ZQ510 & ZQ520

Mobile Printers

User Guide

ZEBRA

P1064404-004

Contents

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Document Conventions

The following graphic icons are used throughout the documentation set. These icons and their associated meanings are described below.

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 ZQ510 & ZQ520 Printers

Thank you for choosing our Zebra® ZQ510 and ZQ520 Mobile Printers. You will find these rugged printers will become a productive and efficient addition to your workplace thanks to their innovative design and state of the art features. Zebra Technologies is the leader in industrial printers with 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 the ZQ510 and ZQ520 printers. They use some of the latest technologies such as an 802.11ac/Bluetooth 4.1 dual radio, a smart battery with PowerPreciion+ functionality, Near Field Communication (NFC), a color LCD display and Made for iPhone® (MFi). MFi printers provide Apple co-processor (MFi) support which allows an Apple device such as an iPhone or iPad® to authenticate and connect over Bluetooth®.

These printers use CPCL and ZPL programming languages. To create and print labels using these languages, refer to the Programming Guide for CPCL (p/n P1073699-001), ZPL (p/n P1012728-010) and ZPL II (p/n 46530L). See Appendix H for instructions on how to access manuals on zebra.com.

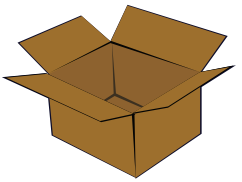
ZQ510 & ZQ520 Software Utilities:

- ZebraNet Bridge Enterprise™: printer configuration, fleet management
- Zebra Setup Utility: single printer configuration, quick setup
- Zebra Mobile Setup Utility: Android-based setup tool
- ZebraDesigner Pro v2: label design
- Zebra Designer Drivers: Windows® driver
- OPOS Driver: Windows driver
- Multiplatform SDK
- Zebra Downloader
- Printer Profile Manager Enterprise (PPME)
  (These utilities can be found on the Zebra website at http://www.zebra.com/us/en/support-downloads.html. See Appendix G.)

Unpacking and Inspection

- 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.

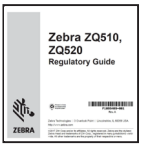
In case shipping is required, save the carton and all packing material.



Printer

QSG

Safety Guide



Regulatory Guide

Lithium-Ion Battery

Belt Clip

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.

ZQ510 & ZQ520 Technology

The ZQ510 and ZQ520 printers use several technologies made popular in other Zebra Mobile Printer product lines, as well as newer, state-of-the-art technologies.

PowerPrecision+ (PP+) Battery

The ZQ5 printers use a 2-cell Li-Ion battery pack with integrated intelligence and data storage capability meeting PowerPrecision+ (PP+) functionality. This intelligent battery has the integrated technology required to collect the detailed realtime battery metrics needed to maximize useful battery life and ensure every battery is healthy and able to hold a full charge. In addition, technology inside the batteries tracks and maintains the metrics required to provide real-time visibility into more meaningful battery statistics, such as total cycle usage of the battery, whether the battery is old and should be retired or how long a battery will take to fully charge.

Operating Temperature	Charging Temperature	Storage Temperature
-20˚C to +55˚C (-4˚F to 131˚F)	0˚C to +40˚C (32˚F to 104˚F)	-30˚C to +66˚C (-22˚F to 150.8˚F)

The ZQ510 and ZQ520 printers will only function properly with genuine Zebra smart battery packs.

The ZQ520 also uses an extended 4-cell smart battery (p/n P1058672)

The smart battery's health has three states: GOOD, REPLACE, and POOR. The battery health factor determines whether or not the printer can operate and what is communicated to the user via the display.

# of Charge Cycles	Health	Power-up Message
<300	GOOD	None
≥300 but <550	REPLACE	"Battery Diminished Consider Replacing" *
≥550 but <600	REPLACE	"Warning-Battery Is Past Useful Life" *
≥600	POOR	"Replace Battery Shutting Down" **

*** Warning accompanied by one long beep.**

**** Warning will flash on and off accompanied by beeping at a rate of once per second. After 30 seconds the printer will shut down.**

Note • Power down the printer before removing the battery to minimize the risk of corruption.

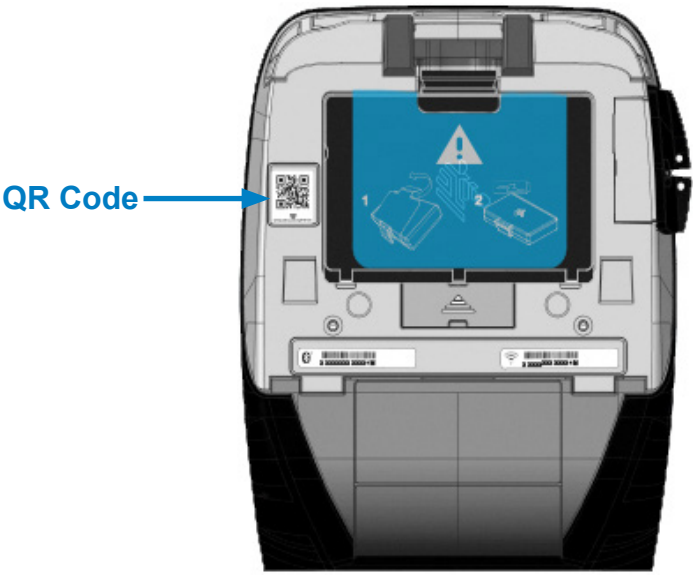
Printing Technology

The ZQ510 and ZQ520 printers use the Direct Thermal method to print human readable text, graphics and barcodes. It incorporates a sophisticated print engine for optimal printing under all operational conditions. Direct thermal printing uses heat to cause a chemical reaction on specially treated media. This reaction creates a dark mark wherever a heated element on the printhead comes in contact with the media. Since the printing elements are arranged very densely at 203 d.p.i. (dots per inch) horizontal and 200 d.p.i. vertical, highly legible characters and graphic elements may be created a row at a time as the media is advanced past the printhead. This technology has the advantage of simplicity, as there is no requirement for consumable supplies such as ink or toner. However, since the media is sensitive to heat, it will gradually loose legibility over long periods of time, especially if exposed to environments with relatively high temperatures or in direct sunlight.

QR Code

The QR barcode includes human readable text URL, for example www.zebra.com/ZQ520-info, which links the user to printer information and short videos on topics such as buying supplies, features overview, loading media, printing a configuration report, cleaning instructions, and accessory information.

Figure 1 • QR Code (ZQ520 Shown).



Made for iPhone (MFi)

ZQ510 and ZQ520 printers support communication with Apple devices running iOS 10 or later over a standalone Bluetooth 4.1 radio and the BT4.1 radio included with the 802.11ac (dual) radio.

Made for iPod iPhone iPad

Near Field Communication (NFC)

The ZQ5 printers support a passive NFC tag which complies with the “Android Standard Tag format” since Android devices are the most common found on the market today. The NFC tag is programmed from the factory and supports Bluetooth pairing to enable a tablet, smartphone or terminal to automatically pair with

the printer via a Bluetooth connection (within the bounds of the security profile being used).

The NFC tag also supports app launching whereby an app developed either by Zebra or a third party will launch on a NFC-enabled smartphone, tablet or terminal. Similarly, the NFC tag enables launching to a web support page via a tablet, smartphone or terminal.

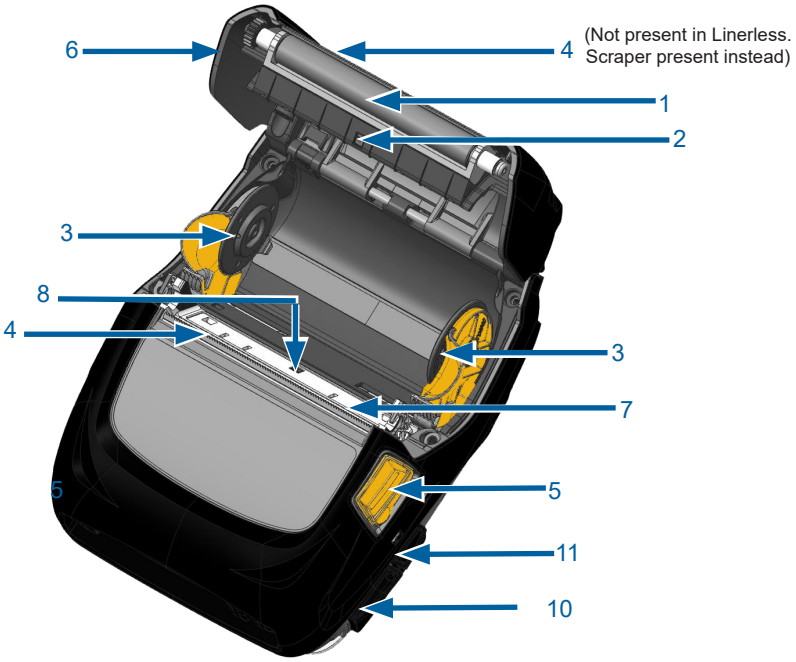
The ZQ500 Series printers are also ***active*** NFC devices that can not only collect information but exchange that information with other compatible devices. Active devices can read information and send it. An active NFC device, would not only be able to collect information from NFC tags, but it would also be able to exchange information with other compatible devices and could even alter the information on the NFC tag if authorized to make such changes.

Note • Active NFC is an optional functionality not present on all ZQ500 printers.

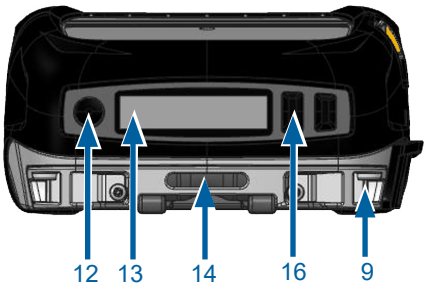
Thermal Shutdown

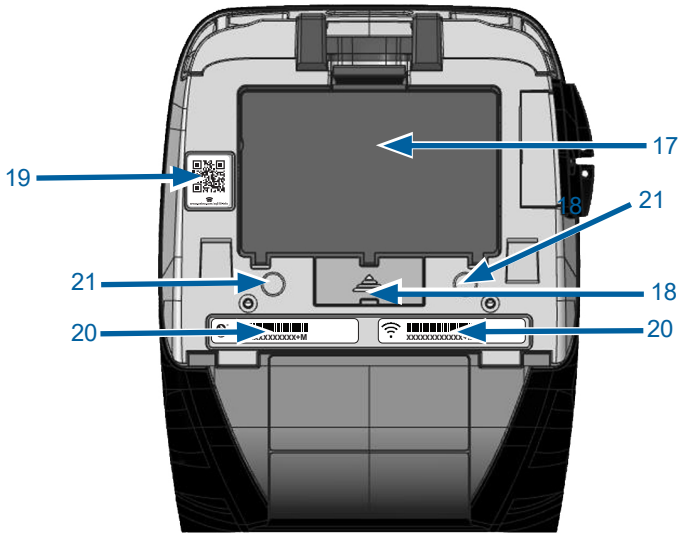
The ZQ500 Series printers have a thermal shutdown feature whereby the printer hardware will detect a printhead over-temperature condition at 65°C. The printer will automatically stop printing until the printhead cools down to 60°C. Printing will then recommence without a loss of label data or without any degradation of print quality.

Figure 2 • Overview of Features (ZQ520 Shown).



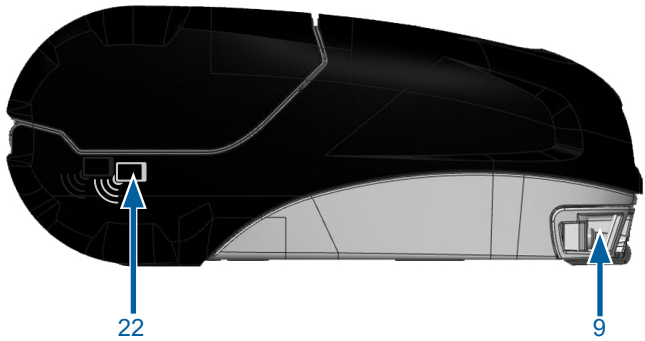
1. Platen Roller
2. Black Bar Sensor
3. Media Support Disks
4. Tear Bar
5. Media Cover Button
6. Media Cover
7. Printhead
8. Gap Sensor
9. Strap Post
10. USB Port
11. DC Input
12. Power Button
13. Control Panel
14. Belt Clip Opening
15. Select Button
16. Paper Feed Button
17. Battery
18. Docking Contacts/Cover
19. QR Code
20. MAC Address/Bluetooth ID Labels
21. Mounting Points
22. NFC (Print Touch Icon)





Note • Scanning the QR code with a smartphone will provide printer-specific information at www.zebra.com/ZQ510-info and www.zebra.com/ZQ520-info.

Note • Tapping the Zebra Print Touch™ icon with a Near Field Communication (NFC) enabled smartphone will provide instant access to printer-specific information. For more information about NFC and Zebra products, go to http://www.zebra.com/nfc. Bluetooth pairing applications via NFC is also possible. Please see Zebra Multi-platform SDK for more information.



Battery

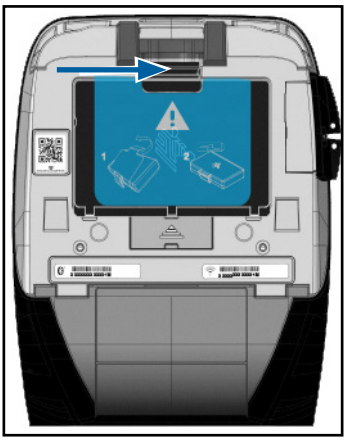
Installing/Removing Battery & Battery Tape Insulator

Important • Batteries are shipped in sleep mode to preserve their maximum capacity while in storage prior to initial use. Plug in the AC adapter (see page 24) or insert the battery into the 1-Slot Battery Charger (see page 27) or 3-Slot Battery Charger (see page 28), Smart Charger 2 (see page 21) or Quad Charger (see page 22) to wake it up before using for the first time.

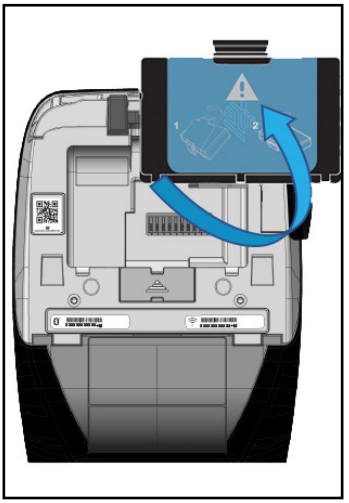
Removing the Battery

1. If a belt clip is present on the bottom of the printer, rotate it such that it provides clearance for the battery.

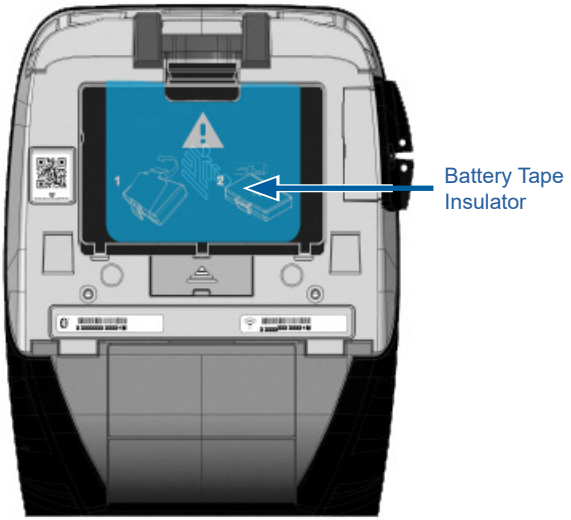
2. Depress the latch on the battery pack (where indicated).

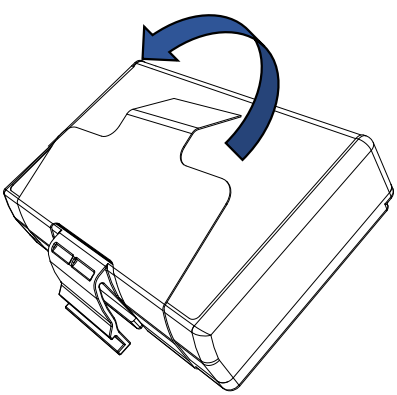


3. Rotate the pack away from the battery well. Lift the battery up and out of the printer.

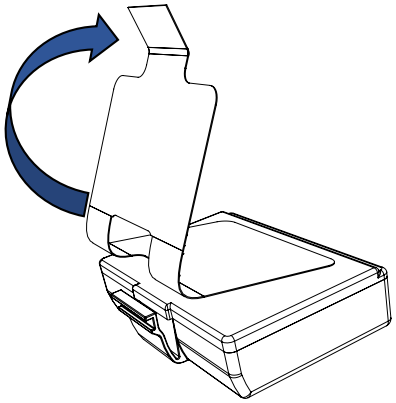


Removing the Battery Tape Insulator





1. Pull up on the tape insulator tab located on the bottom of the battery pack.

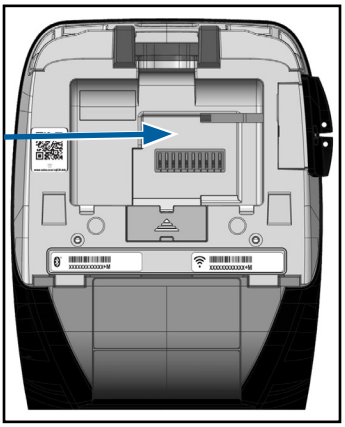


2. Peel back the tape insulator and remove it from the top of the battery pack. Discard upon removal.

Caution • Battery can explode, leak or catch fire if improperly charged or exposed to high temperature. Do not disassemble, crush, puncture, short external contacts or dispose in fire or water. Charge on a Zebra approved Lithium-Ion charger only.

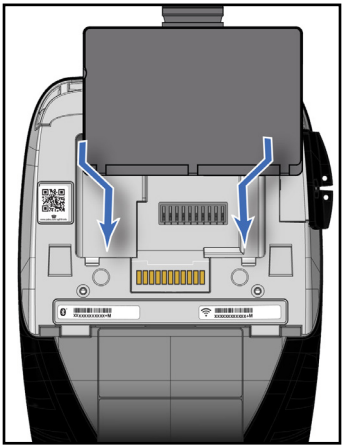
Installing the Battery

1. Locate the battery compartment on the bottom of the printer (where indicated).

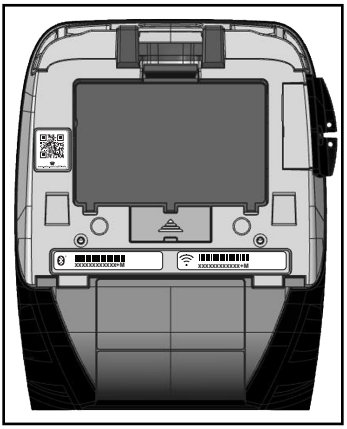


2. Swivel the belt clip (if present) to access the battery compartment.

3. Insert the battery into the printer as shown. (It is not possible to insert the pack in the incorrect orientation.)



4. Rock the battery into the compartment until it locks in place and is sitting flush in the printer.



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 refer to the Important Safety Information data sheet shipped with each printer and the Technical Bulletin shipped with each battery pack. These documents detail procedures to ensure maximum reliability and safety while using this printer.

Important • Always dispose of used batteries properly. Refer to Appendix E 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.

Caution • Do not incinerate, disassemble, short circuit, or expose to temperatures higher than 65°C (149°F).

Charger Safety

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

Smart Charger-2 (SC2) Single Battery Charger (p/n P1031365-063 with US Type-A Line Cord)

The Smart Charger-2 (SC2) is a charging system for use with the 2-cell and 4-cell lithium-ion smart batteries used in the ZQ5 printers.

Charging Status Indicators

The SC2 uses a LED indicator to indicate the charge state in either Green, Yellow, or Amber as detailed below.

DC Power Input	Indicator	Battery Status
Present	Green	Battery not present
Present	Green	Fully charged
Present	Yellow	Charging
Present	Amber	Fault
Present	Off	Present and Battery Health = POOR

There will also be a battery charging graphic to indicate that this LED is the charging status indicator  . Charge time for all batteries is 2 hours.

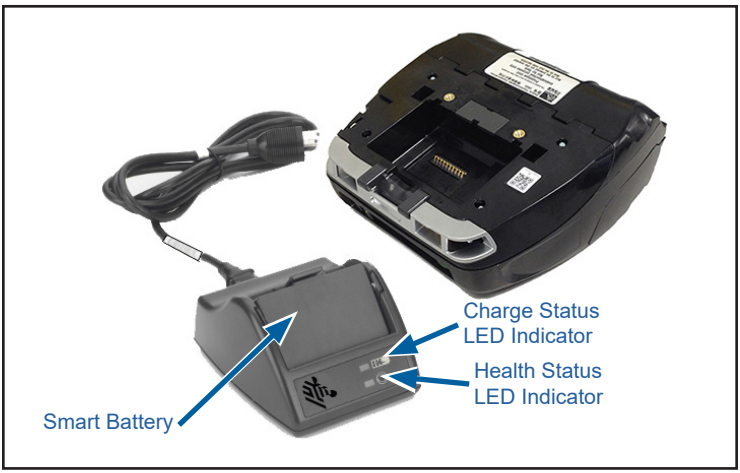
Battery Health Indicator

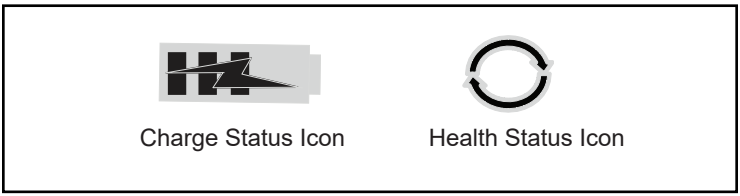
The SC2 features a tri-color (Yellow/Green/Amber) LED to indicate the health of the battery pack. An evaluation of the battery health begins upon insertion of the battery in the charger and results in the appropriate LED being illuminated as shown below. The LED will remain illuminated as long as input power is applied.

Battery	Indicator	Health Status
None or non-smart	Off	
Smart battery present	Green	GOOD
Smart battery present	Yellow	CAPACITY DIMINISHED
Smart battery present	Flashing yellow	PAST USEFUL LIFE
Smart battery present	Amber	UNUSABLE-REPLACE (discard per Instructions in Appendix E

Note • For detailed information on the SC2, refer to the Smart Charger 2 User Guide (p/n P1040985-001).

Figure 3 • Smart Charger-2 (SC2)





SC2 Dimensions

Height	Width	Length
65.1 mm (2.56 in.)	101.5 mm (4 in.)	120.9 mm (4.75 in.)

Model UCLI72-4 Quad Charger (AC18177-5 with US Type-A Line Cord)

The UCLI72-4 Quad Charger is designed to charge up to four (4) ZQ5 battery packs simultaneously. Batteries must be removed from the printer to be charged in the Quad Charger.

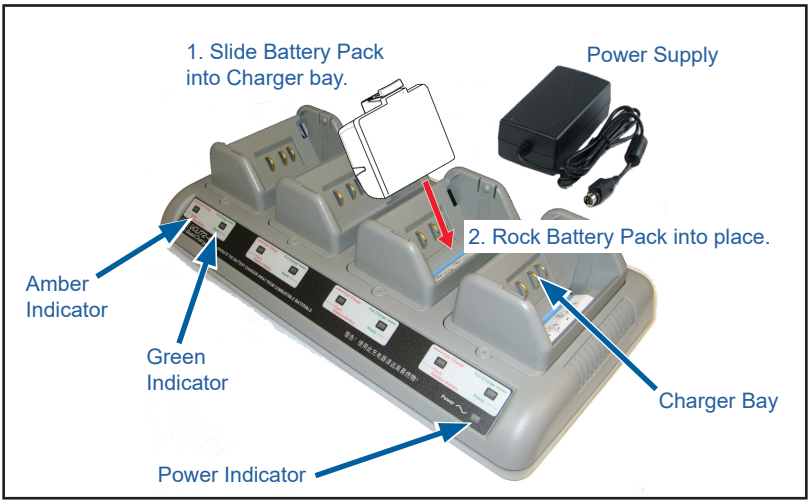
1. Ensure that the charger has been installed properly per the Quad Charger instruction manual. Ensure that the power indicator on the front panel is on.
2. Plug a battery pack into any one of the four charging bays as shown in Figure 4, noting the orientation of the battery pack. Slide the battery pack into the charging bay until it stops and 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-Replace Battery

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 as described in Appendix F.

Figure 4 • Quad Charger



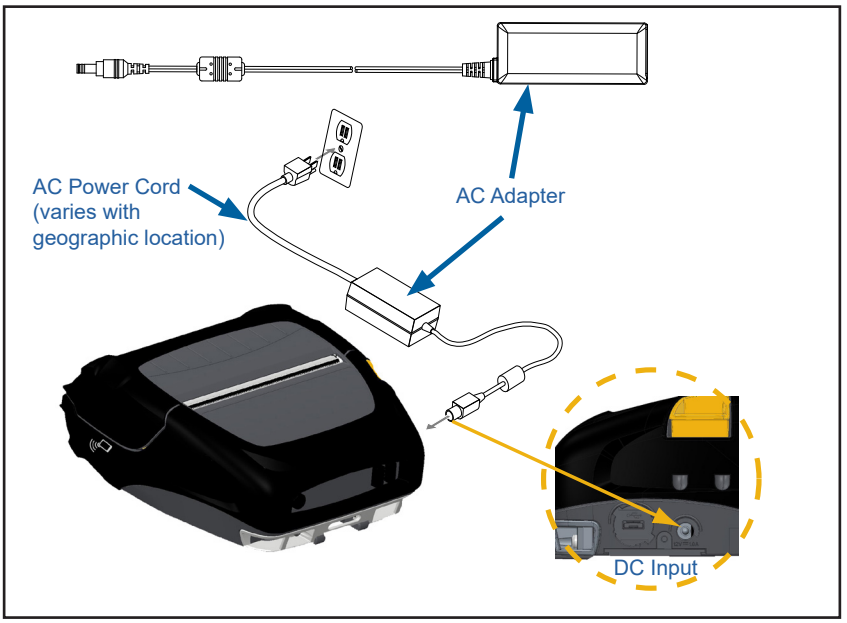
Battery packs which are only partially discharged will take less time to reach their charged state. Batteries which have reached 80% of their charge capacity may be used, however, it is recommended that you allow the batteries to reach a full charge to maintain maximum battery life.

Note • The UCLI72-4 Quad Charger has a safety feature which stops charging a battery after six hours regardless of its charge state. If not fully charged, it might be indicative of a battery that needs to be replaced.

Important • Use care when installing 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 accidently be turned off if you will be charging batteries overnight.

AC Power Adapter
(p/n P1031365-024 with US Type-A Line Cord) (p/n P1065668-008 with US Type-A Line Cord for Healthcare Only)

Figure 5 • AC Power Adapter Charging



- Open the protective cover on the printer to expose the DC input charger jack.
- Connect the appropriate AC power cord for your location to the adapter and then plug the power cord into an AC receptacle.
- Plug the barrel plug from the AC adapter into the charger jack on the printer.
- The printer will power up and begin charging. The printer can be left on or turned off at this point. Charging will continue in either state.

Important • While it's possible to charge the battery when using the printer, charge times will increase under this condition.

Vehicle Cradle

The ZQ500 Series Vehicle Cradle provides a means to mount a ZQ510 and ZQ520 printer in a vehicle while at the same time providing charging power to the battery. The Vehicle Cradle features USB connectivity to allow the user to connect a laptop or tablet to the cradle.

Battery Eliminator/Battery Eliminator Vehicle Cradle

The ZQ500 Series Battery Eliminator allows a vehicle based mobile printer user to operate the printer without the use of a battery. The Battery Elimnator Vehicle Cradle enables the user to mount a ZQ500 Series printer in a vehicle without the use of a battery.

4-Bay Power Station

The ZQ500 4-Bay Power Station allows a total of four (4) ZQ510 or ZQ520 printers to be docked and charged. The Power Station provides battery charging power while still maintaining all of the printer's functionality.

Note • For detailed information on accessories, refer to the ZQ500VC User Guide (P1071204-001), the ZQ500 4-Bay Power Station User Guide (P1071266-001), the Battery Eliminator User Guide (P1071365-001), and the Battery Eliminator Cradle User Guide (P1073631-001).

Before docking the printer on either the Vehicle Cradle or the 4-Bay Power Station, you must remove the docking contacts cover located on the bottom of the printer. To remove the cover, first remove the battery, and then use a small screwdriver or coin to detach the cover and expose the docking contacts.

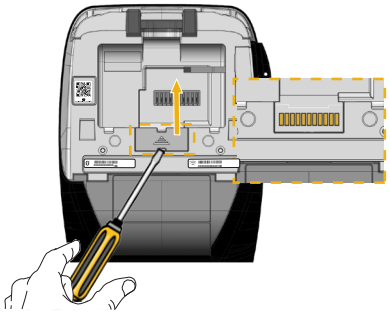


Figure 6 • Vehicle Cradle

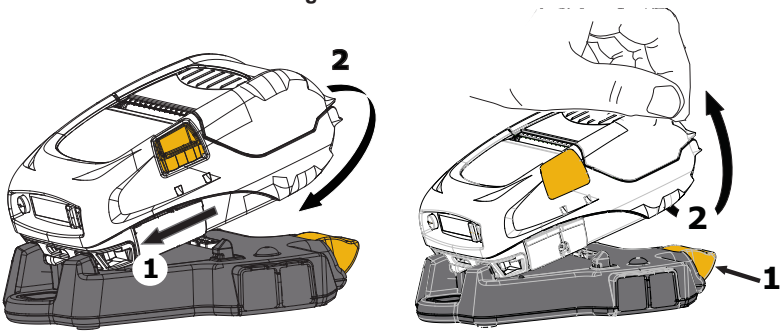
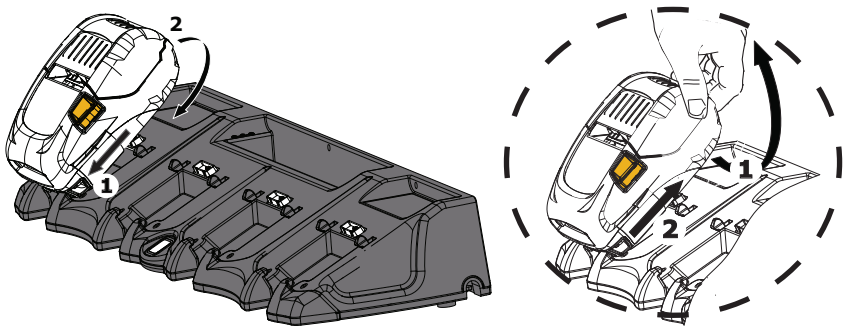


Figure 7 • 4-Bay Power Station

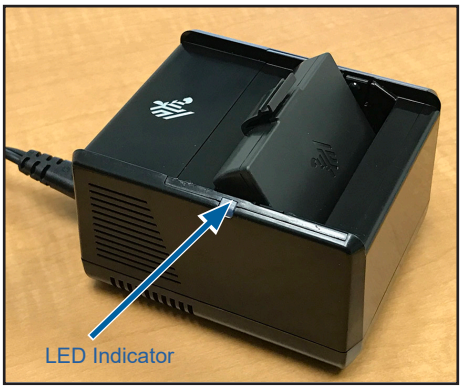


1-Slot Battery Charger (p/n SAC-MPP-1BCHGUS1-01 with US Type-A Line Cord)

Use Case: Home Office/Small Business

The 1-Slot Battery Charger provides the user with a single, spare battery charging solution. Similar to the 3-Slot Battery Charger, the single charger will charge a 2-cell battery from empty to fully charged in less than four (4) hours and a 4-cell battery within six (6) hours.

Figure 8 • 1-Slot Battery Charger



Charging Status Indicators

Both the 3-slot and 1-slot battery chargers use an LED indicator located next to each slot to indicate the charge state in either green, red, or amber as detailed below.

Mode	Charging Indication	Description
Charge Fault		Fast blinking red
Charging (Healthy)		Solid amber
Charge Done (Healthy)		Solid green
Charging (Unhealthy)		Solid red
Charging Done (Unhealthy)		Solid red
Best Battery (Charging)		Alternates between solid and bright bursts of amber
Best Battery (Charge Done)		Alternates between solid and bright bursts of green

3-Slot Battery Charger
(p/n SAC-MPP-3BCHGUS1-01) Dual 3-Slot Battery Charger (p/n SAC-MPP-6BCHUS1-01) w/ US Type-A Line Cord

Use Case: Settlement Room

The 3-Slot Battery Charger is a charging system for use with the 2-cell lithium-ion batteries used in the ZQ5 printers. The 3-slot charger is capable of charging three 2-cell batteries simultaneously from empty to full in less than four (4) hours and 4-cell batteries within six (6) hours. It can either be used as a standalone charger or mounted on a 5-slot share cradle.

Figure 9 • 3-Slot Battery Charger

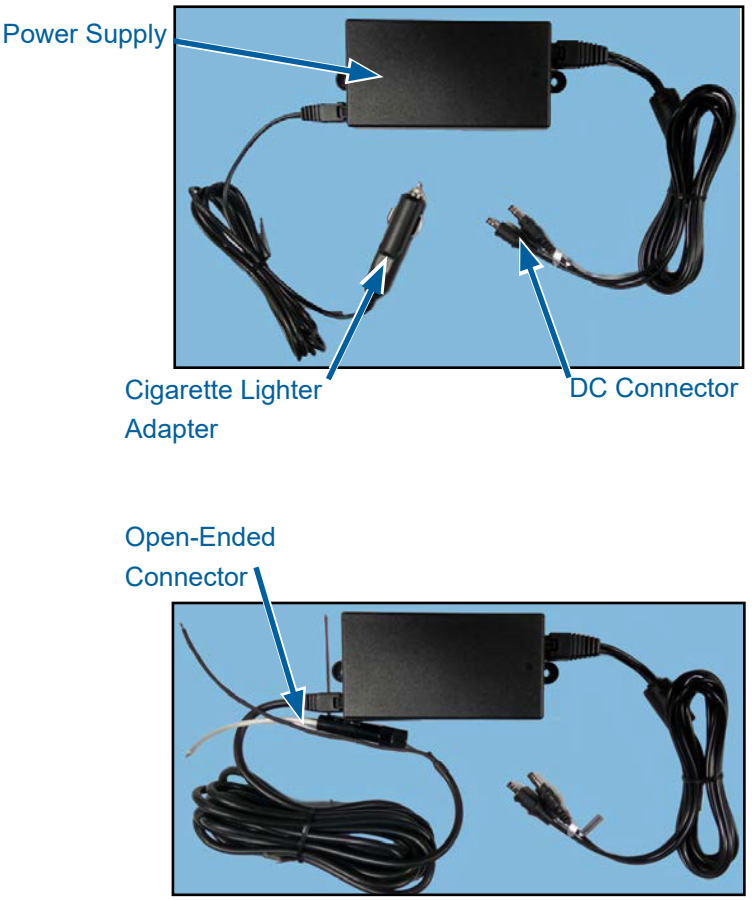
Note • For detailed information on the 1-Slot, 3-Slot Battery Charger and 3-Slot Dual Pack Charger, refer to the P1096323-101, P1096767-101 and P1097966-101 Quick Start Guides at https://www.zebra.com/us/en/support-downloads.html

Vehicle Adapter

Use Case: Vehicle

The ZQ500 Series printers, along with accompanying Zebra TC51/TC56 mobile computers, can be charged in the vehicle though the use of a Vehicle Adapter. The Vehicle Adapter uses either an open-ended connection (A) or cigarette lighter adapter (B), along with a power supply.

Figure 10 • Vehicle Adapter



Loading the Media in the ZQ5 Printers

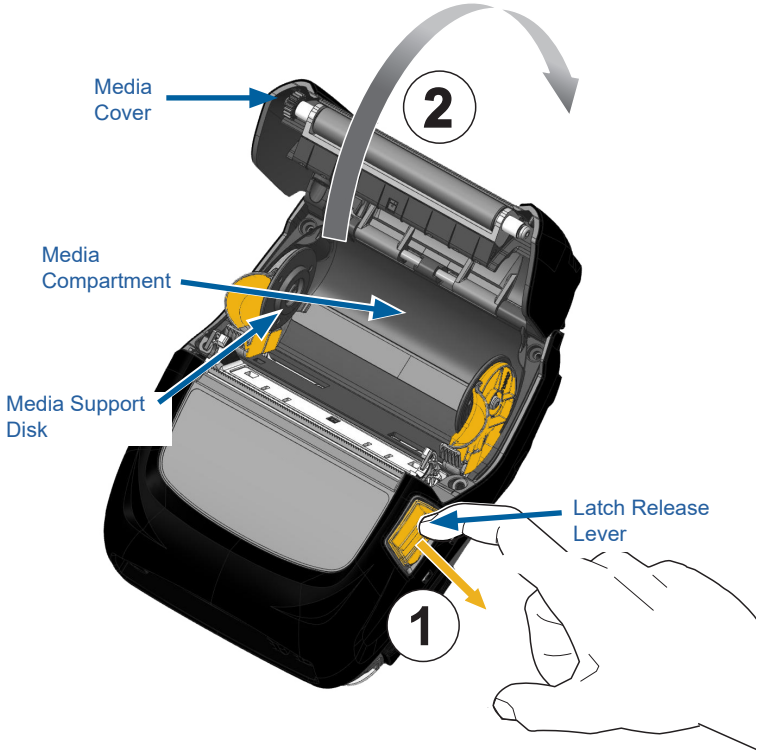
The ZQ500 Series printers are designed to print either continuous (receipt) media or label stock.

Loading Media Procedure

1. Open the printer (Refer to Figure 11).

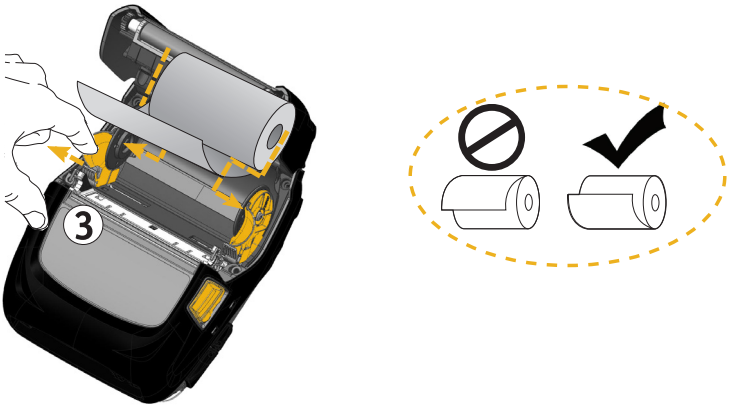
- Press the Media Cover Button on the side of the printer as shown in “1” below. The Media Cover will open automatically.
- Rotate the Media Cover back completely as shown in “2”, exposing the media compartment and adjustable media supports.

Figure 11 • Opening the Printer

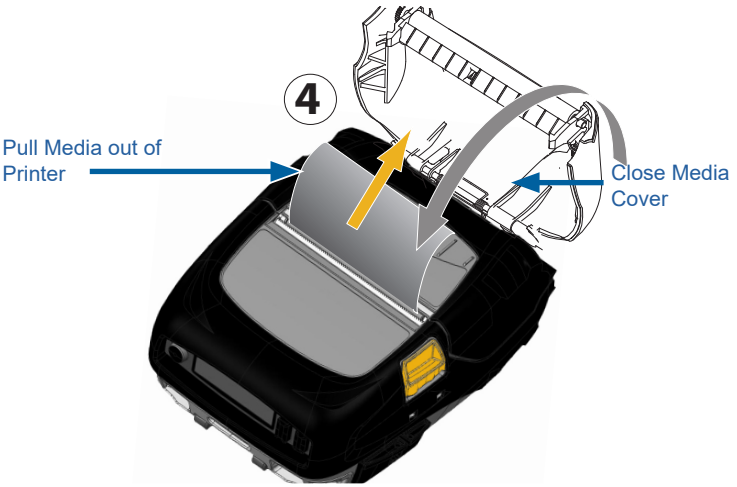


2. Pull the media supports apart as shown in Figure 11 below. Insert the roll of media (in the orientation shown) between the supports and let the supports secure the media in place. The supports will adjust themselves to the width of the media, and the media roll should be able to spin freely on the supports.

Figure 12 • Loading Media



3. Close the media cover until it clicks into place and the media will advance as shown.

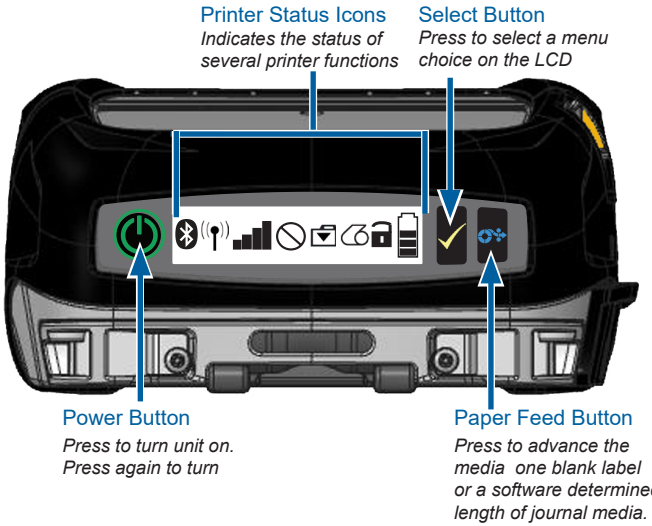


Note • Please refer to the Programming Guide (P1012728-010) for information on changing the setting to adjust the media feed length via a Set-Get-Do (SGD).

Operator Controls

The ZQ510 and ZQ520 feature a control panel with buttons for the Power On/Off and Media Feed functions, as well as a display for providing information regarding printer functions (Fig. 13). The menu displays a single row of icons used to indicate printer status. The LCD also displays acknowledged alerts and non-acknowleged alerts. Acknowledged alerts have a single response option which requires the user to press the “Select” button.

Figure 13 • Control Panel



Printer Status Icons

	Bluetooth		**Media**
	WiFi Connection		**Cover Open**
	WiFi Signal Strength		**Battery**
	Error	**DC**	**Battery Eliminator**
	Data		**Power Save Mode**
	Draft Mode		

Icons for Power Save Mode and Draft Mode are also displayed on the control panel in place of the Media Out Icon. When the printer is in Power Save Mode and is not in a media out condition, the Power Save icon shall display. When the printer is in Power Save Mode and also in a media out condition, the Media Out icon will be displayed instead of the Power Save icon. This is due to the fact that the printer is not running when there is a media out condition. If the printer is in both Power Save Mode and Draft Mode, the Power Save icon will be displayed.

When the printer is in Draft Mode due to a user setting, the Draft Mode icon will be displayed. However, when the printer is in Draft Mode and in a media out condition, the blinking Media Out icon will be displayed.

Buttons

The User has the ability to use the three button interface on the ZQ510 and ZQ520 with the following Power Up and Run Time sequences.

Power Up Sequences

Sequence #	Function	Keys	Button
1	Two Key Report	Hold down Feed button while pressing the Power button	
2	Config Label then Network Label	Hold down Select button while pressing the Power button	
3	Forced Download	Hold down the Select and Feed buttons while pressing the Power button	
4	Causes the unit to turn on or off or to enter Sleep Mode	Power Button	

Note • A forced download is when the printer is powered up in a mode wherein it is running only the code that allows for firmware downloads to happen.

Run Time Sequences without LED Flashes

Sequence #	Function	Keys	Button
1	Two-key and ZPL Config	Hold down Feed button and Select button for 3 seconds	
2	Repeated Feed Events	Feed button	
3	Wake (if in Sleep Mode)	Power button or Select button	

LED's

The ZQ500 Series printers feature a tri-colored LED ring located around the Power button which shows the state of the battery during charging processes (as shown below).

	Power On/Charged Battery Power On/Battery Eliminator Plugged In
	Battery Charging (Amber LED Ring)
	Sleep Mode & Charging (Blinking Amber LED Ring)
	Sleep Mode (Blinking Green LED Ring)
	Battery Fault (Red LED Ring)

Alerts

The control panel has the ability to display various alerts to the user in the form of Acknowledged Alerts, Non-Acknowledged Alerts, and Error Alerts. An Acknowledged Alert displays over the printer status icons and requires user input to be cleared, i.e. press the Select button to clear such an alert.

A Non-Acknowledged Alert also displays over the printer status icons, but in this case it does not require user input to be cleared. The alert will automatically be cleared after being displayed for five (5) seconds.

Error Alerts also appear over the printer status icons and require no user input via the front panel to be cleared, but they do require the user clearing the error condition by other means. The Error Alert will remain on the display until the error condition is cleared.

Power Saving Features

The ZQ500 Series printers have a few key features designed to extend the life of the battery. These features are described below.

Sleep Mode

The Sleep Mode feature is a way the printer conserves battery life whereby the printer will automatically go into a “sleep” state after twenty (20) minutes of inactivity. When the printer is in this state there will be no content displayed on the LCD in addition to no backlight. The printer will indicate Sleep Mode by a slow blinking green LED ring around the Power Button (See Page 34).

If the Power Button is pressed for less than three (3) seconds (<3), then the printer will enter Sleep Mode.

If the Power Button is pressed for more than three (3) seconds (>3), then the printer will power down completely.

In order to “wake up” the printer, the user must press the Power or Select buttons for less than three (3) seconds, or the printer will wake up on its own when communication is initiated via Bluetooth. (Wake On Bluetooth is only supported in BT 4.1 radio, not in the Dual Radio unit.) If the Power Button is pressed for more than three (3) seconds, the printer will wake up and shut down completely.

To enable or disable Sleep Mode, send the `power.sleep.enable` command to the printer using Zebra Setup Utilities (ZSU) and set it to either “on” or “off”. (The default setting is “on”.) To set the time after which the printer will enter Sleep Mode, send the `power.sleep.timeout` (in seconds) to the printer using the ZSU.

Adaptive Print Performance

The ZQ5 printers use PSPT PrintSmart Gen 2 technology which adapts to your print conditions such that print quality is not sacrificed. When the printer sees environmental conditions such as state of charge, battery health, cold temperature extremes, or high density printing, the printer will adjust print performance to preserve battery function and allow printing to continue. This may affect the speed and sound of printing but not the print quality.

Draft Mode

The user can configure the printer to print in Draft Mode via SGD command `media.draft_mode` (default is "off"), which optimizes the printer for text-only printing. While in Draft Mode, print speed increases from 4 inches per second (ips) to 5 ips with approximately a 22% reduction in optical density. When a printer is in this user setting, a Draft Mode icon will be displayed. If the printer is in both Power Save mode and Draft Mode, the Power Save icon will display. If the printer is in Draft Mode during a media out condition, the blinking Media Out icon will be displayed.

Note • For an explanation and a list of all SGD commands, please refer to the Programming Guide (p/n P1012728-xxx) at: http://www.zebra.com/us/en/support-downloads.html

Note • For detailed information on sending SGD commands to the printer using Zebra Setup Utilities, please refer to the Wireless Configuration for 802.11n and Bluetooth Radios for Link-OS Mobile Printers (p/n P1048352-001) at: http://www.zebra.com/us/en/support-downloads.html

Note • Draft Mode printing is optimized for printing receipts comprised of text only with no reverse image, black fill or barcodes present. Draft Mode is designed to operate at temperatures between ambient and the maximum thermal range of the printer.

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” 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 or gaps 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 the report.

The report indicates model, serial number, baud rate, and more detailed information on the printer’s configuration and parameter settings. (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:

- ZQ5 printers can communicate by cable via either RS-232C or USB 2.0 protocols. Windows drivers that support printing via Serial, USB and the network are included in the Zebra Designer Driver which can be downloaded from www.zebra.com/drivers.
- By means of a wireless LAN (Local Area Network) per 802.11 specifications. (Optional)
- By means of the Ethernet when docked on the Ethernet cradle.
- By means of a Bluetooth short range radio frequency link.
- WinMobile®, Blackberry®, and Android® devices use standard Bluetooth protocol.
- ZQ5 printers are compatible with iOS devices, therefore printing via Bluetooth to an Apple® device is possible.


Cable Communication

Caution • The printer should be turned off before connecting or disconnecting a communication cable.

The standard cable connection for the ZQ500 Series printers is USB. The USB port provides 500mA to the A/B port when in host mode and can connect a printer to a PC via a Type A plug to Micro B plug. The cable has a plastic twist lock cap that provides strain relief and locks the cable into the printer housing (see below). Refer to Appendix A for part numbers.

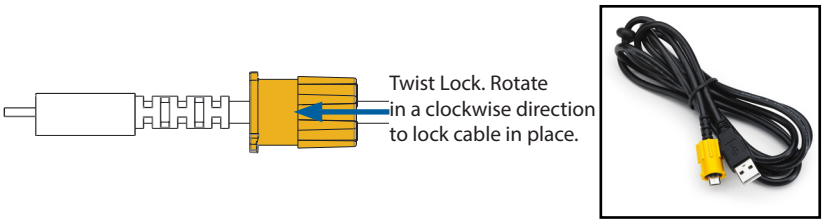
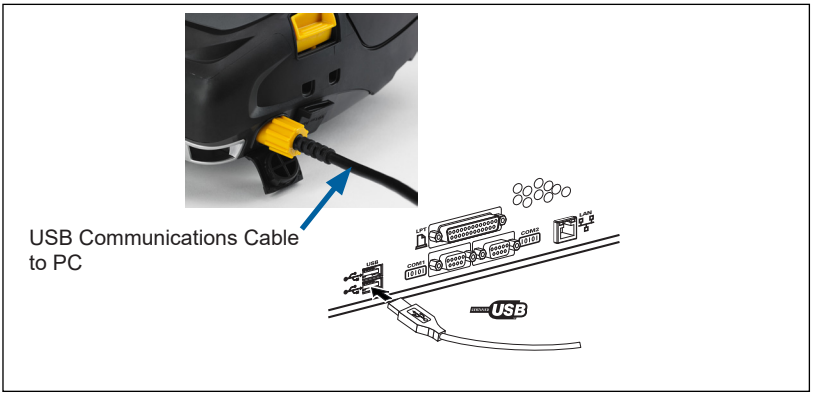


Figure 14 • Cable Communication with PC



The small 5-pin connector on the USB cable plugs into the printer, and the connectors are keyed to ensure correct alignment. Do not try to force the cable if it does not plug in as this could damage the pins.

The other end of the cable plugs into the USB port on a computer as shown in Figure 14. The ZQ500 Series printers are configured with the USB Open HCI interface allowing them to communicate with Windows® based devices.

USB drivers are included in the Zebra Designer Driver which can be downloaded from the Zebra website.

Zebra Setup Utilities

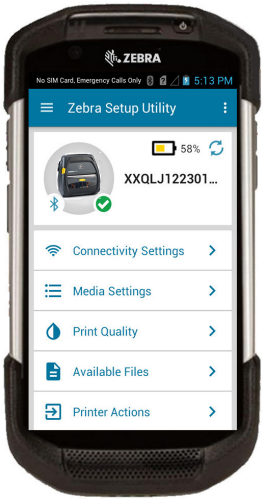
Before you start to configure your printer for use on a Local Area Network (LAN), you will need some basic information which will enable you to establish the network configuration for your printer. Zebra Setup Utilities (ZSU) provides a quick and easy way to configure your printers for a variety of purposes, including setting them up for wireless communications either on a Local Area Network (LAN) or using the international Bluetooth™ communications standard.

Once ZSU has been downloaded to your computer, attach the USB cable to the printer and computer as shown in Figure 14. Refer to Wireless Configuration Guide (p/n P1048352-001) to follow the steps necessary for setting up and configuring your printer via ZSU.

Go to https://www.zebra.com/us/en/support-downloads.html to download ZSU and the Wireless Configuration Guide. (See Appendix H for details on navigating zebra.com.)

Zebra Android Printer Setup Utility (for Link-OS Printers)

The ZQ5 printers can also be configured using the Zebra Android Printer Setup Utility. This utility can be downloaded from Google Play to an Android device such as a smartphone or the TC51 or TC56 mobile handheld computers. The Android mobile device can be paired with the printer via Bluetooth or a USB cable and users can quickly navigate the app to perform the following tasks.



Shows currently connected printer

Displays current printer status:

= all clear

= error present

Quick access to Wizards, Printer Actions and Files

Figure 15 • Setup Utility Main Screen

Wireless Communications with Bluetooth

Bluetooth is a worldwide standard for the exchange of data between two devices via radio frequencies. This form of point-to-point communication does not require access points or other infrastructure. 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). The default for ZQ5 is Class 2, but the range can be set to Class 1 via a SGD (`bluetooth.power_class`) to increase power. Both the printer and the device it communicates with must follow the Bluetooth standard.

Bluetooth Networking Overview

Each Bluetooth enabled ZQ5 printer is identified by a unique Bluetooth Device Address (BDADDR). This address resembles a MAC address whereby the first three bytes are vendor, and the last three bytes are device (e.g. 00:22:58:3C:B8:CB). This address is labeled on the back of the printer via a barcode for ease of pairing. (For the dual radio, the MAC address label only represents WiFi MAC address.) (see page 46.) 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 client) must request/initiate a connection with another. The second device (the server) then accepts or rejects the connection. A Bluetooth enabled ZQ5 printer will normally act as a slave creating a miniature network with the terminal sometimes referred to as a “piconet”. Discovery identifies Bluetooth devices that are available for pairing whereby the master device broadcasts a discovery request and devices respond. If a device is not discoverable, the master cannot pair unless in knows the BDADDR or has previously paired with the device. If both devices support Bluetooth 2.1 or higher they will use Security Level 4 Secure Simple Pairing (SSP), a mandatory security architecture that features two (2) association models: Numeric Comparison and Just Works (no user confirmation).

Bluetooth Security Modes

Security Mode 1	Security Mode 2	Security Mode 3
If a BT>/= 2.1 device is pairing with a BT</= 2.0 device, it falls back to BT 2.0 compatibility mode and behaves the same as BT 2.0. If both devices are BT >/= 2.1, Secure Simple Pairing must be used according to the BT spec.	If a BT >/= 2.1 device is pairing with a BT </= 2.0 device, it falls back to BT 2.0 compatibility mode and behaves the same as BT 2.0. If both devices are BT >/= 2.1, Secure Simple Pairing must be used according to the BT spec.	If a BT >/= 2.1 device is pairing with a BT </= 2.0 device, it falls back to BT 2.0 compatibility mode and behaves the same as BT 2.0. If both devices are BT >/= 2.1, Secure Simple Pairing must be used according to the BT spec.

Security Mode 4: Simple Secure Pairing
Simple Secure Pairing: a new security architecture introduced supported in BT >= 2.1. Service-level enforced, similar to mode 2. Mandatory when both devices are BT >= 2.1. There are four association models currently supported by mode 4. Security requirements for services must be classified as one of the following: authenticated link key required, unauthenticated link key required, or no security required. SSP improves security through the addition of ECDH public key cryptography for protection against passive eavesdropping and man-in-the-middle (MITM) attacks during pairing.

Numeric Comparison	Just Works
Designed for situation where both devices are capable of displaying a six-digit number and allowing user to enter “yes” or “no” response. During pairing, user enters “yes” if number displayed on both devices matches to complete pairing. Differs from the use of PINs in legacy (BT<=2.0) pairing because the number displayed for comparison is not used for subsequent link key generation, so even if it is viewed or captured by an attacker, it could not be used to determine the resulting link or encryption key.	Designed for situation where one (or both) of the pairing devices has neither a display nor keyboard for entering digits (e.g. Bluetooth headset). It performs authentication step 1 in the same manner as as numeric comparison, but the user cannot verify that both values match, so MITM (man-in-the-middle) protection is not provided. This is the only model in SSP that does not provide authenticated link keys.

Each mode, except for Just Works, has Man-In-The-Middle (MITM) protection, meaning no third device can view the data being passed between the two devices involved. The SSP mode is usually negotiated automatically based on the capabilities of both the master and slave. Lower security modes can be disabled via the `bluetooth.minimum_security_mode` SGD. The `bluetooth.minimum_security_mode` SGD sets the lowest security level at which the printer will establish a Bluetooth connection. The printer will always connect at a higher security level if requested by the master device. To change the security mode and security settings in the ZQ5 printers, use Zebra Setup Utilities.

Bluetooth Minimum Security Modes

	BT Version of Master Device (>2.1)
bluetooth.minimum_security_mode=1	**Secure Simple Pairing** **Just Works/Numeric Comparison**
bluetooth.minimum_security_mode=2	**Secure Simple Pairing** **Just Works/Numeric Comparison**
bluetooth.minimum_security_mode=3	**Secure Simple Pairing** **Numeric Comparison**
bluetooth.minimum_security_mode=4	**Secure Simple Pairing** **Numeric Comparison**
bluetooth.bluetooth_PIN	**Not Used**

bluetooth.minimum_security_mode ***sets the lowest security level at which the printer will establish a Bluetooth connection. The printer will always connect at a higher security level if requested by the master device.***

The ZQ5 printers also feature bonding for Bluetooth. The printer caches pairing info so devices stay paired through power cycles and disconnects. This eliminates the need to repair on every connection establishment.

The bluetooth.bonding SGD is on by default.

Note • For detailed information on Bluetooth, please refer to the Bluetooth Wireless User Guide (P1068791-002) at:
http://www.zebra.com/us/en/support-downloads.html

In addition, the ZQ5 printers support passive Near Field Communication (NFC) technology. Using the “Print Touch” feature located on the side of the printer, end-users can automatically pair with a handheld device that supports NFC technology. The NFC tag has the printer’s BDADDR encoded in a URL on the tag. Simply touching the NFC handheld device to the “Print Touch” icon on the printer will connect and pair the handheld device to the printer.

WLAN Overview

ZQ5 printers are optionally equipped with a Dual Radio that uses the industry standard 802.11ac protocols and Bluetooth 4.1. They will have the FCC ID number on the serial number label on the back of the unit.

- ZQ5 Wireless Network Printers with the Zebra 802.11ac WLAN radio module can be identified by the text “Wireless Network Printer” on the serial number label on the back of the printer.
- These printers allow communication as a node within a wireless local area network (WLAN). Methods of establishing communications to the printer will vary with each application.

More information and LAN configuration utilities are included in the ZebraNet Bridge Enterprise™ program (version 2.8 and later).

Zebra Setup Utilities (ZSU) and Zebra Mobile Setup Utility can also be used to configure WLAN communications settings. Both ZebraNet Bridge Enterprise and ZSU may be downloaded from the Zebra Web site.

Figure 16 • BT/WLAN Communications

Setting Up the Software

ZQ5 printers use Zebra's CPCL and ZPL Programming languages which were designed for mobile printing applications. CPCL and ZPL are fully described in the ZPL Programming Guide (p/n P1012728-010), CPCL Programming Guide (p/n P1073699-001) and ZPL II Programming Guide (p/n 46530L) available on-line at https://www.zebra.com/us/en/support-downloads.html. You can also use ZebraDesigner Pro v2, Zebra's Windows® based label creation program which uses a graphical interface to create and edit labels in either language. Refer to Appendix H for tips on downloading the Designer Pro application from Zebra's Web site.

Designing Labels

The following examples provide guidelines for designing labels for the ZQ5 printers, specifically for Gap Media, Black Bar Media and Journal Media. The illustrations for each media type define recommended tolerances, keep-out zones and safe printing zones designed to avoid any vertical registration issues during printing. Dimensions are determined based on product registration capabilities and Zebra-recommended media tolerances.

Figure 17 • Gap Media

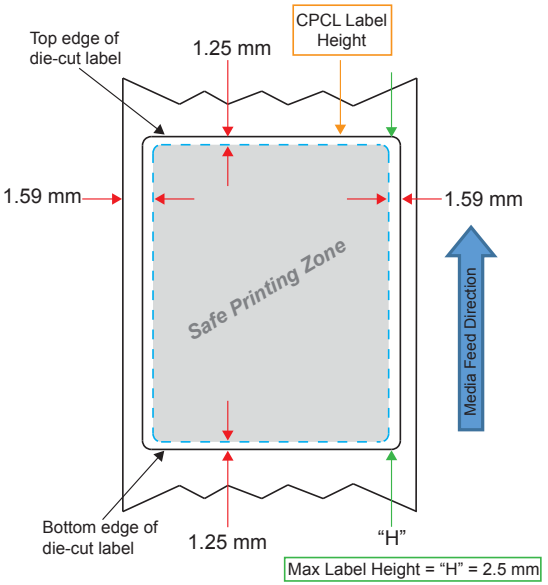


Figure 18 • Journal Media

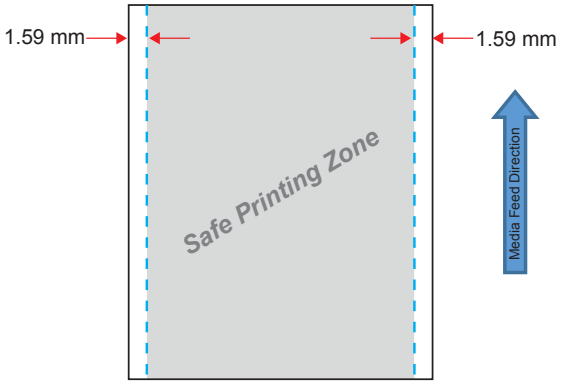
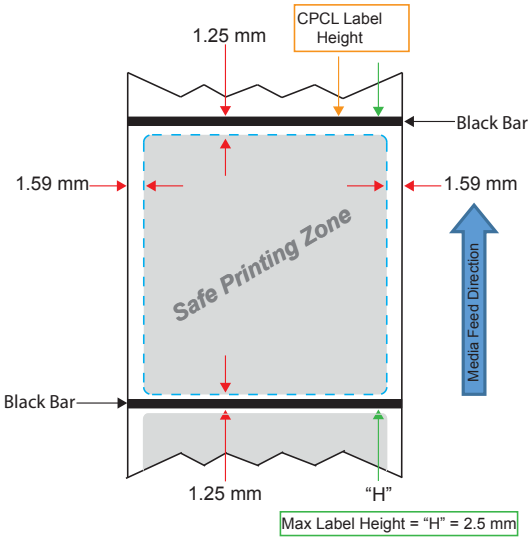


Figure 19 • Black Bar Label Media



Using Pre-Printed Receipt Media

ZQ5 printers support alignment of pre-printed receipts by using the out of paper sensor located near the printhead.

Black Mark Dimensions (Receipt Media)

The reflective media black marks (or black bar/marks) should extend past the centerline of the roll on the front side of the paper.

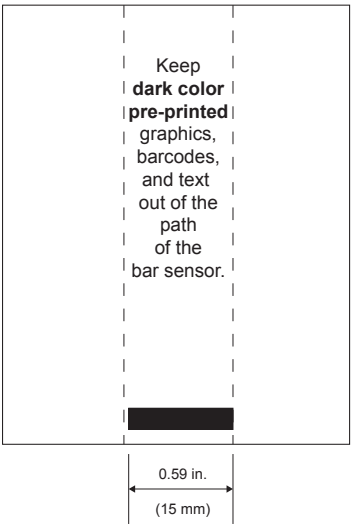
- Minimum mark width: 0.59 in. (15 mm) perpendicular to the edge of the media, and centered within the width of the roll.
- Mark length: 0.19 - 0.24 in. (4.8 - 6.0 mm) parallel to the edge of the media.

Label Areas

The media/black bar sensor detects the dark, pre-printed bar on the media, so a path in the center of the paper must be kept free of dark, pre-printed graphics.

Note • Dark, pre-printed graphics refer to any symbols, barcodes, text and/or colored areas that have been applied to the receipt paper rolls before they have ever been used in the printer.

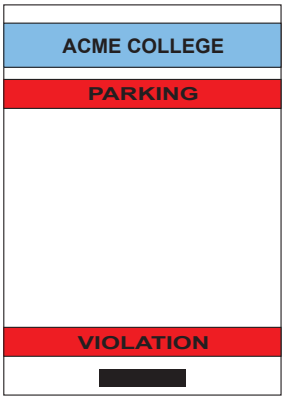
Figure 20 • Label Areas



Label Design Examples

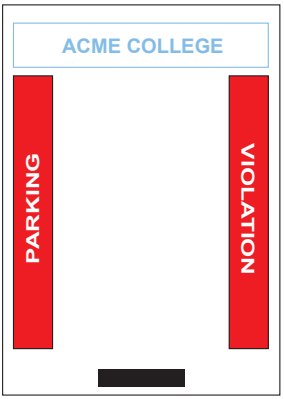
This section shows examples of labels with and without problems.

Figure 21 • Label Design Examples



PROBLEM LABEL DESIGN

The dark color, pre-printed text and graphics are in the path of the black bar at the bottom of the receipt.

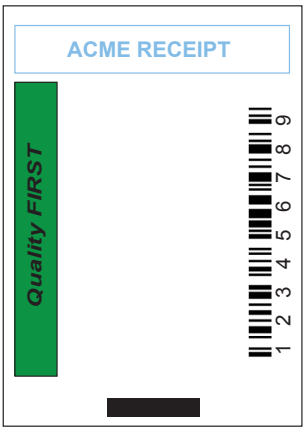


GOOD LABEL DESIGN

The center path to the black bar is free of dark color, pre-printed text and graphics.

PROBLEM LABEL DESIGN

The dark color, pre-printed text and graphics are in the path of the black bar at the bottom of the receipt.



GOOD LABEL DESIGN

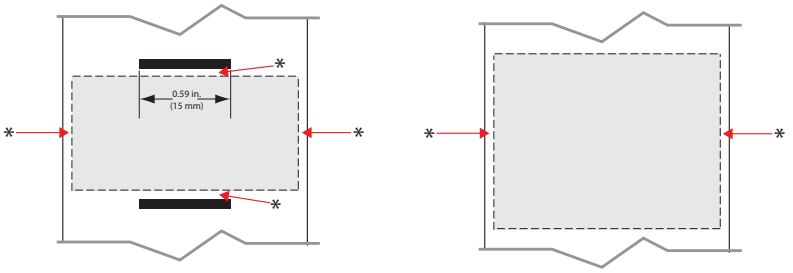
The center path to the black bar is free of dark color, pre-printed text and graphics.

Note • Complete information on using pre-printed receipt paper can be found in the FORM command in the CPCL Programming Guide (P1073699-001) at www.zebra.com/manuals.

Keep-Out Areas

At times, incomplete printing of text and/or graphics appear because minimum margins are not provided during label design. The recommended minimum margins, or “keep out areas” are shown in Figure 22.

Figure 22 • Keep Out Areas



Receipt Paper with Black Bars

* Maintain a minimum “keep out area” of 1/16 in. (1.59 mm) from the two outer edges of the paper roll and from the black bars.

Continuous Receipt Paper (without Black Bars)

* Maintain a minimum “keep out area” of 1/16 in. (1.59 mm) from the two outer edges of the paper roll.

Note • The length of each “continuous” receipt is determined by the data sent to the printer.

Print Quality Comparisons

The following two (2) print quality charts illustrate print quality optimization on a per media basis. The results reflected in the charts were achieved printing at Speed 3, which is the default print speed used for the best “out of box” experience. The media used in the testing are Zebra-approved media detailed in the ZQ500 Series product specification. Tone settings (i.e. lighter vs. darker) will vary depending on the media in order to achieve optimal print quality as indicated in the charts.

ZQ510	Code 39		Code 128		Code 39V		Code 128V		DataMatrix		DataMatrix-10 mil	
Media Type	Speed	Tone	Speed	Tone	Speed	Tone	Speed	Tone	Speed	Tone	Speed	Tone
10003208P - 2.4 mil Journal	3	0	3	0	3	0	3	0	3	40	3	0
10019071 - 6.2 mil Label	3	0	3	0	3	0	3	0	3	0	3	20
10019072 - 3.2 mil Journal	3	0	3	0	3	0	3	0	3	0	3	0
19919067 - 3.1 mil PolyPro	3	0	3	0	3	0	3	0	3	0	3	60
10019068 - 5.3 mil Tag	3	0	3	0	3	0	3	0	3	0	3	80
10019069 - 3.2 mil Hi-Temp	3	0	3	0	3	0	3	60	3	0	3	40
10019070 - Linerless	3	0	3	0	3	0	3	0	3	0	3	0

ZQ520	Code 39		Code 128		Code 39V		Code 128V		DataMatrix		DataMatrix-10 mil	
Media Type	Speed	Tone	Speed	Tone	Speed	Tone	Speed	Tone	Speed	Tone	Speed	Tone
10006224 - 2.4 mil Journal	3	0	3	0	3	0	3	-20	3	40	3	-20
10009194 - 6.2 mil Label	3	0	3	0	3	0	3	0	3	0	3	0
LD-R4KN5B - 3.2 mil Journal	3	0	3	0	3	0	3	0	3	0	3	0
10001964 - 3.8 mil PolyPro	3	0	3	0	3	0	3	20	3	0	3	0
10020056 - 5.3 mil Tag	3	0	3	0	3	0	3	0	3	0	3	0
10001965 - 3.2 mil Hi-Temp	3	0	3	0	3	0	3	0	3	0	3	0
10022870 - Linerless	3	0	3	0	3	0	3	0	3	0	3	0

Near Field Communication (NFC)

Much like Bluetooth and Wi-Fi technologies, Near Field Communication (NFC) allows wireless communication and data exchange between digital devices like smartphones. Yet NFC utilizes electromagnetic radio fields while technologies such as Bluetooth and Wi-Fi focus on radio transmissions instead.

NFC is an offshoot of Radio Frequency Identification (RFID), with the exception that NFC is designed for use by devices within close proximity to each other, i.e. a smartphone and a ZQ500 Series printer. NFC allows these devices to establish communication with each other by touching them together or bringing them into proximity, usually no more than 7.62 centimeters (3 inches). Three forms of NFC technology exist: Type A, Type B, and FeliCa. All are similar but communicate in slightly different ways. FeliCa is commonly found in Japan.

Devices using NFC may be active or passive. A passive device, such as a ZQ500 Series printer with an NFC tag, contains information that other devices can read but does not read any information itself.

An active device, such as a smartphone, can read the information on the printer's NFC tag, but the tag itself does nothing except transmit the info to authorized devices.

Active devices can read information and send it. An active NFC device, like a smartphone, would not only be able to collect information from NFC tags, but it would also be able to exchange information with other compatible phones or devices. An active device could even alter the information on the NFC tag if authorized to make such changes. To ensure security, NFC often establishes a secure channel and uses encryption when sending sensitive information.

ISO Tags Supported by Active NFC in ZQ500 Series Printers

- ISO 14443A
- ISO 14443B
- ISO 15693
- ISO 18000-3
- ISO 18092

Figure 23 • Near Field Communication (NFC) Pairing

http://www.zebra.com/nfc

NFC Use Cases

Passive

- *Bluetooth Pairing* – used to cause a tablet, smart phone or terminal to automatically pair with the printer via a Bluetooth connection, within the bounds of the security profile being used. This shall contain the BT address and serial number of the printer.
- *App launching* – used to cause an app, developed either by Zebra or a third party to be executed on a smart phone, tablet or terminal.
- *Web site launching* – used to cause a smart phone, tablet or terminal to display a web site developed by Zebra or a third party developer.

Active

- *Reading Credit Cards* – used to make payments. The printer will read information and pass it along to other systems.

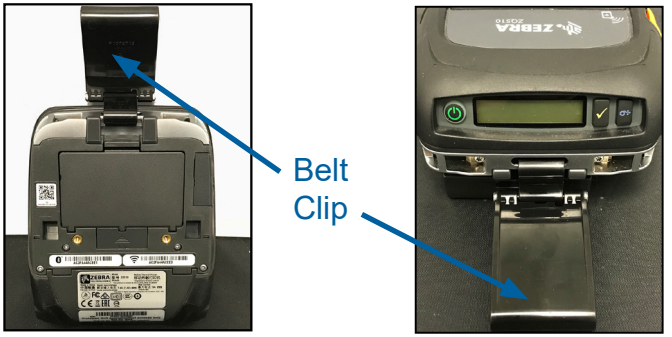
Note • Tapping the Zebra Print Touch™ icon with a Near Field Communication (NFC) enabled smartphone will provide instant access to printer-specific information. For more information about NFC and Zebra products, go to http://www.zebra.com/nfc. Bluetooth pairing applications via NFC is also possible. Please see Zebra Multi-platform SDK for more information.

Wearing the Printer

Swivel Belt Clip

The ZQ510 and ZQ520 printers have a plastic swivel belt clip included as a standard feature. (It should be noted that ZQ5 printers with extended capacity battery do not come equipped with a belt clip.) To use: hook the clip over your belt, and ensure that the clip is securely attached to the belt. The belt clip will pivot to allow you to move freely while wearing the printer. In order to install or remove the plastic Belt Clip, secure it to the cut-out in the front of the printer (where shown).

Figure 24 • Printer with Belt Clip

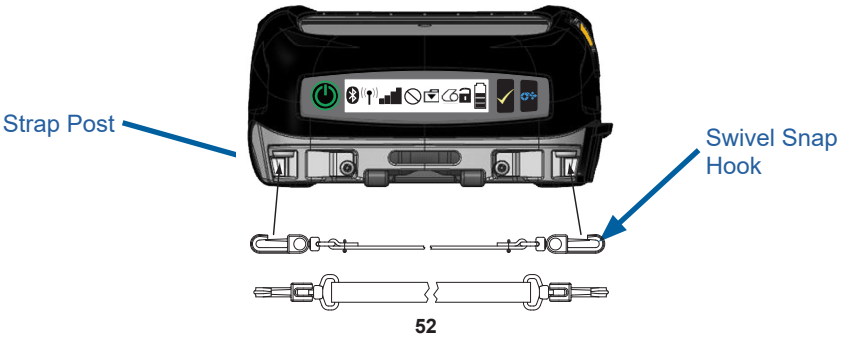


Hand Strap

The ZQ500 Series Hand Strap accessory (p/n BT16899-1) attaches to the front posts of the printer to provide the user with a convenient and secure method of carrying the printer. To attach the Hand Strap to the printer:

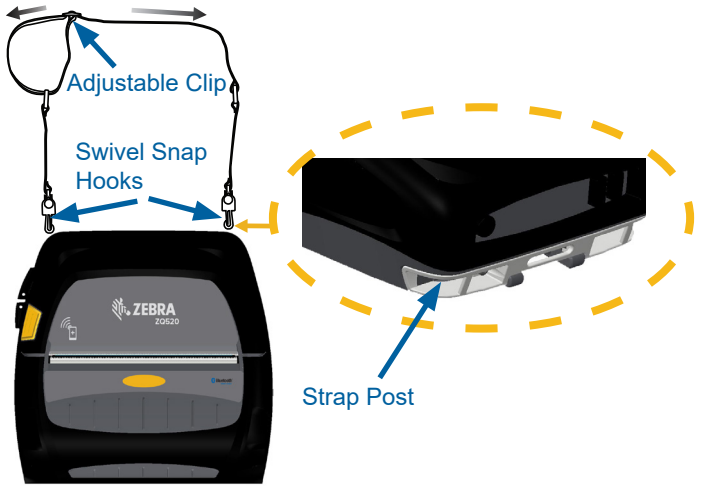
1. Attach one swivel snap hook to its corresponding post on the front of the printer (Fig. 25).
2. Attach the opposite end of the strap to its corresponding post on the front of the printer where shown.

Figure 25 • Hand Strap



A Shoulder Strap accessory (p/n P1063406-035) is also offered to provide another option for comfortably carrying the ZQ510 and ZQ520 printers. Similar to the Hand Strap, the shoulder strap attaches to the two (2) strap posts on the front of the printer via rugged swivel snap hooks as shown in Fig. 26. The strap is easily adjustable up to 56 inches from end to end.

Figure 26 • Shoulder Strap



Soft Case

The ZQ500 Series printers have an environmental Soft Case option (P1063406-037/-038) that helps protect the printer, while also allowing the user to carry it from their belt. The paper path is left open to maintain printing capability and the controls are visible and accessible while in the case. D-Ring connectors allow for attachment to the shoulder strap option.

Exoskeleton

In order to provide extreme ruggedness for the ZQ500 Series printers, they come with an optional hard case, or “Exoskeleton” (p/n P1063406-043/-044). This case features a clam shell design whereby the printer is placed securely inside and the Exoskeleton is clamped shut. The Exoskeleton comes with a shoulder strap for easy portability.

All printer ports are inaccessible while the printer is in the hard case, but the printer control buttons can still be used (Fig. 27). The user will also be able to mount and charge the printer on the ZQ500 Series Vehicle Cradle and 4-Bay Power Station while in the hard case.

Note • Since linerless printers don’t have the reverse tear bar feature which allows media to be torn both upwards and downwards, it is recommended that linerless printers not be used with the Exoskeleton. Linerless media can only be torn down and the Exoskeleton is not resistant to the adhesive of the linerless media.

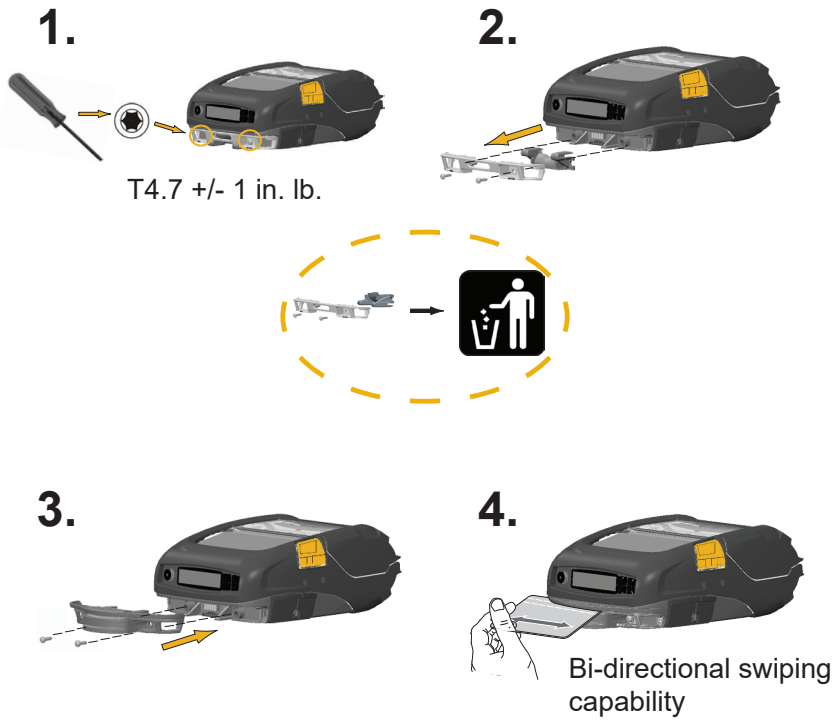
Figure 27 • Exoskeleton

Mag Card Reader

The ZQ500 Series printers can be equipped with optional Magnetic Stripe reader (p/n P1063406-036). The magnetic stripe card reader allows the user to swipe magnetic stripe cards (i.e bank cards, AAMVA and JIS card data format) through a slot in the printer and then read and process the data contained in the card. The Mag Card reader is capable of reading all three (3) tracks simultaneously, but can be configured to read two (2) tracks if desired. The reader also features an audio indicator to alert users of a successful card swipe. The Mag Card reader can be encrypted by working with Zebra's Professional Services team and getting a key loaded.

The Mag Card reader is installed by removing the existing front bumper of the printer and replacing it with the Mag Card reader (as illustrated in Fig. 28 below).

Figure 28 • Mag Card Reader



Note • For a complete list of accessories, see ZQ500 Series Accessories on Page 76.

Preventive Maintenance

Extending Battery Life

- Never expose the battery to direct sunlight or temperatures over 40° C (104° F) when charging.
- Always use a Zebra charger designed specifically for Lithium-Ion batteries. Use of any other kind of charger may damage the battery.
- Use the correct media for your printing requirements. An authorized Zebra re-seller can help you determine the optimum media for your application.
- If you print the same text or graphic on every label, consider using a pre-printed label.
- Choose the correct print darkness, and print speed for your media.
- Use software handshaking (XON/XOFF) whenever possible.
- Remove the battery if the printer won't be used for a day or more and you're not performing a maintenance charge.
- Consider purchasing an extra battery.
- Remember that any rechargeable battery will lose its ability to maintain a charge over time. It can only be recharged a finite number of times before it must be replaced. Always dispose of batteries properly. Refer to Appendix F for more information on battery disposal.

General Cleaning Instructions

Caution • Avoid possible personal injury or damage to the printer. Never insert any pointed or sharp objects into the printer. Always turn off the printer before performing any cleaning procedures. Use care when working near the tear bars as the edges are very sharp.

Warning • The printhead can get very hot after prolonged printing. Allow it to cool off before attempting any cleaning procedures.

Only use a Zebra cleaning pen (not supplied with the printer) or a cotton swab with 90% medical grade alcohol for cleaning the printhead.

Caution • Use only cleaning agents specified in the following tables. Zebra Technologies Corporation will not be responsible for damage caused by any other cleaning materials used on this printer.

ZQ5 Cleaning

Area	Method	Interval
Printhead	Use a Zebra cleaning pen to swab the thin gray line on the printhead, cleaning the print elements from the center to the outside edges of the printhead.	After every five rolls of media (or more often, if needed). When using linerless type media, cleaning is required after every roll of media.
Platen Surface (Linered)	Rotate the platen roller and clean it thoroughly with a fiber-free swab, or lint free, clean, damp cloth lightly moistened with medical grade alcohol (90% pure or better) (Figure 36).	After every five rolls of media (or more often, if needed)
Platen Surface (Linerless)	Rotate platen roller and clean with a fiber-free swab and 1 part liquid soap (Palmolive or Dawn) and 25 parts water. Use pure water to clean after soap/water mixture. (Figure 37)	Clean platen only if there is an issue during printing, i.e. media not releasing from the platen. (*See Note below.)
Scraper (Linerless Units Only)	Use adhesive side of media to clean scraper on linerless units. (Figure 37)	After every five rolls of media (or more often, if needed).
Tear Bar	Clean thoroughly with 90% medical grade alcohol and a cotton swab. (Figure 36)	As needed
Printer Exterior	Water-dampened cloth or 90% medical grade alcohol wipe.	As needed
Printer Interior	Gently brush out printer. Ensure the Bar Sensor and Gap Sensor windows are free of dust. (Figure 36)	As needed
Interior of units with Linerless Platens	Clean thoroughly with 90% medical grade alcohol and a fiber-free swab. (See Figure 37 for specific target areas for interior cleaning.)	After every five rolls of media (or more often, if needed).

Note • This is an emergency procedure only to remove foreign contaminates (oils, dirt) from the platen that can damage the printhead or other printer components. This procedure will shorten or even exhaust the linerless platen's useable life. If the linerless media continues to jam after cleaning and feeding 1 to 2 meters (3 to 5 feet) of media, replace the platen.

Figure 29 • ZQ5 Cleaning (Lined)

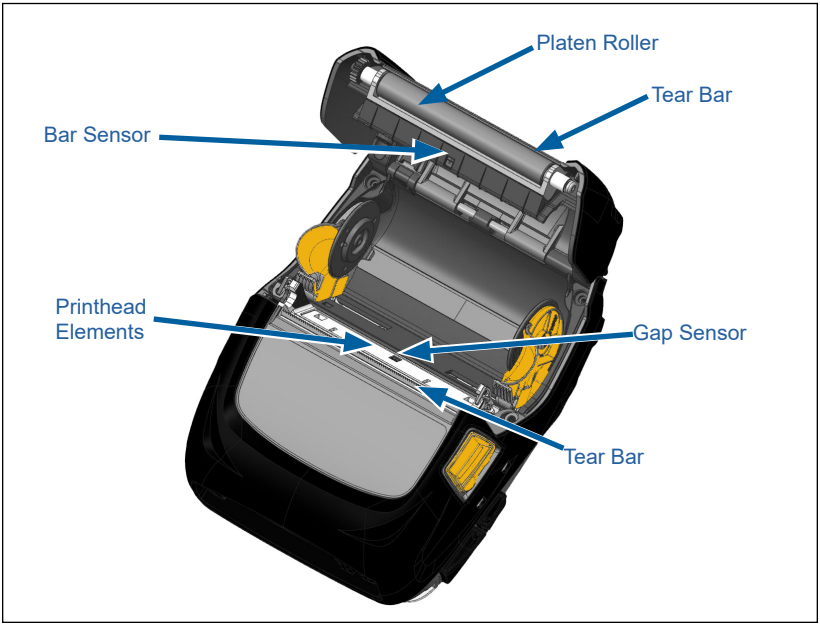
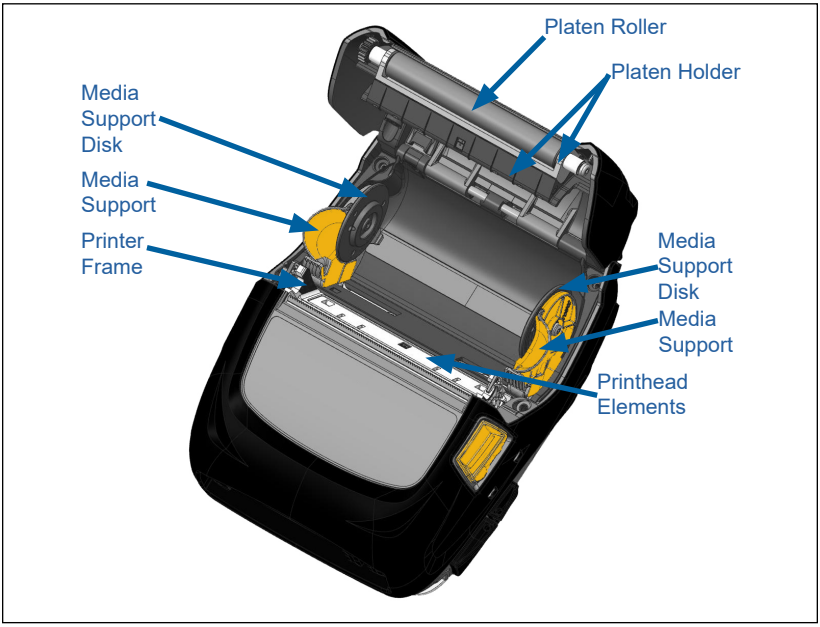


Figure 30 • ZQ5 Cleaning (Lined)



Troubleshooting

Front Control Panel

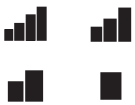
If the printer is not functioning properly, refer to the table below to determine the state of the LED indicator ring located around the Power button.

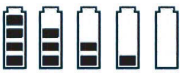


Green	Yellow	Red	Indication
Solid	Off	Off	Charged Battery Battery Eliminator in Use
Off	Solid	Off	Battery Charging
Blinking	Off	Off	Sleep Mode
Off	Off	Solid	Battery Fault

Printer Status Indicators

The printer's control panel displays multiple icons which indicate the status of various printer functions. Check the indicator status and then refer to the Troubleshooting topic referenced on the following pages to resolve the problem.

Icon	Status	Indication
	On	Bluetooth link established
	Grayed Out	Inactive
	Blinking	Receiving printer data
	Not Present	No WLAN radio detected
	Antenna Blinking	Looking for AP
	Antenna Blinking/1 Parenthesis Solid	WLAN Associated/Attempting Authentication
	Antenna and 2 Parentheses Solid	WLAN Associated and Authenticated
	Antenna and 2 Parentheses Blinking	Receiving Data
	4 Bars	802.11 Signal Strength >75%
	3 Bars	802.11 Signal Strength </=75%
	2 Bars	802.11 Signal Strength </= 50% but >25%
	1 Bar	802.11 Signal Strength </= 25%
	0 Bars	No signal strength

Icon	Status	Indication
	On	Bluetooth link established
	Grayed Out	Inactive
	Blinking	Data processing in progress
	Steady	No data being received
	Blinking	Out of media
	Steady	Media present
	Blinking	Media cover open
	4 Bars	>80% charged
	3 Bars	60%-80% charged
	2 Bars	40%-60% charged
	1 Bar	20%-40% charged
	0 Bars	Low Battery
DC	On	Battery Eliminator present (Replaces Battery icons)
	On (Media Out icon Off)	Printer in Segmentation Mode
	On (Media Out icon Off)	Printer in Draft Mode

Troubleshooting Topics

1. No power:

- Check that battery is installed properly.
- Recharge or replace battery as necessary.
- If using the battery eliminator, ensure that it is connected properly to its power source.

Caution • Always dispose of batteries properly. Refer to Appendix F for more information on proper battery disposal.

2. Media does not feed:

- Be sure media cover is closed and latched.
- Check spindle holding media for any binding.
- Ensure label sensor is not blocked.

3. Poor or faded print:

- Clean print head.
- Check quality of media.

4. Partial or missing print:

- Check media alignment.
- Clean print head.
- Ensure media cover is properly closed and latched.

5. Garbled print:

- Check baud rate.

6. No print:

- Check baud rate.
- Replace battery.
- Check cable to terminal.
- Establish RF Link and/or restore LAN associativity.
- Invalid label format or command structure. Place printer in Communications Diagnostic (Hex Dump) Mode to diagnose problem.

7. Reduced battery charge life:

- If battery is older than 1 year old, short charge life may be due to normal aging.
- Check battery health.
- Replace battery.

8. flashing:

- Flashing Data icon is normal while data is being received.

9. or flashing:

- Check that media is loaded and that the media cover is closed and securely latched.

10. Communication error:

- Check baud rate.
- Replace cable to terminal.

11. Label jam:

- Open head release latch and media cover.
- Remove and reinstall media.

12. Magnetic Stripe Card Won't Read:

- Ensure card is inserted with the magnetic stripe facing in the correct direction.
- Check card for excessive wear or damage to the magnetic stripe.

13. Blank LCD screen:

- Make sure printer is turned on.
- No application loaded or application corrupted: reload program.
- Check LED ring around Power button to see if it's blinking yellow indicating the printer is in sleep mode. Press Power or Select buttons to "wake up" the printer.

14. No NFC Connectivity

- Ensure smartphone is positioned 3 inches (7.62 cm) or closer to the Print Touch icon on the side of the printer.

Troubleshooting Tests

Printing a Configuration Label

To print out a listing of the printer's current configuration follow these steps:

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.

Refer to Figures 31, 31a, and 31b for sample configuration printouts.

Communications Diagnostics

If there is a problem transferring data between the computer and the printer, try putting the printer in the Communications Diagnostics Mode (also referred to as the “DUMP” mode). The printer will print the ASCII characters and their text representation (or the period ‘.’, if not a printable character) for any data received from the host computer.

To enter Communications Diagnostics Mode:

1. Print a configuration label as described above.
2. At the end of the diagnostics report, the printer will print: “Press FEED key to enter DUMP mode”.
3. Press the FEED key. The printer will print: “Entering DUMP mode”.

Note • If the FEED key is not pressed within 3 seconds, the printer will print “DUMP mode not entered” and will resume normal operation.

4. At this point, the printer is in DUMP mode and will print the ASCII hex codes of any data sent to it, and their text representation (or “.” if not a printable character).

Additionally, a file with a “.dmp” extension containing the ASCII information will be created and stored in the printer’s memory. It can be viewed, “cloned” or deleted using the Net Bridge application. (Refer to the ZebraNet Bridge Enterprise documentation for more information.)

To terminate the Communications Diagnostics Mode and re- turn the printer to normal operations:

1. Turn the printer OFF.
2. Wait 5 seconds.
3. Turn the printer ON.

Contacting Technical Support

If the printer fails to print the configuration label, or you encounter problems not covered in the Troubleshooting Guide, contact Zebra Technical Support. Technical Support addresses and phone numbers for your area can be found in Appendix H of this manual.

You will need to supply the following information:

- Model number and type (e.g. ZQ520)
- Unit serial number (Found on the large label on the back of the printer, also found in the configuration label printout.)
- Product Configuration Code (PCC) (15 digit number found on the label on the back of the unit)

Figure 31 • ZQ510 Configuration Label

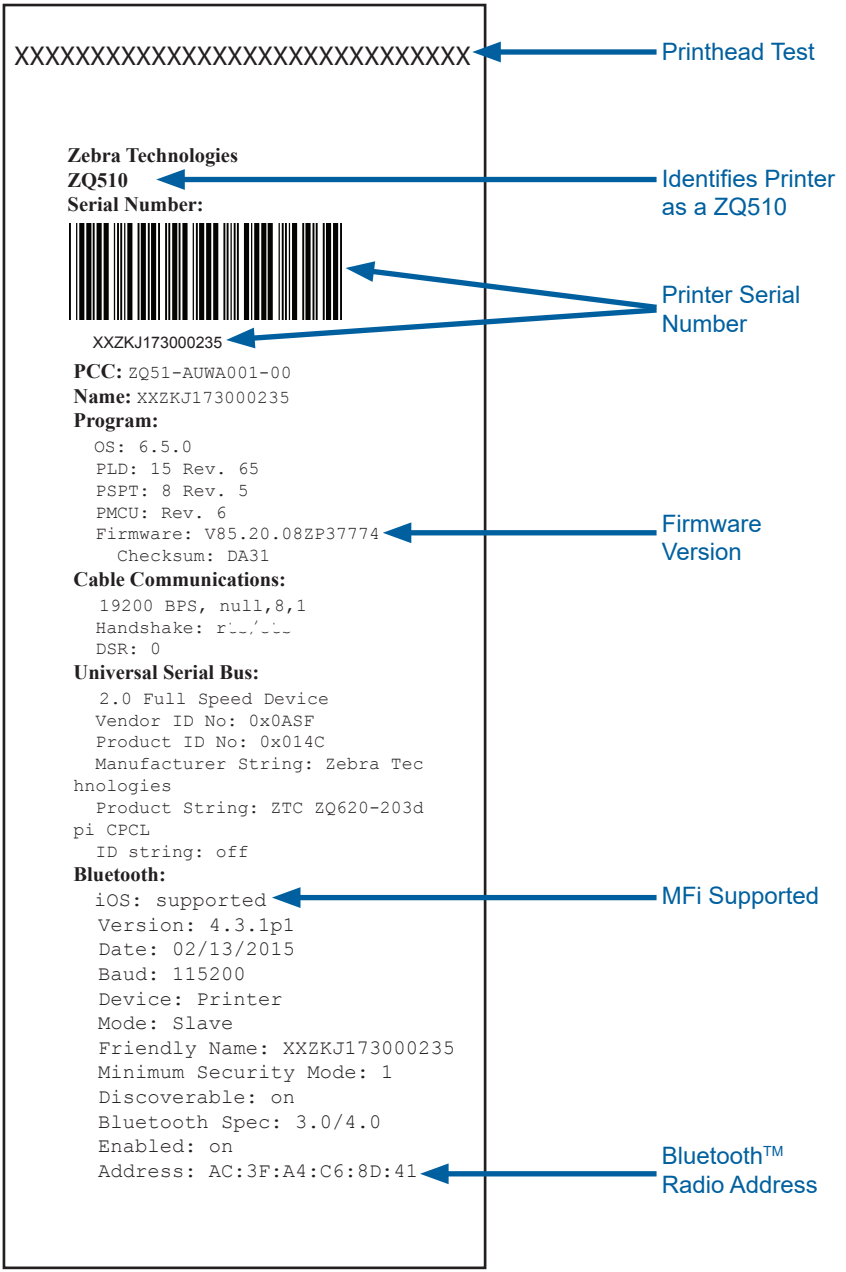


Figure 31a • ZQ510 Configuration Label (cont.)

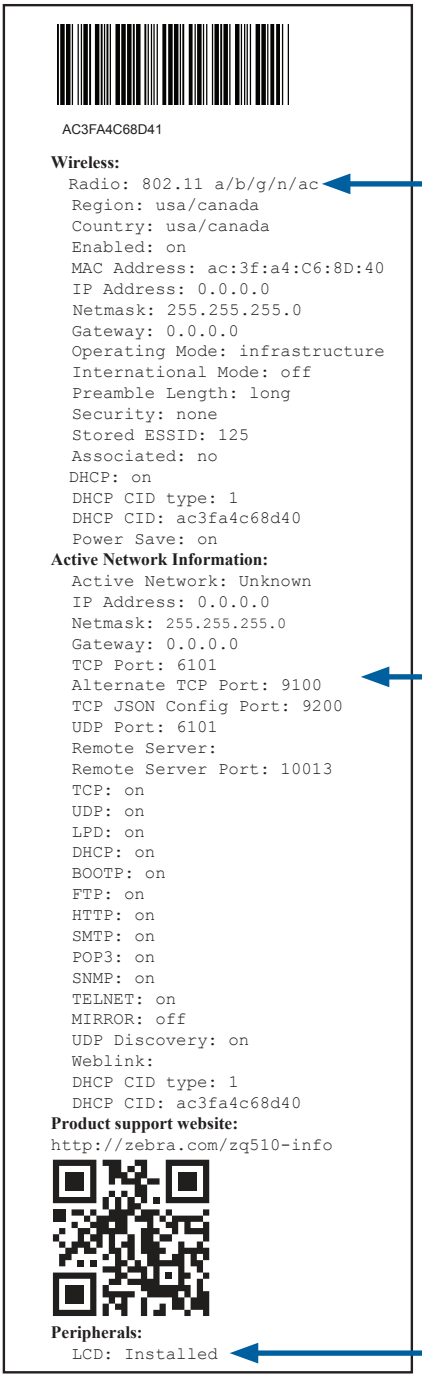
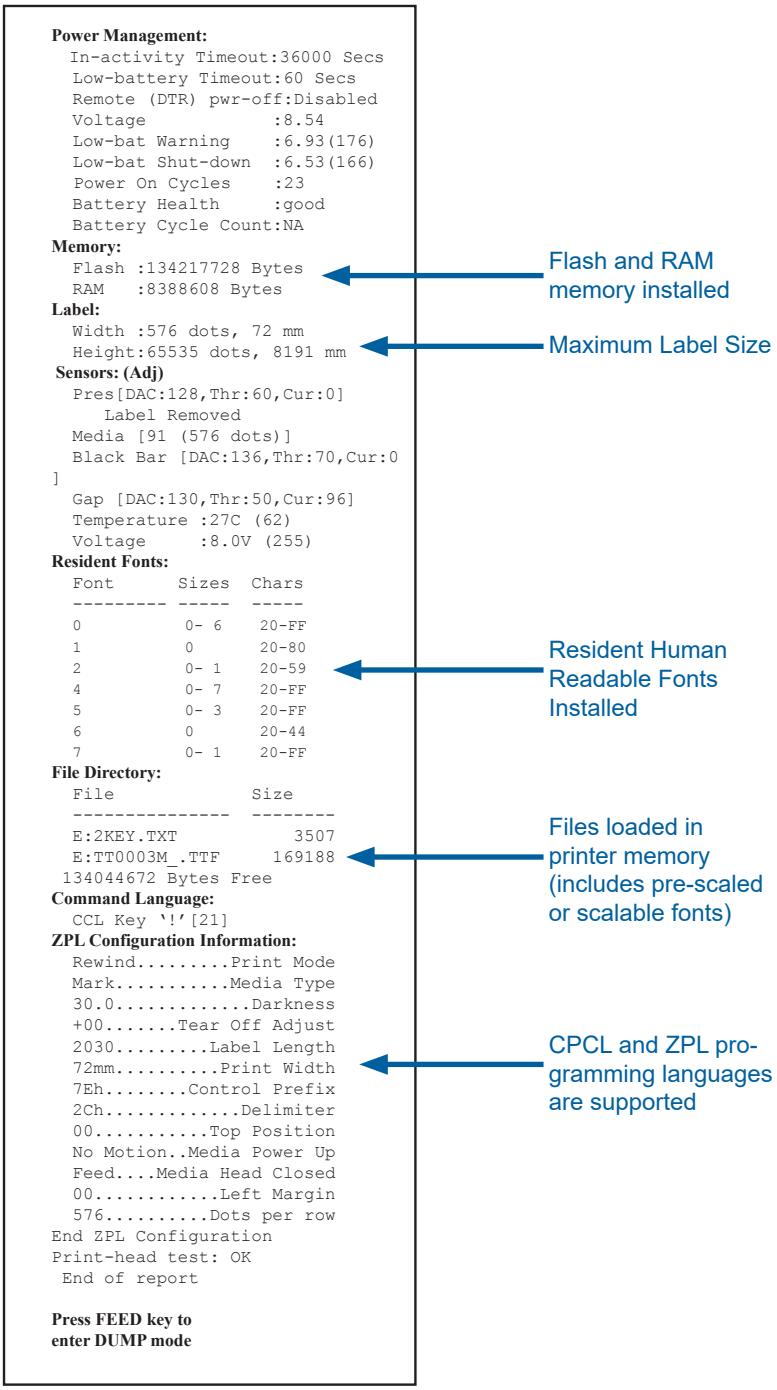


Figure 31b • ZQ510 Configuration Label (cont.)



Specifications

Note • Printer specifications are subject to change without notice.

Printing Specifications

Parameter	ZQ520	ZQ510
Print Width	Up to 104 mm (4.09 in.)	Up to 72 mm (2.83 in.)
Print Speed	Up to 127 mm (5 in.)/second @ 12% max density	Same
	76.2 mm (3 in.)/second @ 16% max density (linerless)	
Printhead Burn Line to Tear Edge Distance	4.8 mm (0.18 in.) +/- 0.5 mm (0.02 in.)	Same
Printhead Life	600K inches of paper feed MTBF of output at 18% density at 20°C when using Zebra media.	Same
Print Density	203 dots/in. or better	Same

Memory and Communications Specifications

Parameter	ZQ5 Printers
Flash Memory	512 MB[1]
RAM Memory	256 MB[1]
Standard Communications	USB (Micro AB on the go)
Wireless Communication Options	1. Dual Radio: 802.11ac with Bluetooth v4.1 2. Bluetooth v4.1

1. Memory configuration on your printer may be ascertained by printing a configuration label as detailed on page 62.

Label Specifications

Parameter	ZQ520	ZQ510
Max Media Width	113 mm (4.45 in.) +1 mm	80 mm (3.15 in.) +1 mm
Media Length	12.5 mm (0.5) minimum	Same
Black Bar Sensor to Printhead Burnline Distance	15.87 mm (0.62 in.) +/- 0.635 mm (0.025 in.)	Same
Media Thickness (except Tag)	2.3 to 6.5 mils (0.05842 to 0.1651 mm)	Same
Max Tag Thickness	2.3 to 5.5 mils (0.05842 to 0.1397 mm)	Same
Max Label Roll Outer Diameter	57 mm (2.24 in.)	51 mm (2.0 in.)
Inner Core Diameters**	19 mm (0.75 in.) standard 12.5 mm (0.5 in.) optional*	Same
Black Mark Location	The reflective media black marks should be centered on media roll	Same
Black Mark Dimensions	Minimum mark width: 12,7 mm (0.5 in.) perpendicular to inside edge of media, centered within the width of the roll. Mark length: 2.4-11 mm (0.09 to 0.43 in.) parallel to inside edge of media.)	Same

Note • Customers who want to use the 12.5 mm (0.5 in.) core size will be required to uninstall the media disks and install new media support disks (p/n P1063406-025).

CPCL Font and Bar Code Specifications and Commands

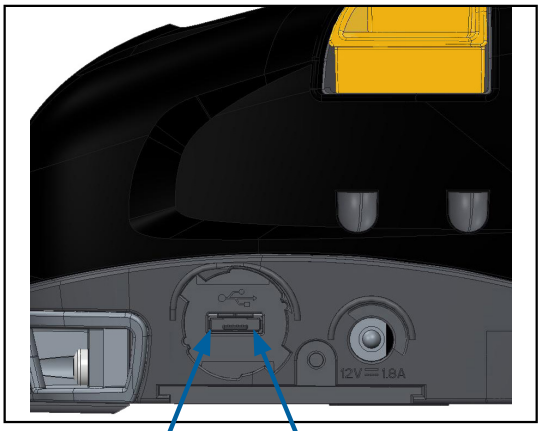
Standard Fonts	25 bit-mapped fonts; 1 scalable font (CG Trimvirate Bold Condensed*) *Contains UFST from Agfa Monotype Corporation Downloadable optional bit-mapped & scalable fonts via Net Bridge software.	
Available Optional Fonts	Optional International character sets: Chinese 16 x 16 (trad), 16 x 16 (simplified),24 x 24 (simplified); Japanese 16 x 16, 24 x 24	
Linear Bar Codes Available	**Barcode (CPCL Command)**	
	Aztec (AZTEC) Codabar (CODABAR, CODABAR 16) UCC/EAN 128 (UCCEAN128) Code 39 (39, 39C, F39, F39C) Code 93 (93) Code 128 (128) EAN 8, 13, 2 and 5 digit extensions (EAN8, EAN82, EAN85, EAN13, EAN132, and EAN135) EAN-8 Composite (EAN8) EAN-13 Composite (EAN13) Plessey (PLESSEY) Interleaved 2 of 5 (I2OF5) MSI (MSI, MSI10, MSI1110) FIM/POSTNET (FIM) TLC39 (TLC39) UCC Composite A/B/C (128(Auto)) UPCA, 2 and 5 digit extensions (UPCA2 and UPCA5) UPCA Composite (UPCA) UPCE, 2 and 5 digit extensions (UPCE2 and UPCE5) UPCE Composite (UPCE) MaxiCode (MAXICODE) PDF 417 (PDF-417) Datamatrix (using ZPL emulation) (DATAMATRIX) QR Code (QR)	
2-D Bar Codes Available	RSS:	RSS-14 (RSS-Subtype 1) RSS-14 Truncated (RSS-Subtype 2) RSS-14 Stacked (RSS-Subtype 3) RSS-14 Stacked Omnidirectional (RSS-Subtype 4) RSS Limited (RSS-Subtype 5) RSS Expanded (RSS-Subtype 6)
Rotation Angles	0°, 90°, 180°, and 270°	

ZPL Font and Bar Code Specifications and Commands

Standard Fonts	15 bit-mapped fonts; 1 scalable font (CG Trimvirate Bold Condensed*) Downloadable optional bit-mapped & scalable fonts via Net Bridge software.
Available Optional Fonts	Zebra offers font kits covering multiple languages including Simplified and Traditional Chinese, Japanese, Korean, Hebrew/Arabic, and others.
Linear Bar Codes Available **2-D Bar Codes Available**	**Barcode (CPCL Command)** Aztec (^B0) Codabar (^BK) Codablock (^BB) Code 11 (^B1) Code 39 (^B3) Code 49 (B4) Code 93 (^BA) Code 128 (^BC) DataMatrix (^BX) EAN-8 (^B8) EAN-13 (^BE) GS1 DataBar Omnidirectional (^BR) Industrial 2 of 5 (^BI) Interleaved 2 of 5 (^B2) ISBT-128 (^BC) LOGMARS (^BL) Micro-PDF417 (^BF) MSI (^BM) PDF-417 (^B7) Planet Code (^B5) Plessey (^BP) Postnet (^BZ) Standard 2 of 5 (^BJ) TLC39 (^BT) UPC/EAN extensions (^BS) UPC-A (^BU) UPC-E (^B9) Maxi Code (^BD) QR Code (^BQ)
Rotation Angles	0°, 90°, 180°, and 270°

Communication Port

USB



Pin #	Signal Name
1	VBUS
2	DM(-)
3	DP(+)
4	ID
5	GND

Physical, Environmental and Electrical Specifications

Parameter	ZQ520	ZQ510
Weight w/ battery	1.6 lbs. (0.75 kg)	1.35 lbs. (0.61 kg)
Temperature	Operating: -20 °C to 55 °C (-4 °F to 131 °F)	Operating:-20 °C to 50 °C (-4 °F to 122 °F)
	Storage: -30 °C to 66 °C (-22 °F to 150.8 °F)	Same
	Charging: 0 °C to 40°C (32 °F to 104 °F)	Same
Relative Humidity	Operating/Storage: 10% to 90% non-condensing	Same
Battery	Smart Battery (2 or 4 cell) Lithium-Ion, 7.4 VDC (nominal); 2.45 AHr min.	Same
Intrusion Protection (IP) Rating	IP54	IP54

Figure 32 • ZQ510 Dimensions

Figure 33 • ZQ520 Dimensions

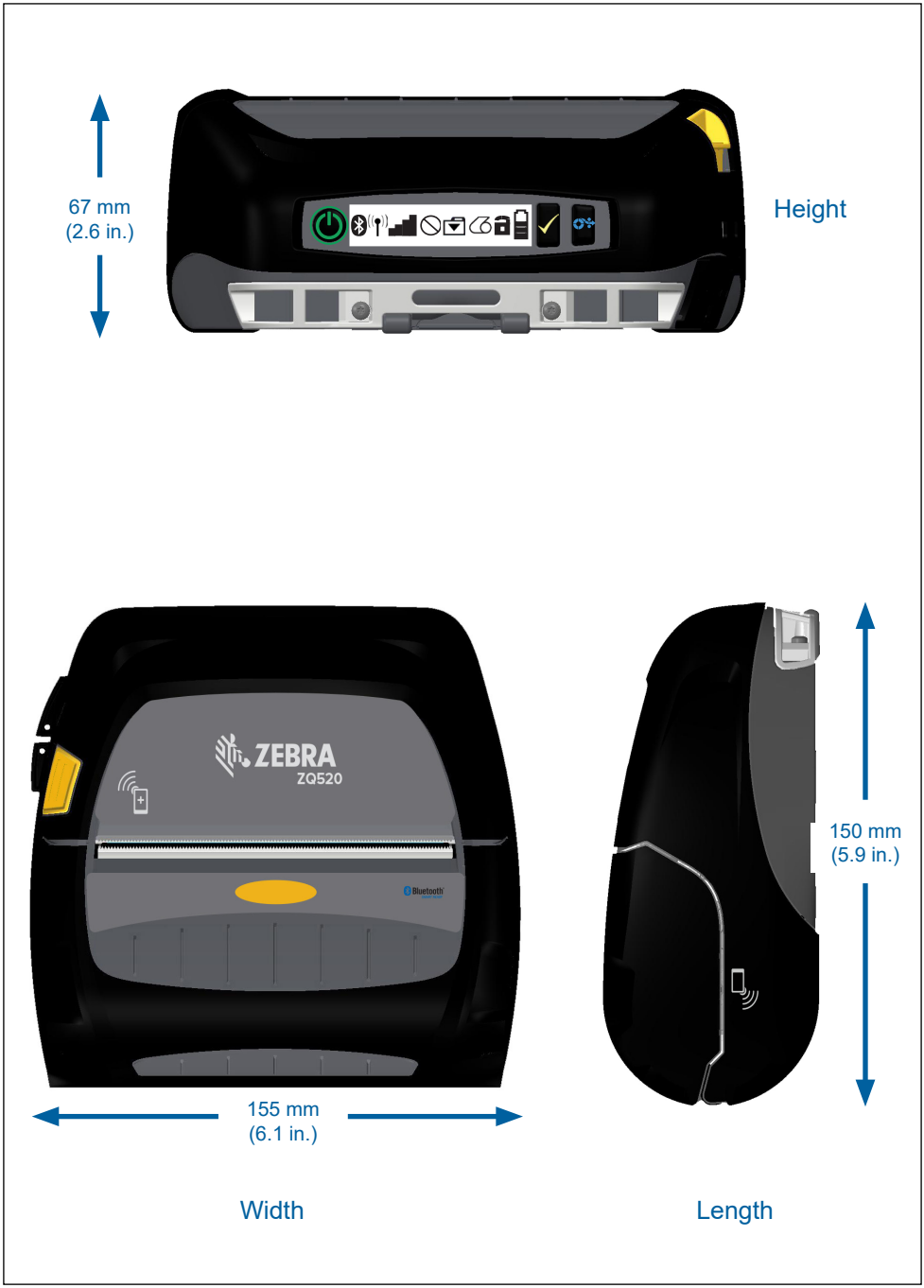
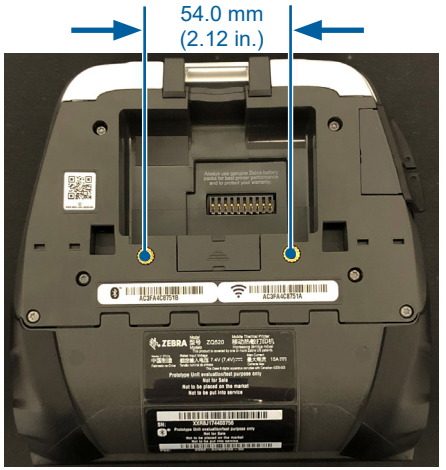
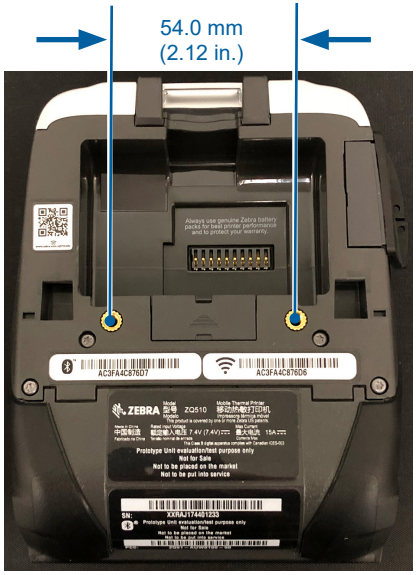


Figure 34 • ZQ5 Mounting Hole Dimensions



Use two (2) M4 x 8.0 mm screws in the indicated positions.



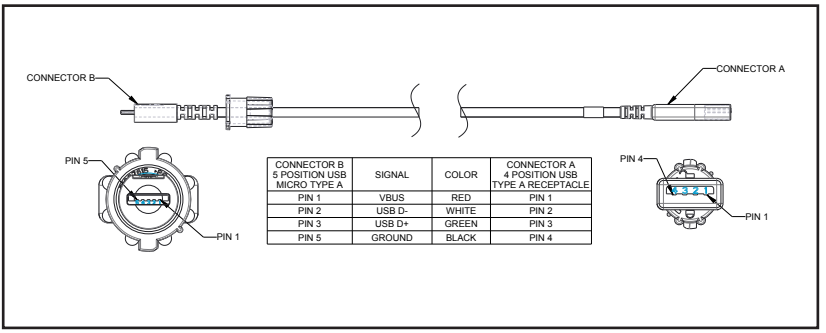
ZQ5 Accessories

Part #	Description
P1063406-025	KIT, Acc .5” Media Disk Support, ZQ500 Series
P1063406-026	KIT, Acc Swivel Lock Adapter, ZQ500 Series
P1063406-027	KIT, Acc 4-BAY Power Station, ZQ500 Series
P1063406-028	KIT, Acc Battery Eliminator Cradle, ZQ500 Series
P1063406-029	KIT, Acc Vehicle Cradle, ZQ500 Series
P1063406-030	KIT, Acc DC-DC vehicle adapter, open ended, 12~24V
P1063406-031	KIT, Acc DC-DC vehicle adapter, CIG, 12~24V
P1063406-032	KIT, Acc Battery Eliminator, ZQ500 Series
P1063406-033	KIT, Acc Power Adapter for Mobile Battery Eliminator, 12~48V, Cigarette Lighter
P1063406-034	KIT, Acc Convert Ca, 6 inch, ZQ500 Series
P1063406-035	KIT, Acc Rugged Shoulder Strap with Metal Clips, 56 inch
P1063406-036	KIT, Acc Mag Card Reader, ZQ500 Series
P1063406-037	KIT, Acc Soft Case, ZQ510
P1063406-038	KIT, Acc Soft Case, ZQ520
P1063406-039	KIT, Acc 2-roll Media Storage Case
P1063406-040	KIT, Acc Belt Clip, ZQ500 Series
P1063406-041	KIT, Acc D-Ring Adapter Belt Attachment Strap, ZQ500 Series
P1063406-042	KIT, Acc RAM Arm Mounting Plate, ZQ500 Series
P1063406-043	KIT, Acc Exoskeleton Case with Shoulder Strap, ZQ510
P1063406-044	KIT, Acc Exoskeleton Case with Shoulder Strap, ZQ520
P1063406-045	KIT, Acc Micro,USB,B, to,USB,A,Plug,1.8M, ZQ500 Series
P1063406-046	KIT, Acc Micro,USB,B to USB,A,Plug, 3.5M, ZQ500 Series
P1063406-047	KIT, Acc Micro,USB,A to USB,A, Rec., ZQ500 Series
AC18177-5	Model UCLI72-4 Quad Battery Charger (US line cord, see Sales for others)
BT16899-1	Hand Strap
P1031365-024	KIT ACC QLn AC Adapter US (type A) cord
P1031365-059	KIT ACC QLN220/QLN320 Spare Battery Smart
P1031365-063	Kit ACC SC2 Li-ION Smart Charger, US (type A) cord
P1031365-069	KIT, Acc QLn2/3 and ZQ500 Series Spare Extended Battery
BTRY-MPP-34MA1-01	3400 mAh BATTERY for ZQ6 and ZQ500 SERIES
SAC-MPP-3BCHGUS1-01	3-SLOT BATTERY CHARGER
SAC-MPP-6BCHUS1-01	DUAL 3-Slot BATTERY CHARGER
SAC-MPP-1BCHGUS1-01	1-SLOT BATTERY CHARGER
VAM-MPP-VHCH1-01	VEHICLE ADAPTER

USB Cables

Part Number P1063406-047;

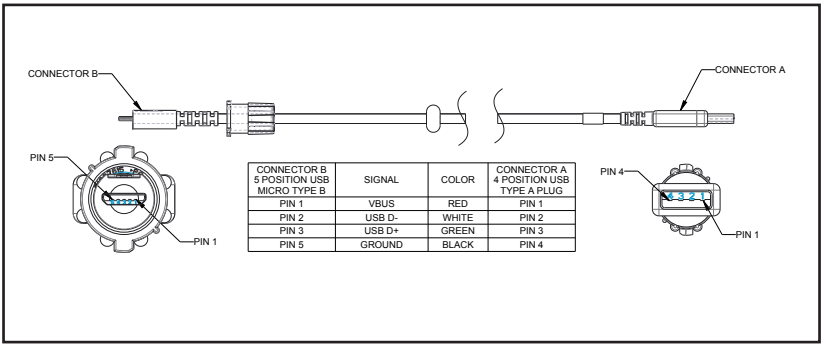
MICRO,USB,A,TO,USB A, REC



CONNECTOR B 5 POSITION USB MICRO TYPE A	SIGNAL	COLOR	CONNECTOR A 4 POSITION USB TYPE A RECEPTACLE
PIN 1	VBUS	RED	PIN 1
PIN 2	USB D-	WHITE	PIN 2
PIN 3	USB D+	GREEN	PIN 3
PIN 5	GROUND	BLACK	PIN 4

Part Numbers P1069329-001/-003;

MICRO,USB,B,TO,USB,A,PLUG,1.8M/3.5M



CONNECTOR B 5 POSITION USB MICRO TYPE B	SIGNAL	COLOR	CONNECTOR A 4 POSITION USB TYPE A PLUG
PIN 1	VBUS	RED	PIN 1
PIN 2	USB D-	WHITE	PIN 2
PIN 3	USB D+	GREEN	PIN 3
PIN 5	GROUND	BLACK	PIN 4

Note • Visit the Zebra website at: www.zebra.com/accessories for a listing of interface cables for all Zebra mobile printers.

Appendix B

Alert Messages

The ZQ500 Series printers will display the following alert messages to inform the user of various fault conditions that might occur with the ZQ510 and 520 printers.

Message	Text Line One	Text Line Two
HeadOverTemp	PRINT HEAD OVERTEMP	PRINTING HALTED
HeadMaintenanceNeeded	HEAD MAINTEN. NEEDED	PRINTING HALTED
BatteryHealthReplace	BATTERY DIMINISHED	CONSIDER REPLACING
BatteryHealthNearDeath	WARNING - BATTERY	IS PAST USEFUL LIFE
BatteryHealthShutdown	REPLACE BATTERY	SHUTTING DOWN
BatteryAuthenticationFail	BATTERY FAILED	REPLACE BATTERY
BatteryOverTemp	CHARGING TEMP FAULT	MUST BE 0-40°C
BatteryUnderTemp	CHARGING TEMP FAULT	MUST BE 0-40°C
BatteryChargeFault	CHARGING FAULT	REPLACE BATTERY
DownloadingFirmware	DOWNLOADING	FIRMWARE
BadFirmwareDownload	DOWNLOAD FAILED	PLEASE REBOOT
WritingFirmwareToFlash	FIRMWARE	WRITING TO FLASH
Mirroring	LOOKING FOR UPDATES	PLEASE WAIT...
MirroringApplication	RECEIVING FIRMWARE	DO NOT POWER OFF!
MirroringCommands	MIRRORING COMMANDS	
MirroringFeedback	SENDING FEEDBACK	PLEASE WAIT...
MirrorProcessingFinished	MIRROR PROCESSING	FINISHED
WlanInvalidChannels	WIRELESS ERROR	INVALID CHANNEL
WlanInvalidSecurityMode	WIRELESS ERROR	INVALID SECURITY
PauseRequest	PRINTER PAUSED	
CancelAll	ALL JOBS CLEARED	
CancelOne	ONE JOB CLEARED	
OutOfMemoryStoringGraphic	OUT OF MEMORY	STORING GRAPHIC
OutOfMemoryStoringFont	OUT OF MEMORY	STORING FONT
OutOfMemoryStoringFormat	OUT OF MEMORY	STORING FORMAT
OutOfMemoryStoringBitmap	OUT OF MEMORY	STORING BITMAP
AckAlertTooManyUsbHostDevices	TOO MANY MASS	STORAGE DEVICES
AckAlertUnsupportedUsbHostDevice	UNSUPPORTED USB	HOST DEVICE
AckAlertUnsupportedUsbHostFilesystem	UNSUPPORTED USB	HOST FILESYSTEM

Appendix C

Media Supplies

To insure maximum printer life and consistent print quality and performance for your individual application, it is recommended that only media produced by Zebra be used.

Advantages include:

- Consistent quality and reliability of media products.
- Large range of stocked and standard formats.
- In-house custom format design service.
- Large production capacity which services the needs of many large and small media consumers including major retail chains world wide.
- Media products that meet or exceed industry standards.

For more information go the Zebra website (www.zebra.com) and select the Products tab, or refer to the CD included with the printer.

Appendix D

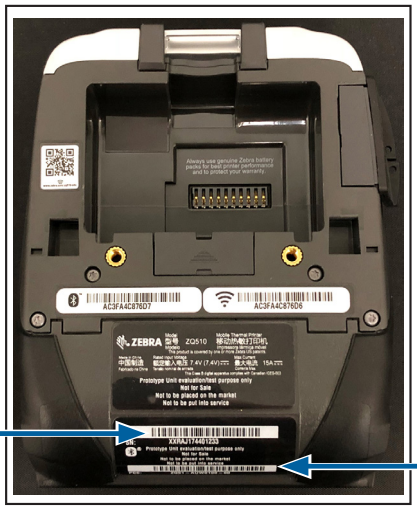
Maintenance Supplies

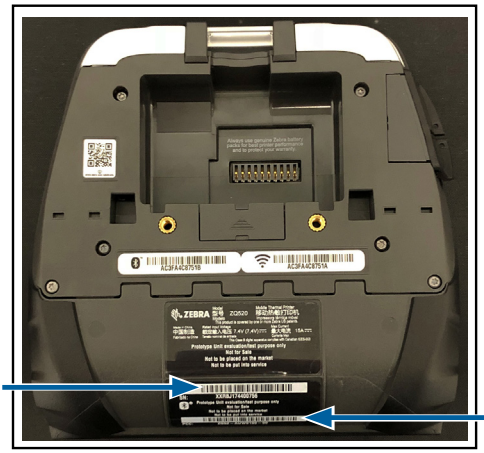
In addition to using quality media provided by Zebra, it is recommended that the printer be cleaned as prescribed in the maintenance section. The following item is available for this purpose:

- Cleaning Pen (12 pack): p/n 105950-035

Appendix E

Serial Number and PCC Number Locations





Important • Due to compliance and customs restraints, an integrator may not be able to ship a printer purchased in one country to another country based on the limitations imposed by regional SKUs. The country code identified in the printer SKU determines the area of the world in which the printer can be used.

Appendix F

Battery Disposal

The EPA certified RBRC® Battery Recycling Seal on the Lithium-Ion (Li-Ion) battery supplied with your printer indicates Zebra Technologies Corporation is voluntarily participating in an industry program to collect and recycle these batteries at the end of their useful life, when taken out of service in the United States or Canada. The RBRC program provides a convenient alternative to placing used Li-Ion batteries into the trash or the municipal waste stream, which may be illegal in your area.

Important • When the battery is depleted, insulate the terminals with tape before disposal.

Please call 1-800-8-BATTERY for information on Li-Ion battery recycling and disposal bans/restrictions in your area.

Zebra Technologies Corporation's involvement in this program is part of our commitment to preserving our environment and conserving our natural resources.

Outside North America, please follow local battery recycling guidelines.

Product Disposal

The majority of this printer's components are recyclable. Do not dispose of any printer components in unsorted municipal waste. Please dispose of the battery according to your local regulations, and recycle the other printer components accordingto your local standards.

For more information, please see our web site at: http://www.zebra.com/environment.

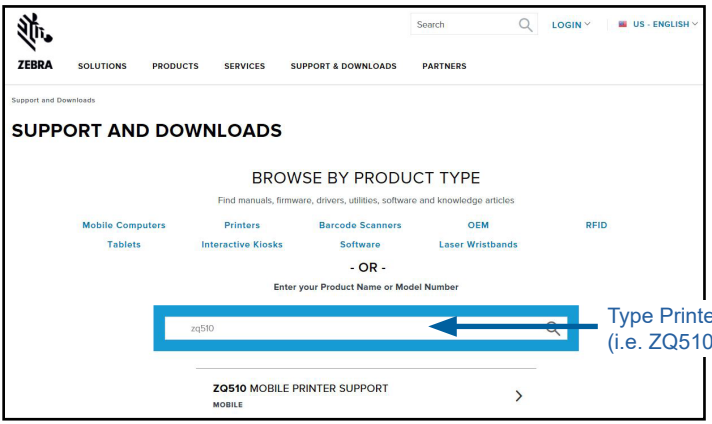
Using Zebra.com

The following examples illustrate the search function on Zebra's website for finding specific documents and downloads.

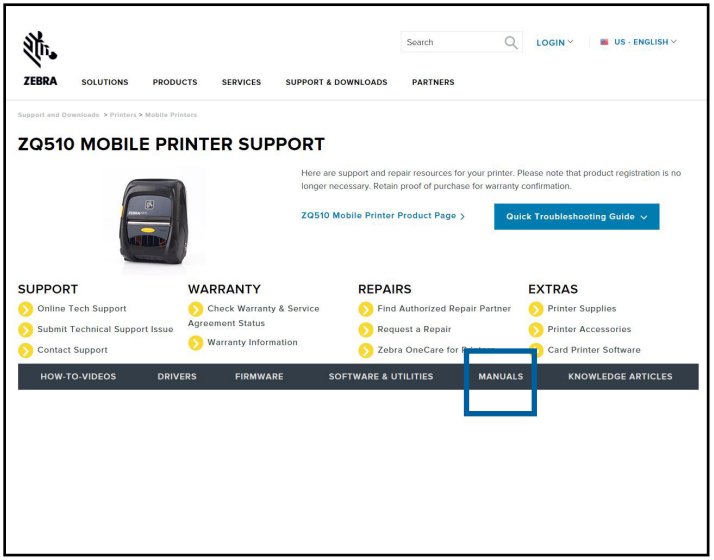
Example 1: Find the ZQ510 User Guide.

Go to http://www.zebra.com/us/en/support-downloads.html

Type the appropriate printer name in search box.

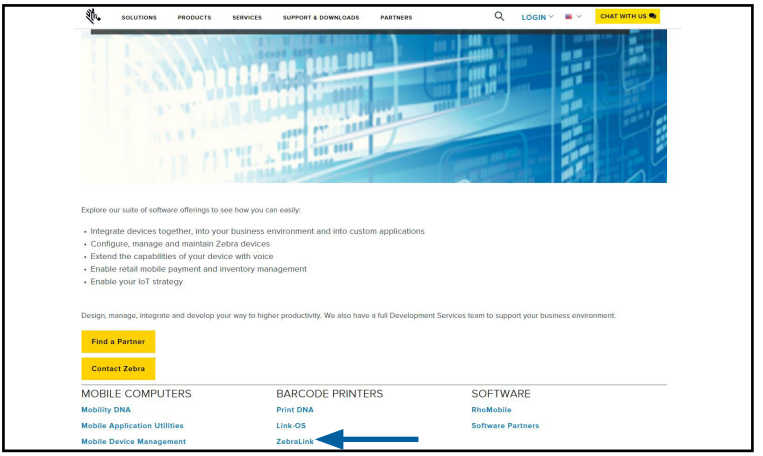


Click on the Manuals tab to go to all manuals for your chosen printer.

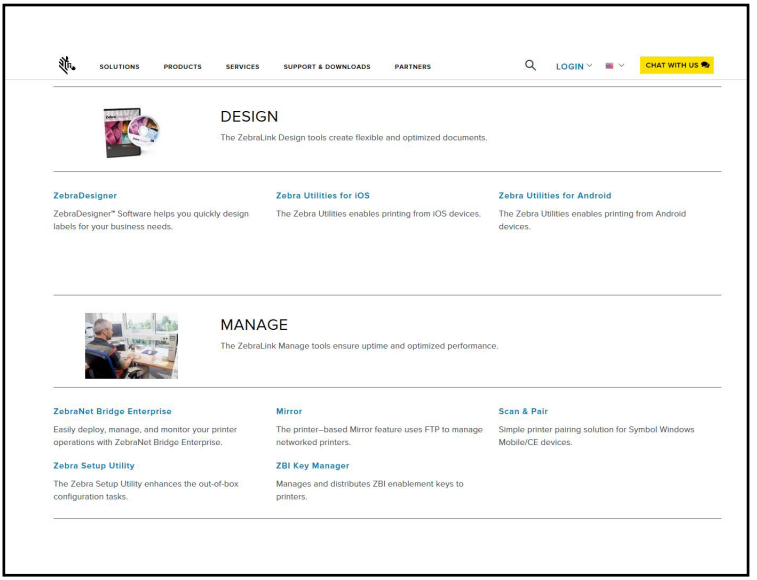


Example 2: Find the ZebraNet Bridge Enterprise and other software:

Go to http://www.zebra.com/us/en/products-services/software.html and click on ZebraLink under Barcode Printers section.



Scroll down on The ZebraLink Environment-Barcode Printing Software page to find the desired software to download.



Appendix H

Product Support

When calling with a specific problem regarding your printer, please have the following information on hand:

- Model number/type (e.g. ZQ520)
- Unit serial number (refer to Appendix E)
- Product Configuration Code (PCC) (refer to Appendix E)

In the Americas contact:

Regional Headquarters	Technical Support	Customer Service Dept.
Zebra Technologies Corporation 3 Overlook Point Lincolnshire, Illinois 60069 U.S.A. T: +1 847 634 6700 Toll Free: +1 866 230 9494 F: +1 847 913 8766	T: +1 877 275 9327 F: +1 847 913 2578 Hardware: ts1@zebra.com Software: ts3@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +1 877 275 9327 E: clientcare@zebra.com

In Europe, Africa, the Middle East, and India contact:

Regional Headquarters	Technical Support	Customer Service Dept.
Zebra Technologies Europe Limited Dukes Meadow Millboard Road Bourne End Buckinghamshire SL8 5XF, UK T: +44 (0)1628 556000 F: +44 (0)1628 556001	T: +44 (0) 1628 556039 F: +44 (0) 1628 556003 E: Tseurope@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +44 (0) 1628 556032 F: +44 (0) 1628 556001 E: cseurope@zebra.com

In the Asia Pacific region contact:

Regional Headquarters	Technical Support	Customer Service Dept.
Zebra Technologies Asia Pacific Pte. Ltd. 71 Robinson Road #05-01/02/03 Parakou Building Singapore 068913 T: +65 6858 0722 F: +65 6885 0838	T: +65 6858 0722 F: +65 6885 0838 E: (China) tschina@zebra.com All other areas: tsasiapacific@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +65 6858 0722 F: +65 6885 0836 E: (China) order-csr@zebra.com All other areas: csasiapacific@zebra.com

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