

# ZQ511 & ZQ521 RFID Mobile Printers

On-demand, on-the-go UHF RFID printing engineered for the toughest environments

Zebra's ZQ500™ Series just got tougher. The premium ZQ511™ and ZQ521™ printers—both available in RFID models—pair best-in-class mobile printing with a military-grade design that is rugged to the max. Print and encode Ultra High Frequency (UHF) RFID labels on-demand, anywhere. Experience extreme durability. Engineered for tough, demanding indoor and outdoor conditions, these printers can withstand significant drops, tumbles, accidents and environmental extremes that are common in mobile workplaces. Additional features, enhanced durability and unmatched battery capacity mean this printer will work as hard and long as you do.



## Print it All: Receipts, Labels and RFID Tags

### RFID On-Demand, On-the-Spot

Optimized for on-demand receipt printing in 3 in. (72mm) and 4 in. (104mm) print widths, the ZQ511 and ZQ521 RFID printers also print a variety of labels including UHF RFID tags for all your tracking needs. Zebra's comprehensive RFID portfolio is the only one to include mobile printers to help you reduce errors, and print and encode RFID labels on-the-go.

Automatically calibrate RFID media with Zebra's adaptive encoding technology.

## Tough. Reliable. Built to Endure.

### The Most Rugged Printers on the Market

You need a mobile printer that can handle serious abuse. Designed and certified to meet MIL-STD 810G for drop and shock, and tumble tested per the IEC68-2-32 spec to handle 1300 tumbles from 3.3 ft. (1m), the ZQ511 and ZQ521 RFID printers can withstand more than the average mobile printer.

Protection from solid and liquid ingress is no problem with an IP54 rating right out of the box without the need for a protective case.

If this isn't enough to convince you that these are ultra-rugged mobile printers, we also offer an optional exoskeleton case that increases our standard drop testing from 6.6 ft. to 10 ft. and improves the IP rating to IP65.

### Built to Last

New over-molding helps increase the longevity and keeps your ZQ500 RFID Series looking good over the life of the printer.

## On-the-Go Power, Functionality and Premium Performance

### Optimize Your Printing Quality and Power

Consistent outstanding print quality and performance are key. New printhead and print mechanism, as well as new processor and added memory, deliver it. Keep your employees on task and on schedule with the ZQ500 RFID Series' secondary Bluetooth® communication channel. Send print jobs to the printer via one channel while a second channel performs additional functions such as device management.

Boost print speeds (5+ inches-per minute) with the “draft mode” feature for text-only printing. Do more on a single battery charge with Zebra's patented Power Smart Print Technology™ that delivers the exact amount of power required for the highest quality printing. And, experience consistently sharp print quality—even in hot and cold temperatures—with enhanced temperature compensation.

### Power Your Team to do More

The ZQ511 and ZQ521 RFID printers' high-capacity 3250 mAh PowerPrecision+ battery powers your team—even during the longest shift. The printer also conserves battery life by entering sleep mode when not in use, then automatically wakes up when a print job is sent.

### Stay Connected Everywhere

With support for 802.11ac Wi-Fi and its latest security protocols, plus Bluetooth Classic and Low Energy, your workers can count on blazing fast and secure connections. Use the dual radio to simultaneously operate 802.11ac and Bluetooth for added connectivity.

## Easy to Operate and Manage

### No Manual Needed

ZQ500 RFID Series printers are designed for anyone to use. The simple user interface prevents accidental printer setting changes. Large buttons increase accuracy for gloved hands and fingers. Easy media loading cuts time spent changing supplies.

### Simple to Manage

Take your printing capabilities to a new level with Zebra's powerful Print DNA suite of productivity, management, development and visibility tools. Transforming printers from the inside, our solution lets

you easily configure, manage and maintain your Print DNA printers anywhere around the globe. Analyze printers in real time, automate processes, manage security settings and much more.

Gain visibility and manage your ZQ500 RFID Series Bluetooth printers inside and outside your four walls with Zebra's Bluetooth Management. Using SOTI® MobiControl® or Zebra's Printer Profile Manager Enterprise and an Android mobile computer as a gateway, you can manage printer settings, view real-time status, download and retrieve content from printers and even update the operating system.

## Supplies, Service and Support

### Zebra Certified Supplies

A successful RFID solution requires a high-performing thermal label and inlay. Using inlays from leading manufacturers, as well as Zebra-branded inlays, pre-tested thermal materials and RFID manufacturing on two continents, Zebra can provide an RFID labeling solution that will meet the requirements of your application. Our Supplies Innovation and RFID Inlay Lab enables Zebra to uniquely offer both label material and inlay recommendations that will provide the best performance, taking into account the surface to be labeled and the environment in which it will exist. Choose from the widest selection of in-stock items, ready to ship within 24 hours or have us create a custom solution for you. Maximize the benefits of RFID across your enterprise with Zebra RFID Labels.

### Service When You Need It

You invest in Zebra printers to better serve your customers and boost operational efficiency. Now, you can ensure predictable performance and eliminate unbudgeted repair expenses with Zebra OneCare™. You get unmatched technical support direct from Zebra, as well as comprehensive repair services, including accidental damage and defined repair turn-around times. And Zebra's Visibility Services provide the real-time insight into printer operational information you need to increase printer availability and optimize utilization within your workflows.

### Added Peace of Mind

Get increased protection with the ZQ511 and ZQ521 RFID printers' standard two-year warranty, making your purchase an even better investment.

## Make the Job Easier with Accessories

Arm your teams to do more with accessories that make the job easier. From power and charging to vehicle mounts and protection options, cradles and more, please refer to the Mobile Printer Accessory Guide, found on [Zebra.com](http://Zebra.com), to see all the ZQ500 RFID Series accessories.

### Accessories

#### AC Adapter



Connect the AC adapter to your ZQ500 Series printer and wall outlet to charge the printer's PowerPrecision+ battery while in the printer. The printer can print receipts and labels and perform other functions during charging.

Connect the ZQ500 Series printer (or charging cradle) to AC power to charge the printer's internal battery.

#### Vehicle Cradle



Dock and charge a single ZQ500 Series printer on a tabletop/countertop or mount in a vehicle/on a forklift. Must be ordered with an open-ended, vehicle lighter adapter or AC adapter. Meets IP43-rating for additional protection from liquid and solid ingress.

Compatible with the ZQ500 Series printers with or without extended battery and with or without exoskeleton.

Can be mounted with RAM mounting arm. Requires specific driver for connecting via USB.

#### 4-Slot Power Station



Docks and charges up to four ZQ500 Series printers simultaneously. Supports printers in the exoskeleton and with/without extended battery. Power supply ships with the 4-Slot Power Station.

#### Dual Charging Vehicle Adapter



Charges a ZQ500 Series printer and a TC70 or TC75 mobile computer simultaneously via the vehicle lighter power adapter.

Continued on following page

## Accessories (continued)

### 12-24V DC Power Supply



12-24V DC power supply charges the ZQ500 Series printer via vehicle open-ended or vehicle lighter power adapter. Connects to barrel jack on printer, or on the vehicle/single slot printer charging cradle.

### 3-Slot Battery Charger



Dock and charge up to three ZQ500 Series PowerPrecision+ Li-Ion printer batteries at a time. The 3-slot battery charger ships with a power supply and line cord.

### 1-Slot Battery Charger



Docks and charges a single ZQ500 Series PowerPrecision+ Li-Ion printer battery. Integrated power supply. Ships with line cord.

### Exoskeleton



Increase drop specification to 3m/10 ft., seals off ports, and increases to IP65 rating for extreme-use environments. Can be used with single and extended battery packs, 4-slot printer power station and single slot charging cradle.

# Specifications

## RFID Features

- Supports tags compatible with UHF EPC Gen 2 V2, ISO/IEC 18000-63 and RAIN RFID protocols
- Adaptive Encoding Technology simplifies RFID setup and eliminates complex RFID placement guidelines
- RFID job-monitoring tools track RFID performance
- RFID ZPL commands provide compatibility with existing Zebra RFID printers
- Support for industry standard multi-vendor chip-based serialization (MCS)
- Supports block permalocking of user memory compatible with ATA Spec 2000
- Integrated RFID Reader/Encoder
- Prints and encodes tags with a minimum pitch of 16 mm

## Standard Features

- Supports tags compatible with UHF EPC Gen 2 V2, ISO/IEC 18000-63 and RAIN RFID protocols
- Adaptive Encoding Technology simplifies RFID setup and eliminates complex RFID placement guidelines
- Globally certified for RFID to support multinational deployments
- RFID data log records all RFID data with timestamps, ensuring data traceability
- RFID job-monitoring tools track RFID performance
- RFID ZPL commands provide compatibility with existing Zebra RFID printers
- Prints and encodes tags with a minimum pitch of 0.6 in./16 mm
- Support for industry standard multi-vendor chip-based serialization (MCS)
- Supports block permalocking of user memory compatible with ATA Spec 2000
- Integrated RFID Reader/Encoder
- Android, Apple iOS, Windows® Mobile connectivity
- Bluetooth specification 4.1 EDR + LE
- WLAN 802.11ac
- Fast roaming 802.11r supported
- 528 MHz ARM processor
- 3250 mAh PowerPrecision+ (retrievable, rechargeable Li-Ion)
- USB On-The-Go ports (with optional strain relief)
- Power Smart Print Technology—anticipates upcoming printing to optimize battery consumption and print speed
- Direct thermal printing of barcodes, text and graphics
- IP54 rated for protection against solid and liquid ingress
- MIL-STD 810G certified for drop and shock
- Tolerance of multiple drops from 6.6 ft. (2m) to concrete
- Tumble testing per the IEC68-2-32 spec with 1300 free falls from 3.3 ft./1m
- Simple easy-to-read LCD with large icons for battery and wireless status
- Dual-sided tear bar which allows for clean tears in either direction (not available with linerless SKUs)
- Supports vertical and horizontal printing
- Printer can be used in any orientation
- Center loading, adjustable for variable roll widths
- “Clamshell” design for easy media loading
- Label odometer
- XML support
- Resident fixed and scalable fonts
- Mark media sensing using fixed center position sensors (Note: RFID models do not support gap sensing.)
- Cold Temperature Compensation mode—optimizes/balances print speeds to allow for better print performance at lower temperatures
- PPME, Mirror, SNMP, WebServer, AirWatch® & Soto Connectors and Wavelink Avalanche®
- NTP (Network Time Protocol) support via Wi-Fi
- Sleep mode supported. Wake on Bluetooth, Wi-Fi and Touch
- Real time clock (RTC) supported for time stamp certificates in WLAN SKU's only
- QR code links to web-based help pages; not displayed on LCD
- Zebra® Print Touch simplifies Bluetooth pairing and launches web-based pages with Near Field Communication (NFC) enabled devices

## Physical Characteristics

<b>Dimensions</b>	ZQ511: 5.9 in. L x 4.7 in. W x 2.4 in. H 150 mm L x 120 mm W x 62 mm H ZQ521: 6.2 in. L x 6.1 in. W x 2.6 in. H 158 mm L x 155 mm W x 67 mm H
<b>Weight with Battery</b>	ZQ511: 1.39 lbs/0.63 kgs ZQ521: 1.73 lbs/0.79 kgs

## Printer Specifications

<b>Operating System</b>	Link-OS® printer operating system
<b>Resolution</b>	203 dpi resolution (8 dots per mm)
<b>Memory</b>	512MB RAM, 512MB Flash (standard) 8MB RAM, 64MB Flash (user available)
<b>Maximum Print Width</b>	ZQ511: 2.83 in./72mm ZQ521: 4.09 in./104mm
<b>Maximum Print Speed</b>	Up to 5 in./127 mm per second (with Draft Mode enabled)
<b>Media Sensors</b>	Black mark media sensing using fixed center position sensors
<b>Print Length</b>	Maximum: 39 in.
<b>Power</b>	3250 mAh (nominal), removable, rechargeable PowerPrecision+ Li-Ion battery, with optional 6500 mAh extended battery

## Media Characteristics

<b>Minimum / Maximum Media Width</b>	ZQ511: 1.38 in. / 35 mm to 3.15 in. / 80 mm+1 mm ZQ521: 2.0 in. / 50.8 mm to 4.45 in. / 113 mm+1mm
<b>Maximum Media Roll Size</b>	ZQ511: 2.0 in./51 mm ZQ521: 2.24 in./57 mm
<b>Maximum Media Thickness</b>	0.0063 in. (0.1600 mm) for labels and 0.0055 in. (0.1397 mm) for tag/receipt
<b>Minimum Media Thickness</b>	0.05842mm (0.0023 in.) for all media
<b>Media Types</b>	Black-mark RFID Label, Receipt, Tag

## Operating Characteristics

<b>Environment</b>	Operating Temperature: -4°F to 131°F/-20°C to 55°C Operating Humidity: 10% to 90% non-condensing Charging Temperature: 32°F to 104°F/0°C to 40°C Cradle Temperature: 32°F to 122°F/0°C to 50°C Storage Temperature: -22°F to 150°F/-30°C to 66°C Storage Humidity: 10% to 90% non-condensing
<b>Agency Approvals</b>	Emissions: FCC Part 15, Subpart B, EN55022 Class-B, EN55024, ICES-003, EN55032, and EN301489

## Markets and Applications

### Transportation & Logistics

- Pallet-Level Tagging
- Field Service
- Direct Store Delivery
- Airline Baggage Tagging
- Post and Parcel

### Healthcare

- Asset Management
- Specimen Tracking
- Pharmacy Inventory

### Manufacturing/ Warehouse

- Asset Tagging
- Field Service
- Direct Store Delivery
- Pallet-Level Tagging
- Packing/Staging/ Cross-Docking Labeling

### Government

- Parts Tracking
- Asset Management
- Defense Logistics
- Cannabis Regulatory Compliance

### Retail and Hospitality

- In-Store RFID Exception Tagging
- Click and Collect Label Printing
- Food Supply Chain Traceability

## PRODUCT SPEC SHEET

### ZQ511 & ZQ521 RFID MOBILE PRINTERS

#### Firmware

CPCL and ZPL® programming languages

ZBI 2.x™—powerful programming language that lets printers run standalone applications, connect to peripherals, and much more

ESC-POS available via post-sale download

#### Options

- Non-RFID encoding
- Linerless printing (with silicone platen roller only)

#### Barcode Symbologies

##### CPCL Barcode Symbologies

- Barcode Ratios: 1.5:1, 2:1, 2.5:1, 3:1, 3.5:1
- Linear Barcodes: Code 39, Code 93, UCC/EAN128, Code 128, Codabar (NW-7), Interleaved 2-of-5, UPC-A, UPC-E, 2 and 5 digit add-on, EAN-8, EAN-13, 2 and 5 digit add-on
- 2D Barcodes: PDF417, MicroPDF417, MaxiCode, QR Code, GS1/DataBar™ (RSS) family, Aztec, MSI/Plessey, FIM Postnet, Data Matrix, TLC39

##### ZPL Barcode Symbologies

- Barcode Ratios: 2:1, 3:1, 5:2, 7:3
- Linear Barcodes: Code 11, Code 39, Code 93, Code 128, ISBT-128, UPC-A, UPC-E, EAN-8, EAN-13, UPC-A and UPC-E with EAN 2 or 5 digit extensions, Planet Code, Plessey, POSTNET, Standard 2 of 5, Industrial 2 of 5, Interleaved 2 of 5, LOGMARS, MSI, Codabar, and GS1 DataBar (RSS)
- 2D Barcodes: PDF417, MicroPDF-417, Code 49, TLC39, Maxicode, Codablock, Data Matrix, QR code, Aztec

#### Fonts & Character Sets

<b>Standard Fonts</b>	25 bitmapped, 1 smooth, scalable (CG Triumvirate Bold Condensed, contains UFST® from Agfa Monotype Corporation)
<b>Included in All Models and Part Numbers</b>	Scalable Fonts: Swiss721 (supporting Latin, Cyrillic, Hebrew and Arabic characters)
<b>Additional Asian Fonts Supported</b>	<p><b>Group A:</b> Part Numbers supporting Indonesia, Taiwan, Korea, Malaysia, Australia, New Zealand, Sri Lanka, India include: Scalable Traditional Chinese Characters: NotoMono, Bitmap: 24x24 MKai, 16x16 New Sans MT, Scalable Korean Characters: NotoMono</p> <p><b>Group B:</b> Part Numbers supporting, Singapore, Thailand, Philippines, HongKong and Vietnam include: Scalable Traditional Chinese characters: NotoMono and Bitmap 16x16 NewSans MT. Scalable Thai Characters: Angsana, Scalable Vietnamese Characters: SourceCodePro and Bitmap 16x16 Utah</p> <p><b>Group C:</b> Part Numbers supporting China include: Scalable Simplified Chinese Characters: Hans and Bitmap 24x24 Msung, 16x16 SimSun</p> <p><b>Group J:</b> Part Numbers supporting Japan include: Scalable NotoMono and Square Gothic J MT, Bitmap 16x16, 24X24 Square Gothic J MT</p>

#### Communication and Interface Capabilities

##### ZebraNet® 802.11ac radio with support for:

- WPA and WPA2 with AES encryption
- 802.1x (with WPA or WPA2)
- EAP-FAST, EAP-TTLS, EAP-TLS, PEAP, LEAP
- 802.11d, 802.11i, 802.11r
- Simultaneous Bluetooth 4.2 dual radio
- Wi-Fi Certification
- Fast roaming using Pairwise Master Key (PMK) caching, Opportunistic Key Caching (OKC), EAP Fast Session resumption or 802.11r

##### Bluetooth 4.1 (Classic and BLE) radio

- Security models 1-4
- \*Made for iPod/iPhone/iPad™ certified
- Key Bonding

##### Cabled Communications Specifications

- USB 2.0 full-speed on-the-go interface (12 Mbps)
- Micro-AB Connector with optional strain relief

#### Product Warranty

The ZQ511 and ZQ521 printers are warranted against defects in workmanship and materials for a period of 2 (two) years from the date of shipment. (Note: Batteries and printheads are considered consumables. Zebra batteries are warranted for one year from the date of shipment and printheads for 6 months from the date of shipment. For a complete warranty statement, please visit the Product Warranty Exceptions list on [www.zebra.com/warranty](http://www.zebra.com/warranty).

#### Recommended Services

Zebra OneCare Essential and Select Services maximize the availability and productivity of your devices. Key features include 24/7 technical support, comprehensive coverage, advance replacement and software updates. Optional Visibility Services are available. For more information go to [www.zebra.com/zebraonecare](http://www.zebra.com/zebraonecare). (Note: Service availability may vary by region.)

#### Print DNA Software

Durable printers are essential, but it's the software inside that will keep them in action. That's why we built Zebra Print DNA into our printers. It's a suite of software capabilities that give you the ability to optimize printer performance over their entire lifecycle even as your business needs evolve. For more information, please visit [www.zebra.com/printdna](http://www.zebra.com/printdna).



+1 205-383-2244

info@atlasRFIDstore.com

<https://www.atlasRFIDstore.com>

2014 Morris Avenue, Birmingham, Alabama, 35203, United States



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