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./72 mm and 4 in./104 mm print widths, the ZQ511 and ZQ521 RFID printers also print a variety of labels including UHF RFID tags for all your tracking needs. Zebra leads the industry in RFID mobility with mobile printers as part of its comprehensive RFID portfolio, helping 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./1 m, 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.

Rugged, reliable mobile printing for the toughest jobs.

For more information, visit www.zebra.com/zq500

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. Use an extended battery for twice the capacity on larger print jobs or longer work shifts.

Stay Connected Everywhere

With support for 802.11ac Wi-Fi™ plus Bluetooth Classic and Low Energy, your workers can count on 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.

Zebra DNA™ for Printers

Zebra DNA's suite of software capabilities for printers leverages everything we've learned about technology, users and thousands of use cases. Stay a step ahead with remote management tools, heightened security, and ongoing updates that enable optimized performance over the entire lifecycle of your printers, even as your business needs evolve.

Zebra DNA tools and applications for printers helps you effortlessly customize and integrate print apps for multiple environments and infrastructures. Your rollouts are accelerated with an easy-to-use setup wizard, remote access and streamlined steps. You give IT the ability to easily manage and maintain your networked mobile printers anywhere, anytime, uncover potential vulnerabilities, defend against security attacks, and alleviate common IT headaches.

Managing Your Printers Remotely Made Easy

Zebra's Printer Profile Manager Enterprise is a full featured remote printer management solution. It gives you real-time visibility of your networked mobile printers, and the ability to easily manage them from anywhere, at any time, no matter where they are in the world. The browser-based application let's you discover your Zebra DNA printers, create and distribute configurations, and update printers on your schedule.

Supplies, Service and Support

Zebra Certified Supplies

A successful RFID solution requires a high-performing thermal label and inlay. Zebra is your trusted expert in all things RFID. We offer end-to-end RFID solutions – including pre-tested RFID labels and tags made with the right materials and adhesives, along with the highest-performing inlays and chips – customized for your application. Choose from the widest selection of in-stock items, ready to ship within 24 hours or we can manufacture a solution to meet the requirements of your application. Maximize the benefits of RFID across your enterprise with Zebra RFID Labels.

Maximize Uptime, Business Operations and Printer Visibility with Services

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 at www.zebra.com/mobile-printer-accessories, to see all the ZQ500 RFID Series accessories.

ACCESSORIES	
ADAPTERS	
	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. Dual Charging Vehicle Adapter: Charges a ZQ500 Series printer and a TC70, TC72, TC75 or TC77 mobile computer simultaneously via the vehicle lighter power adapter.
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.

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.

EXTENDED SPARE SMART BATTERY 6500 MAH	
	Extended life battery pack offers twice the battery capacity of the standard pack and is the perfect solution for applications that need more capacity without interruptions. Battery Capacity: 6500 mAh

BATTERY CHARGERS	
	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. 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’, 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 encoding any RFID tag data standard, including SGTIN-96, GS1 TDS 2.0, RAIN ISO CIN, etc.
• Integrated RFID Reader/Encoder
• Prints and encodes tags with a minimum pitch of 16 mm

Standard Features

• Android, Apple iOS, Windows™ Mobile connectivity
• Bluetooth specification 4.1 EDR + LE
• Fast roaming 802.11r supported
• 3250 mAh PowerPrecision+ Battery (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./2 m to concrete
• Tumble testing per the IEC68-2-32 spec with 1300 free falls from 3.3 ft./1 m
• 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® and Soti Connect 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

Dimensions	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 HZQ521: 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
Weight with Standard Battery	ZQ511: 1.39lbs/0.63 kgs ZQ521: 1.73lbs/0.79 kgs
Weight with Extended Battery	ZQ511: 1.62lbs/0.72 kgs ZQ521: 1.96lbs/0.89 kgs

Operating Characteristics

Environment	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
Agency Approvals	Emissions: FCC Part 15, Subpart B, EN55022 Class-B, EN55024, ICES- 003, EN55032, and EN301489 ENERGY STAR™ certified
Security	FIPS support is available at no cost as a printer OS download. Please contact your Zebra Sales Representative for further information

Programming Languages

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

Options

• Standard printing (non-RFID encoding)
• 6500 mAh PowerPrecision+ Extended Battery (retrievable, rechargeable Li-Ion)

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, TLC39ZPL 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 and Character Sets

Standard Fonts	25 bitmapped, 1 smooth, scalable (CG Triumvirate Bold Condensed, contains UFST™ from Agfa Monotype Corporation)
Included in All Models and Part Numbers	Scalable Fonts: Swiss721 (supporting Latin, Cyrillic, Hebrew and Arabic characters)
Additional Asian Fonts Supported	Group A: 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: NotoMonoGroup 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 UtahGroup

Markets and Applications

Transportation and 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

Printer Specifications

Operating System	Link-OS™ printer operating system
Resolution	203 dpi resolution (8 dots per mm)
Memory	256MB RAM; 512MB Flash (standard) 8MB RAM; 64MB Flash (user available)
Maximum Print Width	ZQ511: 2.83 in./72mm ZQ521: 4.09 in./104mm
Maximum Print Speed	Up to 5 in./127 mm per second (with Draft Mode enabled)
Media Sensors	Black mark media sensing using fixed center position sensors
Print Length	Maximum: 39 in.
Power	3250 mAh (nominal), removable, rechargeable PowerPrecision+ Li-Ion battery, with optional 6500 mAh extended battery

Media Characteristics

Minimum / Maximum Media Width	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
Maximum Media Roll Size	ZQ511: 2.0 in./51 mm ZQ521: 2.24 in./57 mm
Maximum Media Thickness	0.0063 in. (0.1600 mm) for labels and 0.0055 in. (0.1397 mm) for tag/receipt
Minimum Media Thickness	0.05842mm (0.0023 in.) for all media
Media Types	Black-mark RFID Label, Receipt, Tag Note: ZQ511R/ZQ521R require black mark RFID media and do not support gap sensing

Fonts and Character Sets

	C: Part Numbers supporting China include: Scalable Simplified Chinese Characters: Hans and Bitmap 24x24 Msung, 16x16 SimSun Group J: Part Numbers supporting Japan include: Scalable NotoMono and Square Gothic J MT, Bitmap 16x16, 24X24 Square Gothic J MT

Communication and Interface Capabilities

ZebraNet™ 802.11ac radio with support for:
• WPA and WPA2 with AES encryption
• 802.1x (with WEP, WPA, or WPA2)
• EAP-FAST, EAP-TTLS, EAP-TLS, PEAP, LEAP
• Operation on both the 2.4 GHz and 5GHz frequency bands
• 802.11d, 802.11i, 802.11r
• Simultaneous Bluetooth 5.2 ready[1] / 802.11ac Multiport Radio
• Wi-Fi Certification
• Fast roaming using Pairwise Master Key (PMK) caching, Opportunistic Key Caching (OKC), EAP Fast Session resumption or 802.11rBluetooth 4.1 (Classic and BLE) radio
• Security models 1-4
• “Made for iPod/iPhone/iPad” certified
• Key BondingCabled 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

Maintenance Plans

Your printers are crucial for smooth business operations. Unexpected failures can disrupt workflow. Zebra OneCare maintenance plans offer protection against such issues with certified repairs and timely support. Choose from a variety of plans based on printer type, contract length, coverage level and repair turnaround time. Protect your business from unexpected surprises. For more information go to www.zebra.com/zebraonecare
(Note: Service availability may vary by region.)

Zebra DNA for Printers

Zebra DNA is a suite of software tools that enable Zebra printers to deliver a full lifecycle of exceptional experiences for every kind of user through built-in applications, utilities and tools to get your printer up and running quickly and securely. For more information, please visit www.zebra.com/zebradna

Footnotes

[1]Supports errata fixes for Version 5.2 only. Future upgrades and updates will not support additional functionality.
For optimum print quality and printer performance, use genuine Zebra supplies. Specifications subject to change without notice.

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