

ZQ500 Mobile Printer

Specifications are provided for reference and are based on testing the ZQ500™ printers using genuine Zebra® supplies. Results may vary in actual application settings or when using other-than-recommended Zebra supplies. Zebra recommends always qualifying any application with thorough testing.

STANDARD FEATURES

- Apple® iOS, Android™, and Windows® Mobile connectivity
- Direct thermal printing of barcodes, text and graphics
- 203 dpi resolution (8 dots per mm)
- Print speed in draft mode: 5" (127mm) per second
- CPCL and ZPL® programming languages
- XML support
- Resident fixed and scalable fonts
- 400 MHz 32-bit ARM® processor with 256 MB RAM (8 MB available for user applications)
- 512 MB Flash supports downloadable programs, receipt formats, fonts and graphics (64 MB available for user storage)
- USB On-The-Go ports (with optional strain relief cable)
- 2450 mAh removable PowerPrecision+ Li-Ion battery, with optional 4900 mAh extended battery
- Built-in battery charger
- Black mark and gap media sensing using fixed center position sensors
- Optional liner-less platen
- Cold Temperature Compensation mode which optimizes / balances print speeds to allow for better print performance at lower temperatures
- Dual-sided tear bar which allows for clean tear in either direction (not available with liner-less SKUs)
- Supports vertical and horizontal printing
- Printer can be used in any orientation
- Center-loading media locking for variable roll widths
- “Clamshell” design for easy media loading
- Management: Mirror, SNMP, Web server, Profile Manager, AirWatch® and Wavelink Avalanche®
- Bluetooth® 4.0 Smart Ready Low Energy radio
- Simple easy-to-read LCD with large icons for battery and wireless status
- Tolerance of multiple drops from 6.6' (2 m) to concrete
- Label odometer
- NTP (Network Time Protocol) support via WiFi
- QR code links to web-based help pages; not displayed on LCD
- Semi-sleep / instant-on mode allows the printer to “wake” on touch, or on Bluetooth print job transmission
 - Wake on BT only supported in BT 4.0 radio model, not in multiport radio model
- Zebra Print Touch™ simplifies Bluetooth pairing and launches web-based help pages with Near Field Communication (NFC) enabled devices
- Power Smart Print Technology anticipates upcoming printing to optimize battery consumption and print speed



CHARGING / POWER OPTIONS

- Charge the battery inside the printer using:
 - AC adapter (included)
 - DC vehicle power adapter
 - Vehicle cradle
 - 4-bay printer power station
- Charge the battery outside the printer using:
 - S2 smart battery single charger
 - Quad charger (same as QL Plus™ / RW Series)
- Power the printer directly from vehicle power with
 - Standalone battery eliminator
 - Battery eliminator cradle

OPTIONAL FEATURES

- ZebraNet® 802.11a/b/g/n radio with support for:
 - WEP, TKIP, and AES encryption
 - WPA and WPA2
 - 802.1x (with WEP, WPA or WPA2)
 - EAP-FAST, EAP-TTLS, EAP-TLS, PEAP, LEAP
 - 802.11d and 802.11i
 - Simultaneous Bluetooth 3.0 dual radio
 - Wi-Fi Certification
 - Fast roaming using Pairwise Master Key (PMK) caching, Opportunistic Key Caching (OKC), or EAP Fast Session resumption
 - Support for Ad Hoc mode
- Bluetooth 3.0 / 802.11b/g Multiport Radio (can be used simultaneously)
 - Security modes 1 – 4
 - “Made for iPod® / iPhone® / iPad®” (MFi) certified
 - WEP, TKIP and AES encryption
 - WPA and WPA2
 - 802.1x
 - EAP-FAST, EAP-TTLS, EAP-TLS, PEAP, LEAP
 - 802.11d and 802.11i
 - Simultaneous Bluetooth 3.0 dual radio
 - Key Bonding
- 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

ACCESSORIES

- Spare batteries (including optional Extended pack)
- AC adapter
- SC2 smart battery single charger
- Quad battery charger (same as QL Plus Series)
- 4-bay printer power station
- 12-24V DC vehicle power adapter (open ended or lighter adapter)
- 15-60V DC vehicle power adapter (for use with forklift applications)
- Battery eliminator
- Battery eliminator vehicle cradle
- Vehicle cradle
 - Media storage case to attach to vehicle cradle
 - Specific driver required for connecting via USB to vehicle cradle
- Magnetic stripe reader (encryption optional)
- Shoulder strap (standard or rugged)
- Hand strap
- Soft case
- Exoskeleton (increases drop spec to 10' and IP rating)
 - Can be used in vehicle cradle or 4-bay power station
 - Cannot be used with liner-less
 - Users must tear down when using exoskeleton
 - Backward compatibility adapters for porting over legacy RW or Datamax vehicle installations
- USB cables with strain relief
- USB cable to connect to USB memory sticks for USB mirror

LINK-OS® SOFTWARE SOLUTIONS

Profile Manager — Advanced, server-based device management for networked printers, operates via a web browser interface

Cloud Connect — Secure, direct, encrypted and authenticated connections to the web for printing and device management

Virtual Devices — Use legacy and non-Zebra command languages to print labels and tags

Zebra Utilities — Print from iOS, Android, Windows Mobile devices

Print Station — Driverless printing from Android devices

AirWatch® Connector — Manage from within the AirWatch environment

Multiplatform Software Development Kit — Simplifies printing application development with support for Blackberry, Apple, Android, WinCE®, WinMobile®, Windows desktop and Linux / Unix platforms

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Zebra Setup Utility — Single printer configuration utility; requires latest version of Zebra Driver

ZebraDesigner™ Windows Driver — Microsoft certified for Windows Vista®, Windows 7, Windows 8, Windows 8.1, Windows 2008, and Windows 2012 (downloadable from www.zebra.com)

Zebra Validated Solutions are at www.zebra.com/validation

CPCL PROGRAMMING LANGUAGE

- Communicates in printable ASCII characters
- Compatible with servers, PCs, mobile terminals and smartphone hosts
- Downloadable objects include graphics, bitmap fonts, label templates and formats
- Automatic memory allocation for format while printing
- Automatic serialization of fields
- Automatic printhead temperature compensation
- Format inversion (white on black)
- Four position field rotation (0°, 90°, 180°, 270°)
- Programmable label odometer
- Monitor and report battery voltage and temperature
- Easy network and security configuration

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

CPCL GRAPHICS

- Lines, boxes and patterns
- PCX Images

CPCL FONT SPECIFICATIONS 203 DPI (8 DOTS / MM)

Fonts	Matrix (in dots) (H x W)	Minimum Character Size (H x W)	Maximum CPI
0 Standard	9 x 8	.044" x .039"	25.4
1 (Minimum Width)	48 x 13	.236" x .064"	15.6
1 (Maximum Width)	48 x 39	.236" x .192"	5.2
2 (OCR-A)	12 x 20	.059" x .099"	10.2
4 Size 0 (Minimum Width)	47 x 11	.232" x .054"	18.5
4 Size 0 (Maximum Width)	47 x 43	.232" x .212"	4.7
5 Size 0 (Minimum Width)	24 x 7	.118" x .034"	29
5 Size 0 (Maximum Width)	24 x 23	.118" x .113"	8.8
6 (MICR)	27 x 28	.133" x .138"	7.3
7	24 x 12	.118" x .059"	16.9

- Standard Fonts: 25 bitmapped, 1 smooth, scalable (CG Triumvirate Bold Condensed*)
- Optional Fonts: downloadable bitmapped / scalable fonts
- Scalable text feature
- Standard resident fonts can be rotated in 90° increments
- Supports user-defined fonts, graphics and logos
- Text concatenation to assign different character styles
- Allows text magnification 1-16 times the original size
- Proportional and fixed-width fonts
- CPCL Asian fonts are not supported

*Contains UFST® from Agfa Monotype Corporation

ZPL PROGRAMMING LANGUAGE

- Supports version X.16 (and onwards)
- Communicates in printable ASCII characters
- Compatible with servers, PCs, mobile terminals and smartphone hosts
- Downloadable objects include graphics and bitmap fonts, label templates and formats
- Automatic memory allocation for format while printing
- Automatic serialization of fields
- Format inversion (white on black)
- Mirror-image printing
- Four position field rotation (0°, 90°, 180°, 270°)
- Programmable label odometer
- Slew command
- Programmable label quantities with print, pause
- Status messages to host upon request

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

ZPL GRAPHICS

- Lines, boxes (with optional rounded corners)
- Circles, ellipses
- Images (several different formats, see ZPL programming guide)
- Compressed images

ZPL FONT SPECIFICATIONS 203 DPI (8 DOTS / MM)

Fonts	Matrix (in dots) (H × W)	Type†	Minimum Character Size (H × W)	Maximum CPI
A	9 × 5	U-L-D	.044" × .030"	33.3
B	11 × 7	U	.054" × .044"	22.7
C, D	18 × 10	U-L-D	.089" × .059"	16.9
E	28 × 15	OCR-B	.138" × .098"	10.2
F	26 × 13	U-L-D	.128" × .079"	12.7
G	60 × 40	U-L-D	.295" × .236"	4.2
H	21 × 13	OCR-A	.103" × .093"	10.8
GS	24 × 24	SYMBOL	.118" × .118"	8.5
P	20 × 18	U-L-D	.098" × .089"	N / A
Q	28 × 24	U-L-D	.138" × .118"	N / A
R	35 × 31	U-L-D	.172" × .153"	N / A
S	40 × 35	U-L-D	.197" × .172"	N / A
T	48 × 42	U-L-D	.236" × .207"	N / A
U	59 × 53	U-L-D	.290" × .261"	N / A
V	80 × 71	U-L-D	.394" × .349"	N / A
Ø	15 × 12	U-L-D	Scalable (Smooth) Font	

† U = Uppercase L = Lowercase D = Descenders

- Character Fonts: Standard bitmapped Zebra fonts: A, B, C, D, E (OCR-B), F, G, H, (OCR-A), GS, P, Q, R, S, T, U, V and Ø Smooth font (CG Triumvirate Bold Condensed)
- Supports Unicode UTF-8, UTF-16, and several other single and multi-byte international character sets (see ZPL programming guide for more details)
- Supports user-defined fonts and graphics — including custom logos
- Bitmap fonts are expandable up to 10 times, height and width independent. Fonts E and H (OCR-B and OCR-A), however, are not considered in spec when expanded.
- Smooth scalable font Ø (CG Triumvirate Bold Condensed) is expandable dot-by-dot, height and width independent
- Unicode Scalable Swiss 721 is preloaded on the printers E: memory location (supports Latin, Cyrillic, Arabic and Hebrew)
- Google / Adobe Hans (Asia SKUs only)
 - Thai Angsana (Asia SKUs only)

APPLICATION FLEXIBILITY

ZQ printers are designed to support a wide variety of applications and media types. Please consult the CPCL or ZPL programming guide for configuration details. Zebra recommends always qualifying any application with thorough testing.

INTERNET PROTOCOLS (OVER 802.11)

- UDP / TCP
- DHCP / BootP
- FTP / Mirror
- HTTP
- SMTP / POP3
- Telnet
- LPD
- SNMP

MEDIA SPECIFICATIONS

NOTE: For optimum print quality and printer performance, use of genuine Zebra supplies is recommended.

Attribute	ZQ510	ZQ520
Minimum Media With	1.38" (35 mm)	2.76" (70 mm)
Maximum Media Width	3.15" (80 mm+1 mm)	4.45" (113 mm+1 mm)
Maximum Print Width	2.83" (72 mm)	4.09" (104 mm)
Minimum Media Thickness	0.0023" (0.05842 mm)	0.0023" (0.05842 mm)
Maximum Media Thickness for Labels	0.0063" (0.1600 mm)	0.0063" (0.1600 mm)
Maximum Media Thickness for Tag / Receipt	0.0055" (0.1397 mm)	0.0055" (0.1397 mm)
Minimum Label Length	0.5" (12.7 mm)	0.5" (12.7 mm)
Maximum Label Length	unconstrained	unconstrained
Media Roll ID – Standard	0.75" (19 mm)	0.75" (19 mm)
Media Roll ID – via Field Installable Kit	.5" (12.5 mm)	.5" (12.5 mm)
Media Roll OD	2.0" (51 mm)	2.24" (57 mm)

PHYSICAL SPECIFICATIONS

Attribute	ZQ510	ZQ520
Length	2.4" (62 mm)	2.6" (66 mm)
Width	4.7" (120 mm)	6.1" (155 mm)
Height	5.9" (150 mm)	6.2" (158 mm)
Weight (with battery)	1.39 lbs. (0.63 kg)	1.73 lbs. (0.79 kg)

ENVIRONMENTAL SPECIFICATIONS

- Operating Temperature: -4°F to 131°F (-20°C to 55°C)
- 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)
- Relative Humidity:
 - Operation: 10% to 90% non-condensing
 - Storage: 10% to 90% non-condensing
- IP Rating: IP54 (IP65 with exoskeleton)

ELECTRICAL SPECIFICATIONS

- Standard PowerPrecision+ battery:
 - 7.2 V, 2450 mAh (nominal) removable, rechargeable Li-Ion
 - Life: 300 cycles (full charge and discharge) recommended, 600 cycles maximum
 - Available status: health, cycle count, date first used, serial number
- Optional extended battery:
 - 7.4V, 4900 mAh (nominal) removable, rechargeable bump out Li-Ion with battery health LED
- DC charging input: 12 VDC ± 10% at 2A maximum

AGENCY APPROVALS

- Emissions: FCC Part 15, Subpart B, EN55022 Class-B, EN60950, EN55024 and VCCI class B
- Susceptibility: EN55024, EN61000-4-2, EN61000-4-3, EN61000-4-4, and EN61000-4-5
- Safety: CE, UL, TUV, CSA

PREVENTATIVE MAINTENANCE

Zebra recommends cleaning the ZQ500 Series printers on a regular basis using standard Zebra printer parts and cleaning supplies. Consult your User's Guide for further details.

- **Cleaning:** The exterior is cleaned with a lint-free cloth, and if necessary, a mild detergent solution or desktop cleaner. Interior components are cleaned with 70% isopropyl alcohol (IPA) or blown air to remove any particles.
- **Battery:** It is recommended that the battery be fully discharged several times by cycling it to maximize performance.

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



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