corporation is not responsible for any damage incurred during shipment of the printer and will not cover the repair of this damage under its warranty policy.
- Keep the carton and all packing material for inspection.
- Notify your authorized Zebra re-seller.

QL 220 Introduction

Figure 1: QL 220 Overview

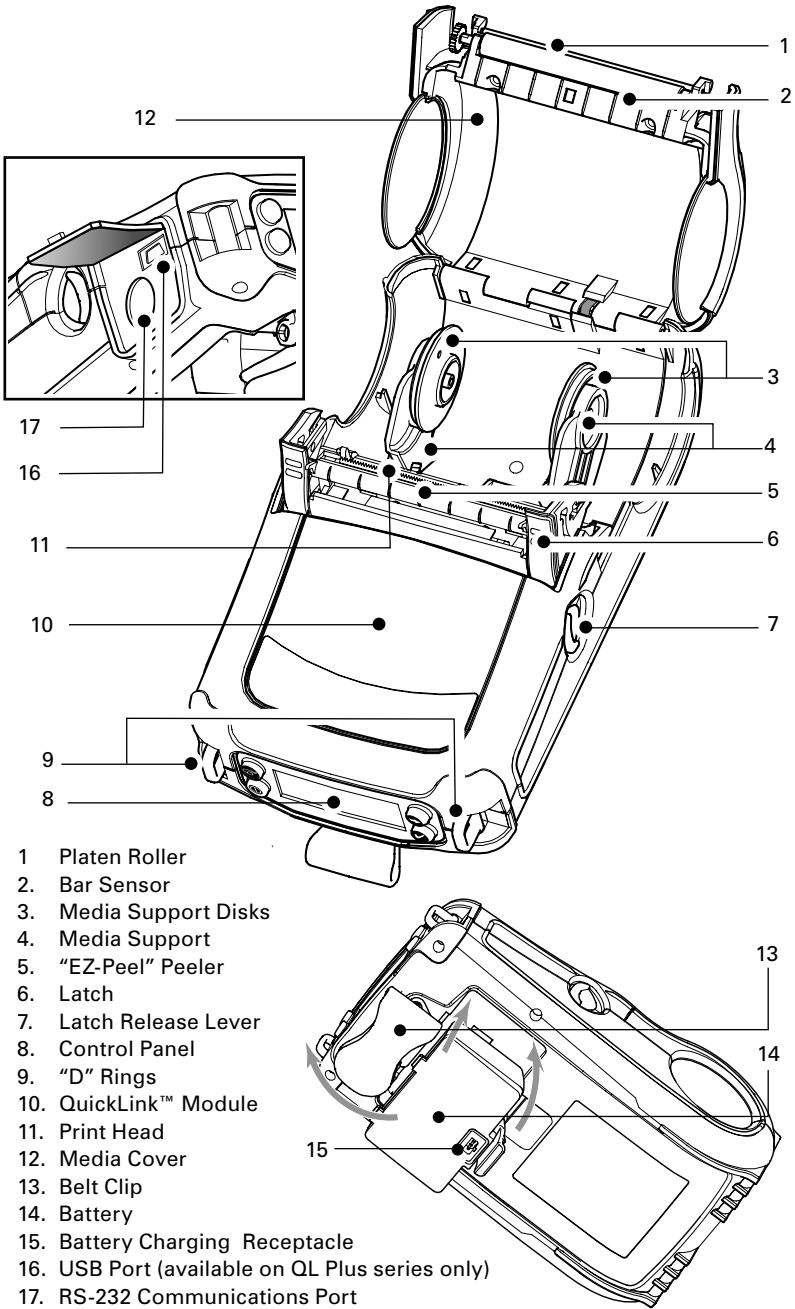


- 1 Platen Roller
- 2 Bar Sensor
- 3 Media Support
- 4 Latch
- 5 Latch Release Button
- 6 "D" Ring
- 7 Control Panel
- 8 QuickLink™ Module
- 9 Print Head
- 10 "E-Z Peel" Label Peeler
- 11 Media Support Disks
- 12 Media Cover



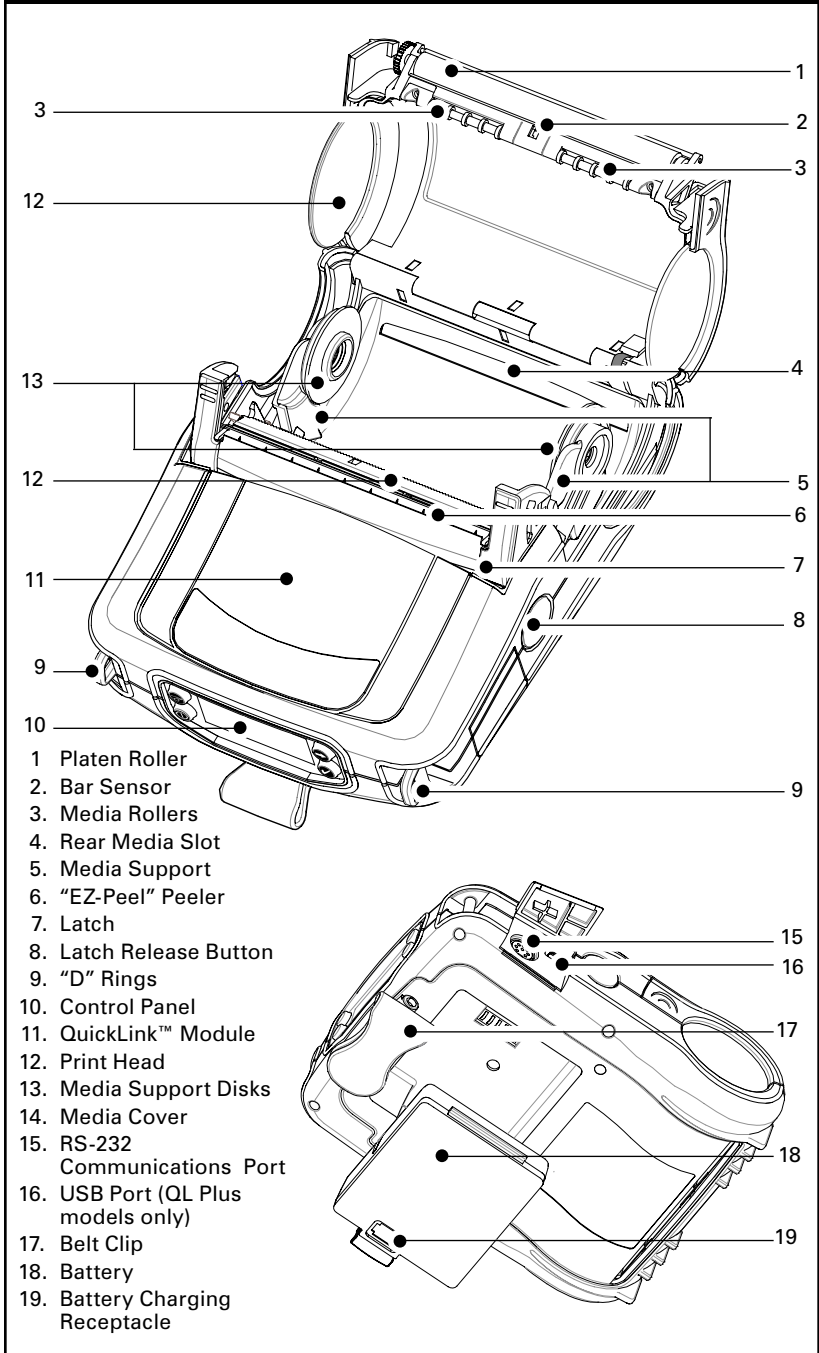
QL 320 Introduction

Figure 1B: QL 320 Overview



QL 420 Introduction

Figure 1C: QL 420 Overview



Getting Ready to Print

Battery

Installing the Battery

! *Important • Batteries are shipped partially charged. Remove protective shrink-wrap and labels from new battery packs prior to use.*

1. Rotate the Belt Clip to allow access to the Battery compartment.
2. Insert the battery into the printer as shown in Figure 2,
3. Rock the Battery into the printer as shown until it locks in place.

When the battery is first installed, the Control Panel indicators may briefly turn on and then go off which indicates the battery is not fully charged (see “Charging the Battery” below and “Operator Controls”).

You must charge the batteries fully before using them for the first time. To ensure maximum battery capacity, new batteries should go through two or three complete charge/dis-

Figure 2: Installing the Battery

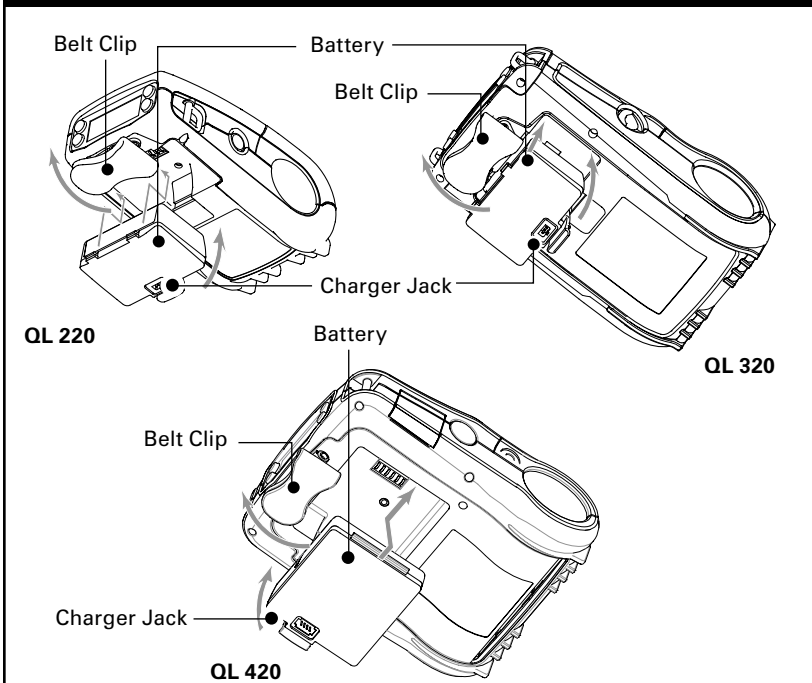
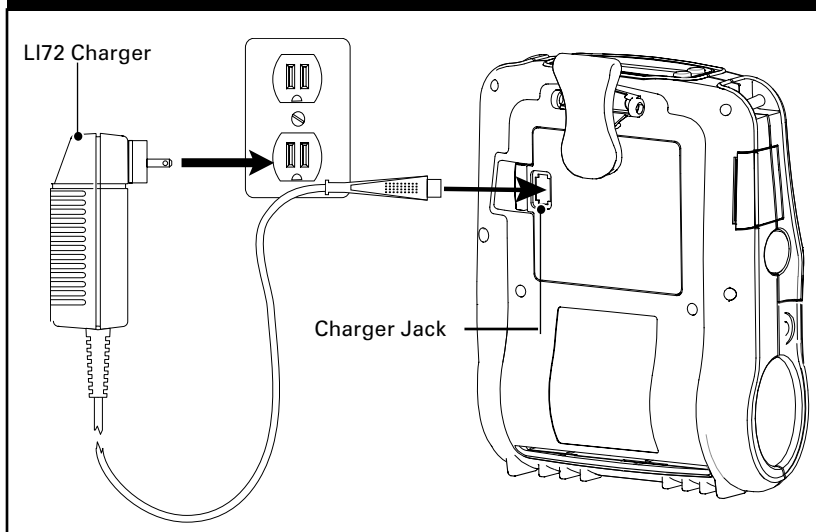


Figure 3: Single Charger



charge cycles when first put into service.

Charging the Battery

Model LI72 Single Battery Charger

Refer to Figure 3. Your battery charger may look slightly different from the one illustrated.

1. Install the battery in the printer and plug the Charger into the appropriate A.C. wall receptacle. Then insert the charge cable into the battery charger jack.
2. The charger LED will indicate the status of the charger as follows:
 - A steady light indicates the battery is undergoing a fast charge.
 - A blinking light indicates the charger is in trickle mode. The battery is ready for use.
 - A rapidly blinking light indicates a problem with the battery. The battery may have an internal short, or its charge monitoring circuitry may be malfunctioning. The battery should not be used any further.
 - Battery Packs may be charged either when installed or removed from the printer.

Caution • Do not use the printer while charging a battery with the LI72 charger.

continued

Model UCLI72-4 Quad Charger

The UCLI72-4 Quad Charger is designed to charge up to four QL series battery packs simultaneously. Batteries must be removed from the printer to be charged in the Quad Charger.

1. Ensure that the charger has been installed properly per the Quad Charger instruction manual. Ensure that the power indicator on the front panel is on.

2. Remove any protective shrink-wrap and labels from all battery packs prior to use. Plug a battery pack into any one of the four charging bays as shown in Figure 4, noting the orientation of the battery pack. Slide the battery pack into the charging bay until it stops. Then rock the battery pack back until it snaps into place. The amber indicator directly under the battery being charged will turn on if the battery is properly inserted.

The indicators under the battery will allow you to monitor the charging process per the table below:

Amber	Green	Battery Status
On	Off	Charging
On	Flashing	80% charged (O.K. to use)
Off	On	Completely Charged
Flashing	Off	Fault



Important • A fault condition is caused by a problem with the battery. The charger may indicate a fault because the battery is too hot or cold to charge reliably. Try to charge the battery again when it returns to the room's ambient temperature. If the amber indicator starts flashing on the second attempt, the battery should be discarded. Always dispose of batteries in a proper manner. Refer to Appendix D.

Quad Charger Cycle Times :

Battery Status	QL 220/320	QL 420
Battery 80% Charged	1.25 Hrs.	2.5 Hrs.
Battery Fully Charged	2.5 Hrs.	5 Hrs.



Note • These times are for completely discharged batteries.

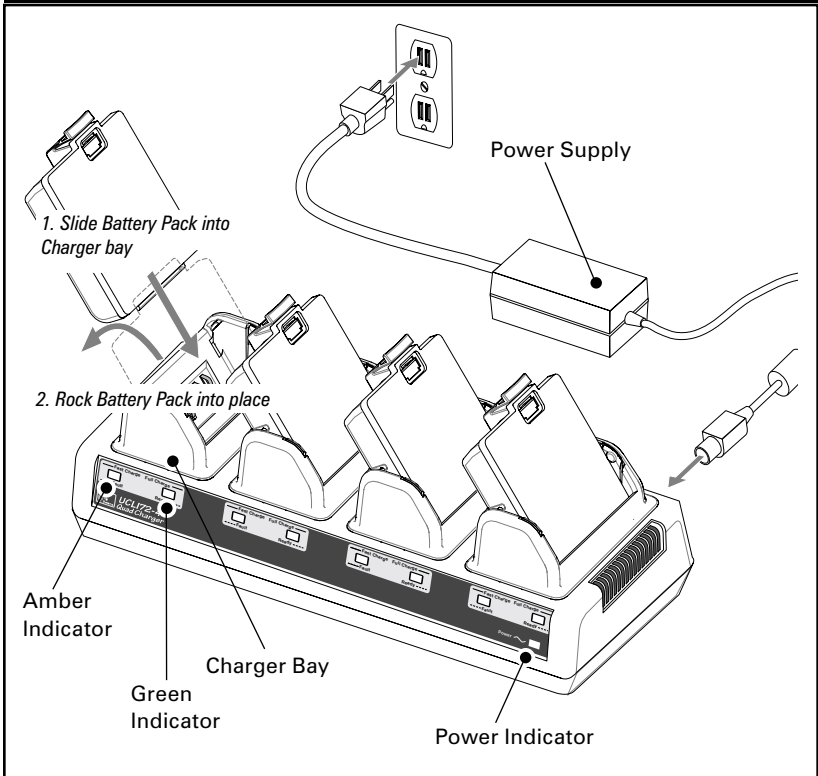
Battery packs which are only partially discharged will take

less time to reach their charged state. Batteries which have reached 80% of their charge capacity may be used, however, it is recommended that you allow the batteries to reach a full charge to maintain maximum battery life.



The UCL172-4 Quad Charger has a safety feature which stops charging a battery after six hours regardless of its charge state.

Figure 4: Quad Charger



continued

Battery Safety



Caution • Avoid accidental short circuiting of any battery. Allowing battery terminals to contact conductive material will create a short circuit which could cause burns and other injuries or could start a fire.



Important • Always dispose of used batteries properly. Refer to Appendix D for more battery recycling information.

Caution • Use of any charger not approved specifically by Zebra for use with its batteries could cause damage to the battery pack or the printer and will void the warranty.

Charger Safety



Do not place the Quad Charger in locations where liquids or metallic objects may be dropped into the charging bays.



Use care when installing either the LI72 Single Charger or the UCLI72-4 Quad Charger so that you do not block the ventilating slots on the top and bottom covers.

Ensure that the Charger is plugged into a power source which will not accidentally be turned off if you will be charging batteries overnight.

Loading the Media

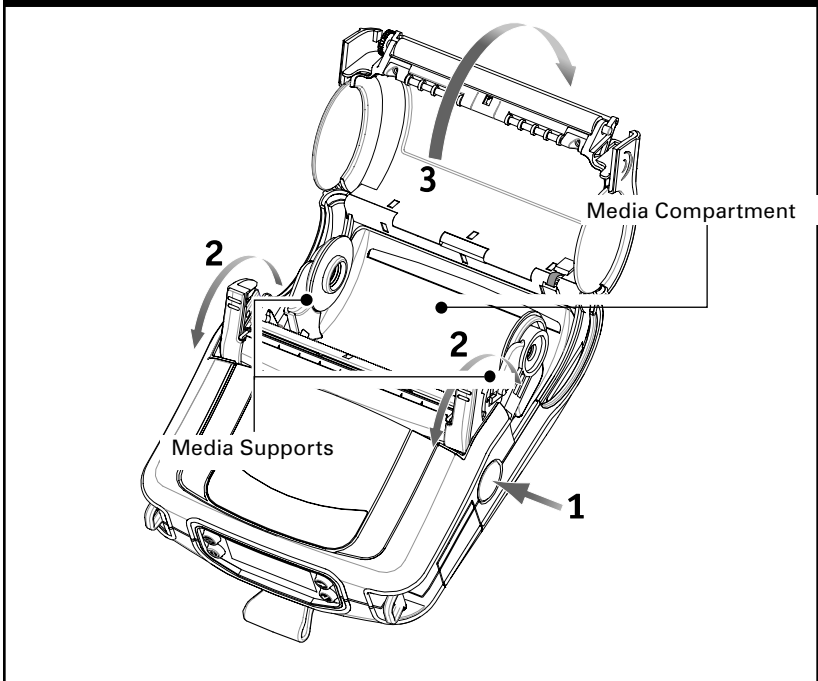
You can operate QL series printers in one of two different modes: Tear-Off or Peel-Off. Tear-Off mode allows you to tear off each label (or a strip of labels) after it is printed. In Peel-Off mode, the backing material is peeled away from the label as it is printed. After you remove this label, the next one is printed.

Installing the Media

QL 420 and QL 220 Printers

1. Open the printer: Refer to Figure 5 (QL 420 shown).
 - Press the latch release button on the side of the printer as shown at "1" below. The latch assembly will flip open automatically
 - On the QL 420, pull up the latch assembly completely as shown at "2" to unlatch the Media Cover. Omit this step for the QL 220.
 - Rotate the Media Cover back as shown at "3", exposing the media compartment and the adjustable media supports.

Figure 5: Opening the QL 420 & QL 220

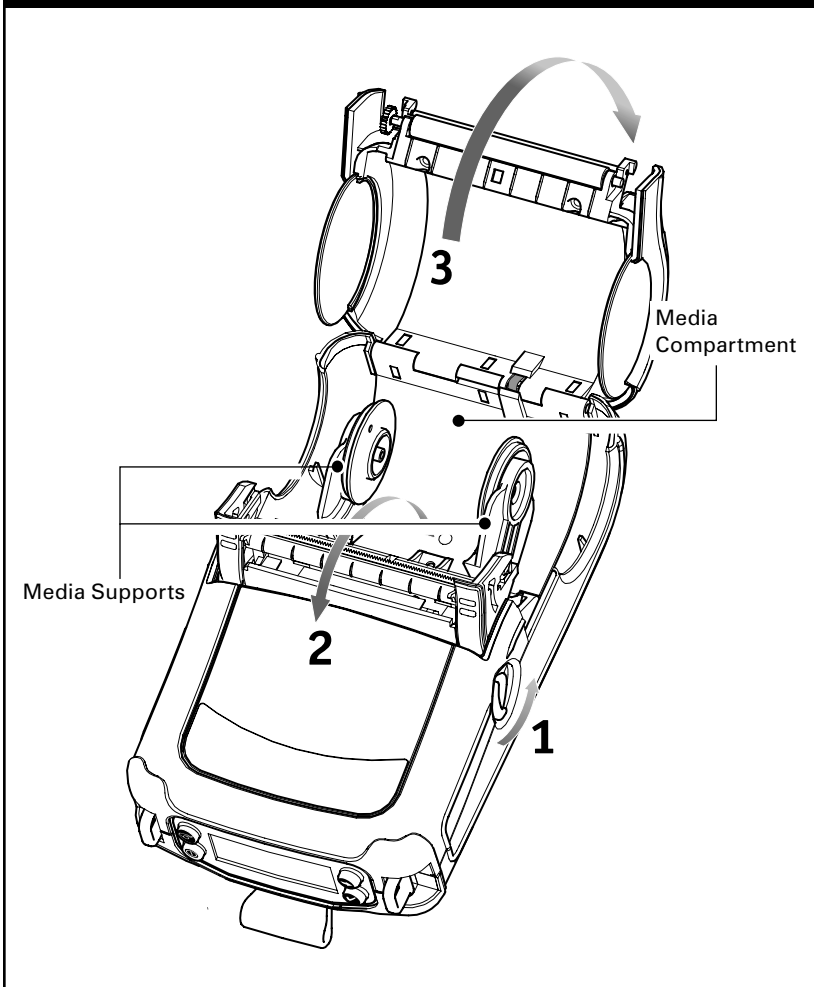


QL 320 Printers

1A. Open the printer: Refer to Figure 5a.

- Rotate the latch release levers on each side of the printer as shown at "1" below. The latch assembly will flip open automatically as shown at "2".
- Rotate the Media Cover back as shown at "3", exposing the media compartment and the adjustable media supports.

Figure 5a: Opening the QL 320



continued

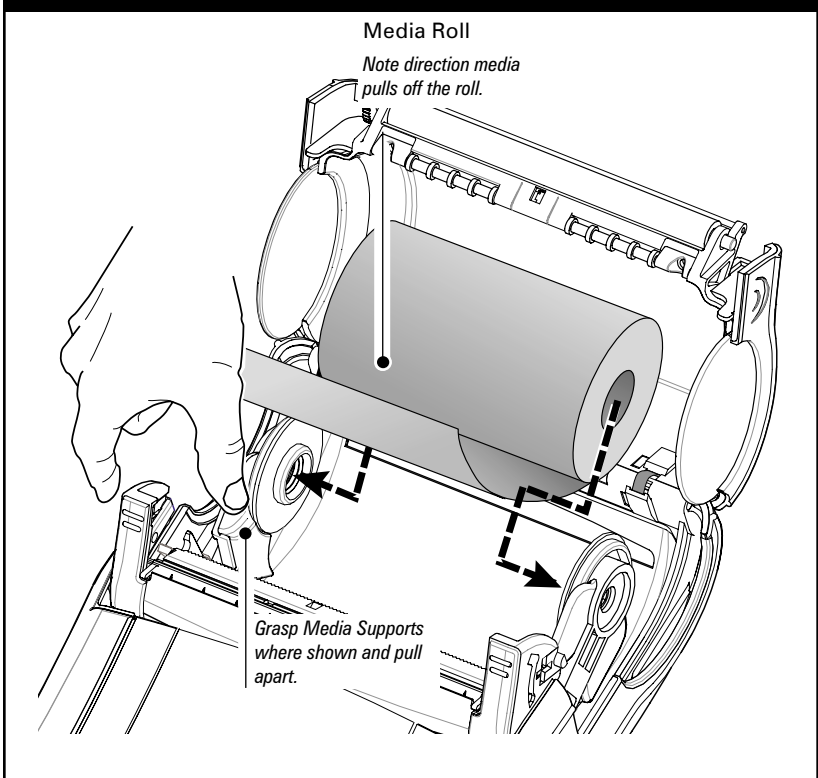
All models

2. Load the media:

Loading media from an internal supply. Refer to Figure 6.

- Grasp the media supports where shown and pull them apart. Insert the roll of media between them, and let the media supports close. Ensure that the media pulls off the core in the direction shown in Figure 6. The supports will adjust themselves to the width of the media, and the media should be able to spin freely on the supports.

Figure 6: Installing Media



QL 420 Printers Only

2A. Load the media (continued):

Loading media from an external supply. Refer to Figure 7.

The QL 420 has a loading slot in the rear of the media compartment which allows you to use standard 4" (101.6 mm) wide fan-fold media from an external supply. The external supply must be designed such that it does not exert excessive drag as media is fed through the printer, which could result in distorted printing.

Zebra can provide a vehicle mount (p/n DC16620-1) designed specifically for the QL 420 which incorporates an external media supply bin.

- Pull the media supports apart, insert a Media Spacer (Zebra part number BA16625-1) between them, and let the media supports close. Insert the media from the external supply through the rear feed slot, between the media guides and up through the media compartment as shown. Make sure the side of the media you will be printing on faces the print head.

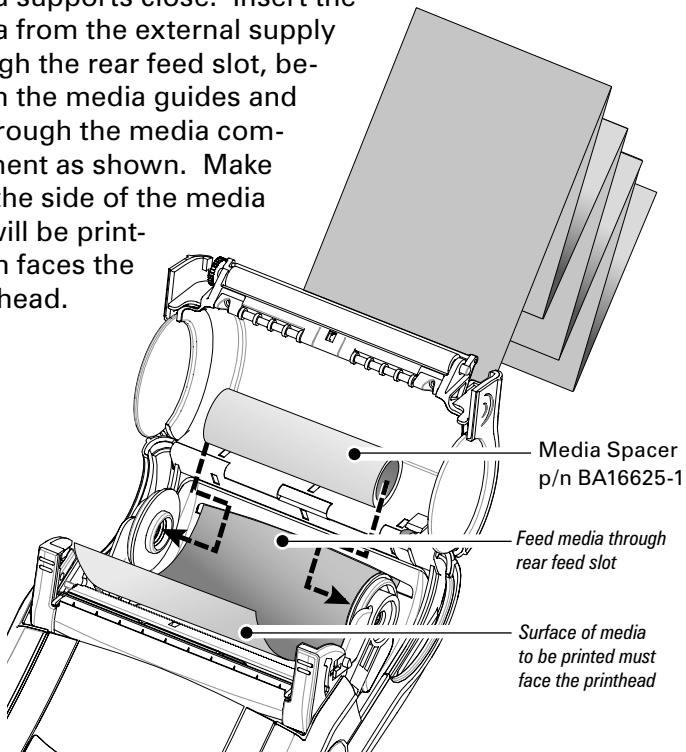


Figure 7: Installing Media from an External Supply (QL 420 only)

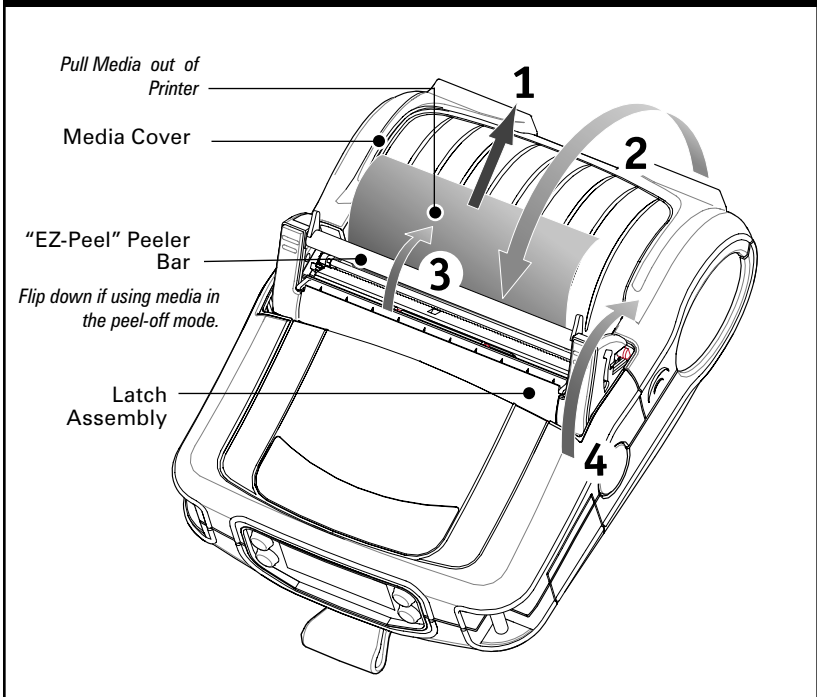
continued

3. Close the Media Cover: Refer to Figure 8.

- If you plan to use the printer in the tear-off mode, close the media cover as shown at "2", then rotate the latch assembly as shown until it locks into place, as shown at "4".
- If you plan to use the printer in the peel-off mode, peel a few labels off of the media and pull it out of the printer as shown at "1". Close the media cover as shown at "2". Rotate the "EZ-Peel" peeler bar until it locks into place on the latch, as shown at "3", then rotate the Latch as shown until it locks into place, as shown at "4".
- Turn on the printer or press the Feed button if the printer is already on.

The printer will advance the media to the next label, if printing labels. If you are printing on journal media, the printer will advance a short strip of media and will then be ready for printing.

Figure 8: Closing the Media Cover



Operator Controls

QL series printers are available with one of two possible control panels. The standard control panel is detailed below and in Figure 9. The optional control panel (Figure 10) features an LCD which allows easy display and selection of many printer functions detailed on following pages.

Standard Keypad

The standard keypad has three control buttons and two multipurpose indicators.

- The **Power Button** turns the printer on and off.
- The **Feed Button** advances a length of media which is determined by the type of media being used. Label media will be advanced to the next gap or bar sense marker. Journal (plain) media will be advanced a length determined by the printer's software.
- The **Function (FTN) Button** is controlled by a printer's specific application to support such functions as:
 - Print a battery level report.
 - Print the Local Area Network (LAN) status
 - Print a Short Range Radio Frequency (SRRF) status
 - Print a media supply report

The **Green LED** on the left side of the control panel indicates the status of several printer features:

- A slowly blinking sequence indicates the printer's battery needs charging.
- Printers with a wireless QuickLink module installed: a quickly blinking sequence indicates the printer has not established a link to either a Local Area Network or a compatible wireless equipped terminal.
- Printers with a wireless QuickLink module installed: A steadily lit indicator shows that the printer has established a wireless link, either to the LAN or to a compatible terminal.

A steadily lit green indicator on a non-wireless printer is a power-on indicator.

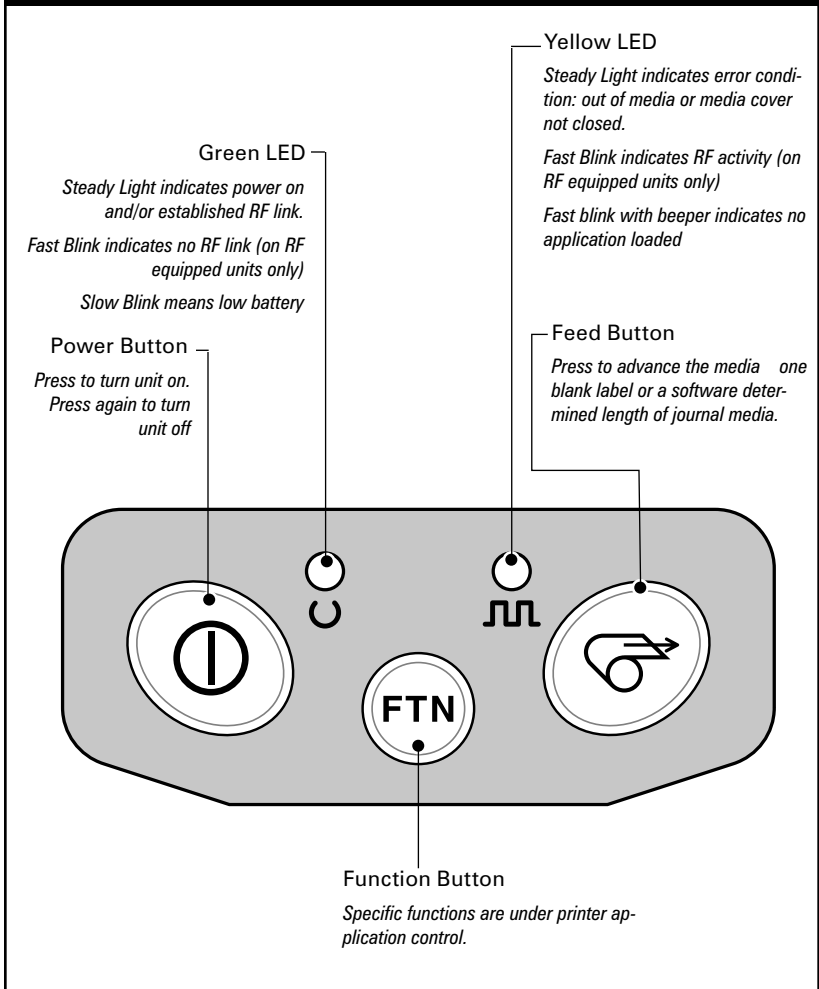
The **Yellow LED** on the right side of the control panel has two indication conditions.

- A rapidly blinking yellow LED and a chime indicate that no application has been loaded into the printer.

continued

- Printers with a wireless QuickLink module installed: a rapidly blinking LED indicates normal data transmission.
- A steadily lit yellow LED indicates an error condition. This can be caused by one of the following:
 1. The media cover is not completely closed and latched.
 2. The printer is out of media.

Figure 9: Standard Control Panel



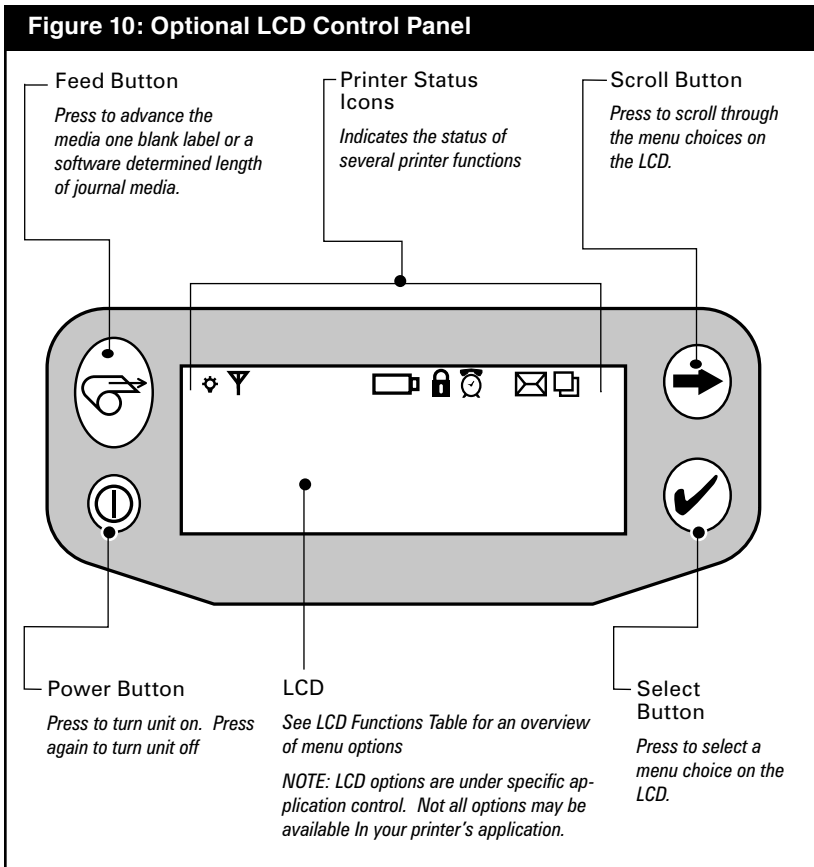
LCD Control Panel

The optional LCD control panel has buttons for the power on/off and media feed functions just as in the standard control panel. In addition, it has two keys which allow easy navigation and selection of menu options affecting many printer functions.


The "Scroll" button allows scrolling through the various options and settings. The "Select" button allows selection of the option or function displayed on the screen.


The top of the screen has a row of status icons which indicate the state of various printer functions:


Figure 10: Optional LCD Control Panel




continued


 Indicates that the printer is receiving or transmitting data via a Bluetooth connection. A flashing icon indicates data transmission.


This icon is functional only on printers with the Bluetooth wireless option installed. Printers with earlier firmware versions may not use this icon and will display the  icon instead. (See below)


 Indicates that the printer is connected to a radio network via the 802.11 protocol. It remains on steadily with an 802.11 connection.


If the icon is off, there is no connection to a radio network.

 A flashing icon indicates low battery status. You should suspend any printing operations and recharge or replace the Battery Pack as soon as is convenient.

 A flashing icon indicates that the media cover is open or not properly latched.

 A flashing icon indicates normal printing activity.

 A flashing icon indicates that a file is being downloaded to the printer.

 A flashing icon indicates that the printer does not detect any media. This could indicate an out of media condition, or improperly loaded media.

Programmable LCD Settings

In addition to the status icons, the LCD on the control panel can display many of the printer's settings and functions as text. Applications can be written to allow the user to view and/or modify these settings using the scroll and select keys on the display. Refer to the tables on the following pages for a partial set of printer features that can be programmed to display on the LCD.

The LCD has a backlighting option which allows viewing of the screen in a dark environment, or provides better contrast in a very bright environment. Use of the display backlight will decrease the time the printer will run between charges. Refer to the section "Extending Battery Life" for more information.

Extended LCD Functions

Function	Default setting	Scroll & Select Options
Sensor Type	Bar	<ul style="list-style-type: none"> • Bar • Gap
Baud Rate	19200	<ul style="list-style-type: none"> • 9600 • 19200 • 32400
Data Bits	8	<ul style="list-style-type: none"> • 7 • 8
WLAN ID*	Factory Set Value	N/A
Label Top	000	<ul style="list-style-type: none"> • Increase (+ 120 dots max.) • Decrease (-120 dots max.)
Left Position	000	<ul style="list-style-type: none"> • Increase (+ 120 dots max.) • Decrease (-120 dots max.)
LCD Contrast	0	<ul style="list-style-type: none"> • Increase • Decrease
No-activity Timeout*	60 sec.	<ul style="list-style-type: none"> • 60 sec. • 5 min. • 10 min. • 30 min • Custom
Tear-off Position	00	<ul style="list-style-type: none"> • Increase (+ 120 dots max.) • Decrease (-120 dots max.)
Media Type	Label	<ul style="list-style-type: none"> • Label • Journal
Media Width Sensing†	Off	<ul style="list-style-type: none"> • On • Off • Display Width
LCD Backlight	Off	<ul style="list-style-type: none"> • On • Off • Momentary On w/ time delay
Factory Reset (Resets all to factory set values)	No	<ul style="list-style-type: none"> • No • Yes

* Some parameters, such as the WLAN ID number and non-standard no-activity time out values can be set using a PC running Zebra's Label Vista label creation program and a data cable link to the printer.

† Media width sensing is an option. Display for this option may not be visible, or selection options may change, depending on the printer's application.

Verify the Printer Is Working

Before you connect the printer to your computer or portable data terminal, make sure that the printer is in proper working order. You can do this by printing a configuration label using the “two key reset” method. If you can’t get this label to print, refer to “Troubleshooting”.

Printing a Configuration Label

1. Turn the printer off. Load the media compartment with journal media (media with no black bars printed on the back)
2. Press and hold the Feed Button.
3. Press and release the Power button and keep the Feed button pressed. When printing starts, release the Feed button.

The unit will print a line of interlocking “x” characters to ensure all elements of the print head are working, print out the version of software loaded in the printer and then print two reports.

The first report indicates model, ROM version, serial number, baud rate, etc. The second report prints out more detailed information on the printer’s configuration and parameter settings. If no second report appears, there is no application loaded. (See the Troubleshooting Section for sample printouts and a further discussion on how to use the configuration label as a diagnostic tool.)

Connecting the Printer

The printer must establish communications with a host terminal which sends the data to be printed. Communications occur in four basic ways:

- By a cable between the printer and its host terminal. All QL series printers communicate by the RS-232C protocol. QL Plus series printers can communicate by either RS-232C or USB 2.0 protocols. USB drivers are included in the Zebra Universal Driver which can be downloaded from www.zebra.com.
- Linking to a host terminal via Infrared (usually by means of the industry standard IrDA protocol)
- By means of a Bluetooth™ short range radio frequency link.

- By means of a wireless LAN (Local Area Network) per 802.11b specifications.

Cable Communication

Caution • The printer should be turned off before connecting or disconnecting the communications cable.

All QL series printers can communicate by cable; the specific cable supplied with your printer will vary with the host terminal and your model printer.

RS-232C Communications

The 8-pin circular connector on your communications cable plugs into the serial communications port on the side of the printer. QL Plus model printers also have a USB port.

USB Communications (QL Plus units only)

The small connector on the USB cable plugs into the printer. The connectors are keyed to assure correct alignment; do not

Figure 11: Cable Communications

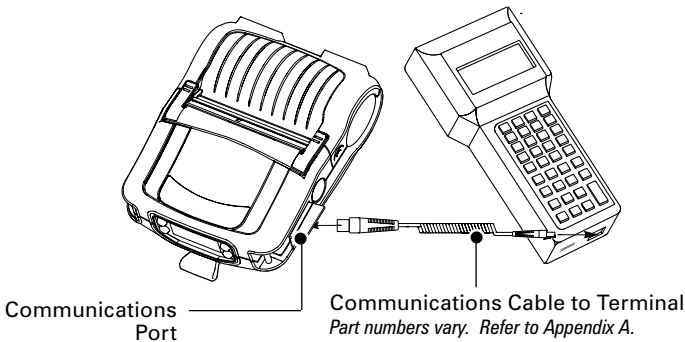
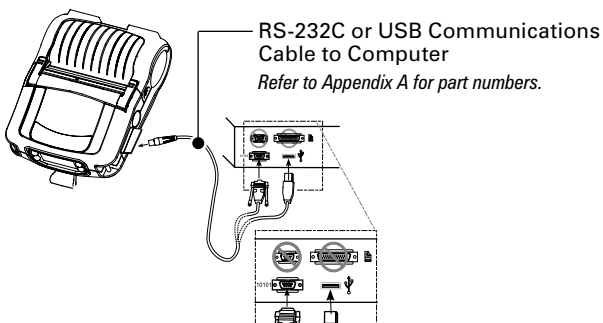


Figure 12: Communications with a P.C.



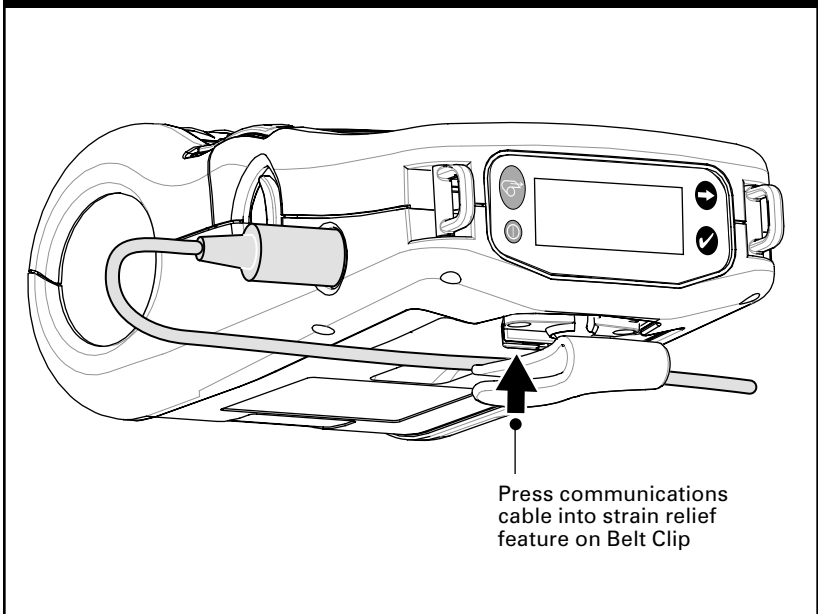
try to force the cable if it does not plug in. The other end of the cable must be plugged into the host terminal as shown in Figure 11, or to a serial or USB port on a computer (Figure 12.) The QL Plus series is configured with the USB Open HCI interface driver allowing it to communicate with Windows® based devices.

USB drivers are included in the Zebra Universal Driver which can be downloaded from the Zebra Web site. Other terminals or communications devices may require the installation of special drivers to use the USB connection. Consult the factory for further details.

Providing Strain Relief for Communications Cable

If you are connecting a communications cable to the printer permanently, use the strain relief features built into the belt clip retainer to prevent excessive strain on the communications connector. There are two kinds of strain relief features. If you are using the printer with the standard belt clip, bend the cable in a broad loop to relieve stress on the connector and press it into the retaining feature on the belt clip retainer as shown in figure 13.

Figure 13: Communications Strain Relief



If you have a printer equipped with the Kickstand option, you must first remove the belt clip retainer as shown in Figure 14, retaining the two screws holding the retainer to the lower cover. Arrange the communications cable in a broad loop as detailed above, and capture it in the strain relief feature on the bottom of the belt clip retainer. Then re-secure the belt clip retainer to the bottom cover of the printer.

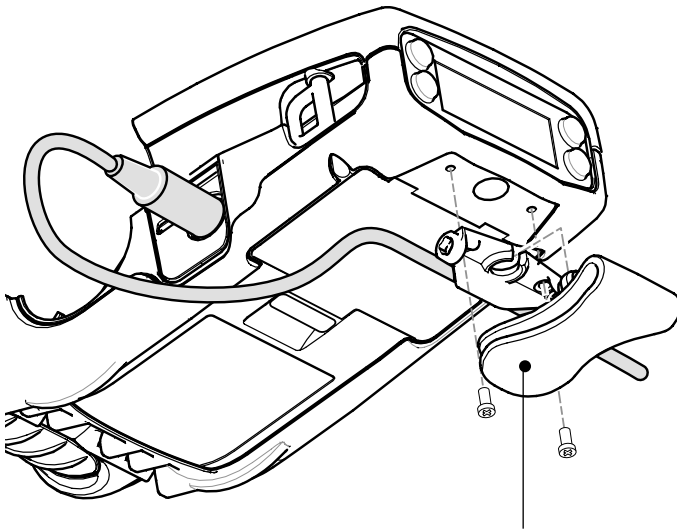


Refer to the *Using the Accessories* section for more information on the use of the Kickstand option

Figure 14: Communications Strain Relief with Kickstand option



Kickstand is not shown in this view for clarity



1. Remove Belt Clip Retainer, along with Belt Clip and Kickstand.
2. Press communications cable into strain relief feature on bottom of Belt Clip
3. Reassemble Belt Clip to bottom cover.

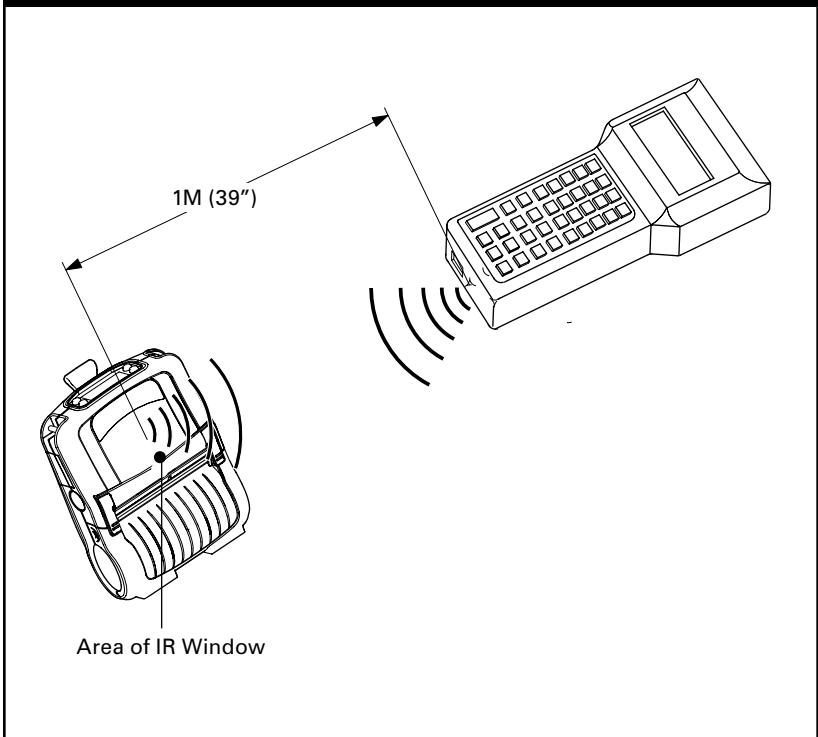
IR Communications

Printers equipped for infrared (IR) communications are identified by a small "IR" logo on the unit's label. (IR functions are disabled if a communications cable is used.) Printers with the IR option conform to the IrDA communications protocol.

Ensure that there is a direct line of sight between the printer and the terminal that will be sending data. The IR window on the front of the printer must face the corresponding window on the terminal to properly send and receive signals.

IrDA compliant terminals will automatically initiate communications to the printer. An IrDA terminal will seek out any linkable devices and establish communications between them, even turning the printer on if necessary.

Figure 14: IR Communications



Wireless Communications with Bluetooth™

“Bluetooth” is a worldwide standard for the exchange of data between two devices via radio frequencies. Bluetooth radios are relatively low powered to help prevent interference with other devices running at similar radio frequencies. This limits the range of a Bluetooth device to about 10 meters (32 feet). Both the printer and the device it communicates with must follow the Bluetooth standard. Other than conditions specified elsewhere in this manual, only one of the radio options can be installed in the printer at one time and the antenna used for these transmitters must not be co-located or must not operate in conjunction with any other antenna.

Bluetooth Networking Overview

Each Bluetooth enabled QL series printer is identified by a unique Bluetooth Device Address (BDA) loaded into its QuickLink module when manufactured. In order to exchange data, two Bluetooth enabled devices must establish a connection.

Bluetooth software is always running in the background, ready to respond to connection requests. One device (known as the *master* or the *client*) must request a connection with another. The second device (the *slave* or the *server*) then accepts or rejects the connection. A Bluetooth enabled QL series printer will normally act as a slave creating a miniature network with the terminal sometimes referred to as a “piconet.”

For the most part, communications using the Bluetooth protocol are initiated and processed without any operator intervention.

QL 220 and 420 Plus printers can be equipped with both a Bluetooth and an 802.11b radio, allowing communications with both Bluetooth enabled devices and a Wireless Local Area Network (WLAN) (see WLAN discussion following).

WLAN Overview

All QL series printers can be equipped with radios using the industry standard 802.11 protocols. QL series printers will have the FCC I.D. number of the radio on the product label. QL Plus series printers will have the FCC ID number on the serial number label on the back of the unit.

- QL Wireless Network Printers with the CF module can be identified by the text “Wireless Network Printer” and FCC ID: *I28MD-QL4137* on the front of the unit. QL Plus series printers will have FCC ID: *I28MD-RW4137* on the serial number label on the back of the unit.
- QL series Wireless Network Printers with the Zebra 802.11b WLAN radio module can be identified by the text “Wireless Network Printer” and FCC ID: *I28MD-ZLAN11B* on the serial number label on the back of the printer.
- QL Plus series Wireless Network Printers with the Zebra 802.11g WLAN radio module can be identified by the text “Wireless Network Printer” and FCC ID: *I28MD-ZLAN11G* on the serial number label on the back of the printer.
- QL 320 and QL 420 printers with the PCMCIA module can be identified by the text “Wireless Network Printer” and FCC ID: *I28-QL420352* on the front of the unit.
- QL 220 and 420 Plus printers can be configured with both an 802.11b WLAN radio and a Bluetooth radio running in the same unit. At present only one dual radio configuration is offered, with Bluetooth radio FCC ID “I28MD-BTCT2Y4” and 802.11b Compact flash radio FCC ID number “I28MD-RW4137”. The FCC ID numbers and other regulatory information for both radios are located on the serial number label on the back of the printer.

These printers allow wireless communication as a node within a local area network, (LAN) and its wireless capabilities allow communications from any point within the LAN’s perimeter. Printers equipped with the dual Bluetooth and 802.11b WLAN radio configuration can be linked to both a WLAN and a Bluetooth network. Methods of establishing communications to the printer will vary with each LAN application.

Methods of establishing communications to QL series print-

continued

ers will vary with each LAN application. General information on establishing WLAN communications can be found in either the "CPCL Programmers Manual" or the "Quick Start Guide for Mobile Wireless Printers" both available on-line. More information and LAN configuration utilities are included in Zebra's Label Vista™ program (version 2.8 and later). Label Vista may be downloaded from the Zebra Web site.

Setting Up the Software

QL series printers use Zebra's CPCL Programming language which was designed for mobile printing applications. CPCL is fully described in the "CPCL Programmers Manual", available on-line from the Zebra Web site.

You can also use Label Vista™, Zebra's Windows® based label creation program which uses a graphical interface to create and edit labels in the CPCL language.

Refer to Appendix E for tips on downloading the Label Vista application from Zebra's Web site.

QL series printers with an optional memory upgrade can support an interpreter for ZPL II®, or EPL programming languages. QL Plus series printers have these interpreters included as a standard part of their operating system.

If you plan to use ZPL II or EPL, refer to the appropriate Programming Guides available on-line from Zebra's Web site. If you choose to use a third party label preparation system, follow the installation instructions included in the package.

Radio Regulatory Information

Zebra Bluetooth Radios ZBR3 and QL+ZBR3



Caution • Exposure to Radio Frequency Radiation. The radiated output power of this internal Bluetooth radio is far below the FCC radio frequency exposure limits. The internal Bluetooth radio operates within guidelines found in radio frequency safety standards and recommendations. Do not use the printer in an unauthorized manner.



Note • The following section only applies when the ZBR3 (FCC ID: I28MD-BTC2TY3) or QL+ZBR3 (FCC ID: I28MD-BTC2TY4) Bluetooth Radio is installed in a QL series printer. Unless specified elsewhere in this manual, the antenna used for this transmitter must not be co-located or must not operate in conjunction with any other antenna.

European Regulatory Information for this Radio

This device is intended for use in all EU and EFTA member states.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998
European Immunity Standard
- EN 60950: 2000
Safety of Information Technology Equipment
- EN 300 328-2 V1.4.1 (2003-04)
Technical requirements for spread-spectrum radio equipment
- EN 301 489-1/-17 V1.5.1/1.2.1 (2003-12) -17 v1.2.1 (2002-08)
EMC requirements for spread-spectrum radio equipment.

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states.

<p>CE 0336 (ZBR3 Only) CE</p>	<p>Important Notice: This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states.</p>
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WLAN Module Using 802.11b CF Radio (North America)

The following section only applies when the CF (Compact Flash) WLAN module (With FCC ID: I28MD-RW4137) is installed in a QL series printer (note that only one of the radio options can be installed in the printer at one time). Other than conditions specified elsewhere in this manual, only one of the radio options can be installed in the printer at one time and the antenna used for these transmitters must not be co-located or must not operate in conjunction with any other antenna.

QL model printers have the FCC ID number label on the front of the module, and QL Plus models have the FCC ID number on a label on the back of the unit.



Caution • Use of a QL series printer with the radio module marked with FCC ID: I28MD-RW4137 meets the FCC requirements for radio frequency (RF) radiation exposure in the standard body worn configuration with no minimum separation. In this configuration, which applies whether the belt clip or shoulder strap is used, the face of the printer from which paper is transported is facing away from the user's body. The standard configuration must always be used when the printer is body worn.

The QL 220, QL 220 Plus, QL 320, QL 320 Plus, QL 420 and QL 420 Plus printers with this radio option have been SAR tested. The maximum SAR value measured for each model is listed below:

Model	SAR value W/Kg (1g average)
QL220 & 220 Plus	0.0618
QL 320 & 320 Plus	0.0500
QL 420 & 420 Plus	0.0432

WLAN Module Using 802.11b CF Radio (Asia & EU Countries)

The following section only applies when the CF (Compact Flash) WLAN module (With FCC ID: H9PLA4137) is installed in a QL series printer. Other than conditions specified elsewhere in this manual, only one of the radio options can be installed in the printer at one time and the antenna used for these transmitters must not be co-located or must not operate in conjunction with any other antenna.

QL model printers have the FCC ID number label on the front of the module, and QL Plus models have the FCC ID number on a label on the back of the unit.



Caution • Use of a QL series printer with the radio module marked with FCC ID:H9PLA4137 meets the FCC requirements for radio frequency (RF) radiation exposure in the standard body worn configuration with no minimum separation. In this configuration, which applies whether the belt clip or shoulder strap is used, the face of the printer from which paper is transported is facing away from the user's body. The standard configuration must always be used when the printer is body worn.

European Regulatory Information for this Radio

AT	BE	CY	CZ	DK
EE	FI	FR	DE	GR
HU	IE	IT	LV	LT
LU	MT	NL	PL	PT
SK	SI	ES	SE	GB

Note: -Member states in the EU with restrictive use for this device are crossed out!

This device is also authorized for use in all EFTA member states (CH, IS, LI, NO)

CE 0168 ⓘ

Important Notice:

This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states except in France where restrictive use applies.

continued

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998
European Immunity Standard
- EN 60950: 2000
Safety of Information Technology Equipment
- EN 300 328-2 V1.6.1 (2004-11)
Technical requirements for spread-spectrum radio equipment
- EN 301 489-1/-17 V1.5.1/1.2.1 (2003-12) -17 v1.2.1 (2002-08)
EMC requirements for spread-spectrum radio equipment.

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states, except in France where restrictive use applies.

The use of this frequency band in France is subject to restrictions. You may only use channels 10 and 11 (2457 and 2462 MHz) on French territory, except in those French departments as listed in the table below where channels 1-13 (2412-2472 MHz) may be used. For more information see <http://www.anfr.fr/> and/or <http://www.art-telecom.fr>

01	Ain	36	Indre	69	Rhone
02	Aisne	37	Indre et Loire	70	Haute Saone
03	Allier	39	Jura	71	Saone et Loire
05	Hautes Alpes	41	Loir et Cher	72	Sarthe
08	Ardennes	42	Loire	75	Paris
09	Ariege	45	Loiret	77	Seine et Marne
10	Aube	50	Manche	78	Yvelines
11	Aude	54	Meurthe et Moselle	79	Deux Sievres
12	Aveyron	55	Meuse	82	Tarn et Garonne
16	Charente	57	Moselle	84	Vaucluse
19	Correze	58	Nievre	86	Vienne
2A	Corse Sud	59	Nord	88	Vosges
2B	Haute Corse	60	Oise	89	Yonne
21	Cote d'Or	61	Orne	90	Territoire de Belfort
24	Dordogne	63	Puy de Dome	91	Essonne
25	Doubs	64	Pyrenees Atlantique	92	Hauts de Seine
26	Drome	65	Hautes Pyrenees	93	Seine St Denis
27	Eure	66	Pyrenees Orientales	94	Val de Marne
32	Gers	67	Bas Rhin		
35	Ille et Vilaine	68	Haute Rhin		

Zebra 802.11b WLAN Radio Module

The following section only applies when the Zebra 802.11b WLAN radio module (With FCC ID: I28MD-ZLAN11B) is installed in a QL series printer (note that only one of the radio options can be installed in the printer at one time). Other than conditions specified elsewhere in this manual, only one of the radio options can be installed in the printer at one time and the antenna used for these transmitters must not be co-located or must not operate in conjunction with any other antenna.

QL model printers have the FCC ID number label on the front of the module, and QL Plus models have the FCC ID number on a label on the back of the unit.



Caution • The radiated output power of this internal 802.11b radio is far below the FCC radio frequency exposure limits. Nevertheless, this radio must be used in such a manner that the antenna is 2.5 cm. or further from the human body. The radio and antenna are mounted internally in this printer such that when the printer is worn with the back of the printer against the body and the front of the printer (where paper exits) away from the body, then the 2.5 cm distance between the antenna and the users body will be met. Do not use the printer in an unauthorized manner.

European Regulatory Information for this Radio

AT	BE	CY	CZ	DK
EE	FI	FR	DE	GR
HU	IE	IT	LV	LT
LU	MT	NL	PL	PT
SK	SI	ES	SE	GB

Note: -Member states in the EU with restrictive use for this device are crossed out!

This device is also authorized for use in all EFTA member states (CH, IS, LI, NO)

CE 0336

Important Notice:

This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states except in France where restrictive use applies.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998
European Immunity Standard
- EN 60950: 2000
Safety of Information Technology Equipment
- EN 300 328-2 V1.6.1 (2004-11)
Technical requirements for spread-spectrum radio equipment
- EN 301 489-1/-17 V1.5.1/1.2.1 (2003-12) -17 v1.2.1 (2002-08)
EMC requirements for spread-spectrum radio equipment.

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states, except in France where restrictive use applies.

The use of this frequency band in France is subject to restrictions. You may only use channels 10 and 11 (2457 and 2462 MHz) on French territory, except in those French departments as listed in the table below where channels 1-13 (2412-2472 MHz) may be used. For more information see <http://www.anfr.fr/> and/or <http://www.art-telecom.fr>

01	Ain	36	Indre	69	Rhone
02	Aisne	37	Indre et Loire	70	Haute Saone
03	Allier	39	Jura	71	Saone et Loire
05	Hauts Alpes	41	Loir et Cher	72	Sarthe
08	Ardennes	42	Loire	75	Paris
09	Ariege	45	Loiret	77	Seine et Marne
10	Aube	50	Manche	78	Yvelines
11	Aude	54	Meurthe et Moselle	79	Deux Sievres
12	Aveyron	55	Meuse	82	Tarn et Garonne
16	Charente	57	Moselle	84	Vaucluse
19	Correze	58	Nievre	86	Vienne
2A	Corse Sud	59	Nord	88	Vosges
2B	Haute Corse	60	Oise	89	Yonne
21	Cote d'Or	61	Orne	90	Territoire de Belfort
24	Dordogne	63	Puy de Dome	91	Essonne
25	Doubs	64	Pyrenees Atlantique	92	Hauts de Seine
26	Drome	65	Hautes Pyrenees	93	Seine St Denis
27	Eure	66	Pyrenees Orientales	94	Val de Marne
32	Gers	67	Bas Rhin		
35	Ille et Vilaine	68	Haute Rhin		

QL 320 WLAN Module Using PCMCIA Radio

The following section only applies when the PCMCIA WLAN module (FCC ID: I28-QL320352) is installed in the QL 320 printer (note that only one of the radio options can be installed in the printer at one time). The antenna used for this transmitter must not be co-located or must not operate in conjunction with any other antenna.

The FCC ID number label is on the front of the QL 320. On all models the text can be read with the radio module installed.



Caution • Use of the QL 320 with the radio module marked with FCC ID: I28-QL320352 meets the FCC requirements for radio frequency (RF) radiation exposure in the standard body worn configuration with no minimum separation. In this configuration, which applies whether the belt clip or shoulder strap is used, the face of the printer from which paper is transported is facing away from the user's body. The standard configuration must always be used when the printer is body worn. This configuration maintains the required 1 cm separation distance.

The printer with this radio option has been SAR tested. The maximum SAR value measured was .819 W/kg averaged over 1 gram.

European Regulatory Information for this Radio

AT	BE	CY	CZ	DK
EE	FI	FR	DE	GR
HU	IE	IT	LV	LT
LU	MT	NL	PL	PT
SK	SI	ES	SE	GB

Note: -Member states in the EU with restrictive use for this device are crossed out!

This device is also authorized for use in all EFTA member states (CH, IS, LI, NO)

CE 0336 !

Important Notice:

This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states except in France where restrictive use applies.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998

European Immunity Standard

- EN 60950: 2000

Safety of Information Technology Equipment

- EN 300 328-2 V1.2.1 (2001-12)

Technical requirements for spread-spectrum radio equipment

- EN 301 489-17 V1.2.1 (2002-08)

EMC requirements for spread-spectrum radio equipment.

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states, except in France where restrictive use applies.

The use of this frequency band in France is subject to restrictions. You may only use channels 10 and 11 (2457 and 2462 MHz) on French territory, except in those French departments as listed in the table below where channels 1-13 (2412-2472 MHz) may be used. For more information see <http://www.anfr.fr/> and/or <http://www.art-telecom.fr>

01	Ain	36	Indre	69	Rhone
02	Aisne	37	Indre et Loire	70	Haute Saone
03	Allier	39	Jura	71	Saone et Loire
05	Hautes Alpes	41	Loir et Cher	72	Sarthe
08	Ardennes	42	Loire	75	Paris
09	Ariege	45	Loiret	77	Seine et Marne
10	Aube	50	Manche	78	Yvelines
11	Aude	54	Meurthe et Moselle	79	Deux Sievres
12	Aveyron	55	Meuse	82	Tarn et Garonne
16	Charente	57	Moselle	84	Vaucluse
19	Correze	58	Nievre	86	Vienne
2A	Corse Sud	59	Nord	88	Vosges
2B	Haute Corse	60	Oise	89	Yonne
21	Cote d'Or	61	Orne	90	Territoire de Belfort
24	Dordogne	63	Puy de Dome	91	Essonne
25	Doubs	64	Pyrenees Atlantique	92	Hauts de Seine
26	Drome	65	Hautes Pyrenees	93	Seine St Denis
27	Eure	66	Pyrenees Orientales	94	Val de Marne
32	Gers	67	Bas Rhin		
35	Ille et Vilaine	68	Haute Rhin		

QL 420 WLAN Module Using PCMCIA Radio

The following section only applies when the PCMCIA WLAN module (FCC ID: I28-QL420352) is installed in the QL 420 printer. (Note that only one of the radio options can be installed in the printer at one time). The antenna used for this transmitter must not be co-located or must not operate in conjunction with any other antenna.

The FCC ID number label is on the label on the front of the QL 420. On all models the text can be read with the radio module installed.



Caution • Use of the QL 420 with the radio module marked with “FCC ID: I28-QL420352” meets the FCC requirements for radio frequency (RF) radiation exposure in the standard body worn configuration with no minimum separation. In this configuration, which applies whether the belt clip or shoulder strap is used, the face of the printer from which paper is transported is facing away from the user’s body. The standard configuration must always be used when the printer is body worn. This configuration maintains the required 1 cm separation distance.

The printer with this radio option has been SAR tested. The maximum SAR value measured was 1.04. W/kg averaged over 1 gram.

European Regulatory Information for this Radio

AT	BE	CY	CZ	DK
EE	FI	FR	DE	GR
HU	IE	IT	LV	LT
LU	MT	NL	PL	PT
SK	SI	ES	SE	GB

Note: -Member states in the EU with restrictive use for this device are crossed out!

This device is also authorized for use in all EFTA member states (CH, ICE, LI, NOR)

CE 0336 !

Important Notice:

This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states except in France where restrictive use applies.

Europe EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998
European Immunity Standard
- EN 60950: 2000
Safety of Information Technology Equipment
- EN 300 328-2 V1.3.1 (2001-12)- Technical requirements for spread-spectrum radio equipment
- EN 301 489-17 V1.2.1 (2002-08)- EMC requirements for spread-spectrum radio equipment

In France there are restrictions in the use of this device. A restricted frequency band exists in France. When operating this device on French territory you may only use channels 10 and 11 (2457 and 2463 MHz). It is not allowed to operate this device at any other frequency supported by the device. For more information see <http://www.anfr.fr/>

01	Ain	36	Indre	69	Rhone
02	Aisne	37	Indre et Loire	70	Haute Saone
03	Allier	39	Jura	71	Saone et Loire
05	Hautes Alpes	41	Loir et Cher	72	Sarthe
08	Ardennes	42	Loire	75	Paris
09	Ariege	45	Loiret	77	Seine et Marne
10	Aube	50	Manche	78	Yvelines
11	Aude	54	Meurthe et Moselle	79	Deux Sievres
12	Aveyron	55	Meuse	82	Tarn et Garonne
16	Charente	57	Moselle	84	Vaucluse
19	Correze	58	Nievre	86	Vienne
2A	Corse Sud	59	Nord	88	Vosges
2B	Haute Corse	60	Oise	89	Yonne
21	Cote d'Or	61	Orne	90	Territoire de Belfort
24	Dordogne	63	Puy de Dome	91	Essonne
25	Doubs	64	Pyrenees Atlantique	92	Hauts de Seine
26	Drome	65	Hautes Pyrenees	93	Seine St Denis
27	Eure	66	Pyrenees Orientales	94	Val de Marne
32	Gers	67	Bas Rhin		
35	Ille et Vilaine	68	Haute Rhin		

WLAN Module Using 802.11g Radio

The following section only applies when the 802.11g WLAN module (With FCC ID: I28MD-ZLAN11G) is installed in a QL Plus series printer (note that only one of the radio options can be installed in the printer at one time). Other than conditions specified elsewhere in this manual, only one of the radio options can be installed in the printer at one time and the antenna used for these transmitters must not be co-located or must not operate in conjunction with any other antenna.

QL Plus models have the FCC ID number on a label on the back of the unit.



Caution • Use of a QL Plus series printer with the radio module marked with FCC ID: I28MD-ZLAN11G meets the FCC requirements for radio frequency (RF) radiation exposure in the standard body worn configuration with no minimum separation. In this configuration, which applies whether the belt clip or shoulder strap is used, the face of the printer from which paper is transported is facing away from the user's body. The standard configuration must always be used when the printer is body worn.

The QL 220 Plus, QL 320 Plus, and QL 420 Plus printers with this radio option have been SAR tested. The maximum SAR value measured for each model is listed below:

Model	SAR value W/Kg (1g average)
QL220 Plus	0.005
QL 320 Plus	0.002
QL 420 Plus	0.004

European Regulatory Information for this Radio

AT	BE	CY	CZ	DK
EE	FI	FR	DE	GR
HU	IE	IT	LV	LT
LU	MT	NL	PL	PT
SK	SI	ES	SE	GB

Note: -Member states in the EU with restrictive use for this device are crossed out!

This device is also authorized for use in all EFTA member states (CH, IS, LI, NO)



Important Notice:

This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states except in France where restrictive use applies.

continued

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998

European Immunity Standard

- EN 60950: 2000

Safety of Information Technology Equipment

- EN 300 328-2 V1.2.1 (2001-12)

Technical requirements for spread-spectrum radio equipment

- EN 301 489-17 V1.2.1 (2002-08)

EMC requirements for spread-spectrum radio equipment.

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states, except in France where restrictive use applies.

The use of this frequency band in France is subject to restrictions. You may only use channels 10 and 11 (2457 and 2462 MHz) on French territory, except in those French departments as listed in the table below where channels 1-13 (2412-2472 MHz) may be used. For more information see <http://www.anfr.fr/> and/or <http://www.art-telecom.fr>

01	Ain	36	Indre	69	Rhone
02	Aisne	37	Indre et Loire	70	Haute Saone
03	Allier	39	Jura	71	Saone et Loire
05	Hautes Alpes	41	Loir et Cher	72	Sarthe
08	Ardennes	42	Loire	75	Paris
09	Ariege	45	Loiret	77	Seine et Marne
10	Aube	50	Manche	78	Yvelines
11	Aude	54	Meurthe et Moselle	79	Deux Sievres
12	Aveyron	55	Meuse	82	Tarn et Garonne
16	Charente	57	Moselle	84	Vaucluse
19	Correze	58	Nievre	86	Vienne
2A	Corse Sud	59	Nord	88	Vosges
2B	Haute Corse	60	Oise	89	Yonne
21	Cote d'Or	61	Orne	90	Territoire de Belfort
24	Dordogne	63	Puy de Dome	91	Essonne
25	Doubs	64	Pyrenees Atlantique	92	Hauts de Seine
26	Drome	65	Hautes Pyrenees	93	Seine St Denis
27	Eure	66	Pyrenees Orientales	94	Val de Marne
32	Gers	67	Bas Rhin		
35	Ille et Vilaine	68	Haute Rhin		