**Zebra Technologies International, LLC**
333 Corporate Woods Parkway
Vernon Hills, Illinois 60061.3109 U.S.A.
Telephone +1.847.634.6700
Facsimile +1.847.913.8766
www.zebra.com

# ZEBRA MOBILE *QL PLUS SERIES* PRINTER SPECIFICATIONS

Specifications are provided for reference and are based on printer tests using Zebra brand 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

- Direct thermal printing of bar codes, text and graphics
- CPCL programming language
- 8 MB Flash for downloadable programs, receipt formats, scalable fonts and graphics
- 16 MB DRAM
- 2.1 AHr (QL 220, QL 320) 4.2 Ahr (QL 420) removable, rechargeable Li-Ion battery
- Serial RS-232 (8 Pin) port for 1-way or 2-way communication to terminal or other host up to 115.2 Kbps
- Resident scaleable fonts
- Flexible ordering & configuration options tailored to meet user's present and future application requirements.
- Black mark and gap media sensing
- Print speeds of up 3 ips
- Tear bar for easy receipt dispensing
- QuickFlip, one step peel and present mode
- Supports vertical or horizontal printing
- Power on/off from printer keys, terminal or host
- Center-loading media locking for variable roll widths
- "Clamshell" design for easy media loading
- Rubber-infused plastic housing eliminates need for environmental case
- Tolerance of multiple drops up to 5' to concrete
- Configurable LCD control panel
- High speed, 32-bit processor

## Optional Features

- Battery charging options include:
    ⇒ *Fast Charger*- the LI72 series of fast chargers is the recommended charging method. Average charge time is 2-3 hours. LI72 fast chargers have LEDs to clearly indicate battery status during charging.
    ⇒ *Quad Charger*- the quad charger provides a convenient way to charge up to 4 batteries in a single location. Both the 2.1 Ahr and 4.2 Ahr Li-Ion batteries can be charged in the same unit.
- Wireless connectivity options:
    ⇒ Bluetooth® wireless v 2.0
    ⇒ 802.11b/g Wireless LAN
        ⇒ WPA and WPA2
        ⇒ EAP-FAST, EAP-TLS and EAP TTLS, PEAPv0, LEAP
- Linerless printing

## ZebraLink Solutions

*Software*
**Zebra Designer™ Pro**
**Label Vista** – Easy-to-use software program for designing label formats.
**ZebraNet Bridge Enterprise** – Centrally manage Zebra printers from a single PC screen anywhere on your global network.
**Zebra Universal Driver** – The most powerful driver available from Zebra
Wavelink Avalance® support
Motorola® MSP support

*Firmware*
Programming language:  Native CPCL with ZPL and XML support standard
Emulations: ZPL II and EPL II emulators available as standard.

## Printing Specifications

- Direct thermal
- 203 dpi resolution (8 dots/mm)
- Programmable print speed: up to 3 ips

## Media Specifications

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

|  | QL 220 | QL 320 | QL 420 |
|---|---|---|---|
| **Min. Media Wid.** | .75" (19.0mm) | 1.25" (38.1mm) | 2.0" (50.8mm) |
| **Max. Media Width** | 2.12" (53.9mm) | 3.12" (79.3mm) | 4.12" (104.6mm) |
| **Max. Print Width** | 1.9" (48.3mm) | 2.9" (72mm) | 3.9" (99.1mm) |
| **Max. Media Thickness** | 6.5 mil | 6.5 mil | 6.5 mil |
| **Min. Print Length** | .5" (12.7mm) | .5" (12.7mm) | .5" (12.7mm) |
| **Max. Print Length** | 32" (813mm) | 30" (762mm) | 20" (508mm) |
| **Max. Roll Length** | 111.11' with 2.4 mil journal | 163.47' with 2.4 mil journal | 163.47' with 2.4 mil journal |
| **Label Roll ID Core Min.** | .75" (19mm) | .75" (19mm) | .75" (19mm) |
| **Label Roll ID Core Max.** | 1.375" (34.9mm) | 1.375" (34.9mm) | 1.375" (34.9mm) |
| **Label Roll OD Max.** | 2.2" (55.88mm) | 2.60" (66.0mm) | 2.60" (66.0mm) |

## Printer Control Language

- Communicates in printable ASCII characters
- Compatible with mainframe, mini, and PC hosts
- Downloadable objects include graphics and bitmap fonts, label templates and formats
- Scalable concatenation
- Advanced utilities to manage flash file systems, obtain information about firmware and applications, configure for use in other countries and set operating parameters
- Automatic memory allocation for format while printing
- Automatic serialization of fields
- Automatic print head temperature compensation
- Format inversion (white on black)
- Four position field rotation (0º, 90º, 180º, 270º)
- Programmable label odometer with on-demand terminal reporting
- Status messages to host upon request
- Monitor and report battery voltage and temperature
- Easy network and security configuration

## Bar Code Symbologies & Specifications

- **Bar Code Ratios:** 1.5:1, 2:1, 2.5:1, 3:1, 3.5:1
- **Linear Bar Code Symbologies : 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**
- **• 2-Dimensional Symbologies: PDF417, MaxiCode, QR Code, GS1, DataBarTM (RSS) family, Aztec, MSI/Plessey, FIM Postnet, Data Matrix**

## Font Specifications: 203 dpi (8 dots/mm)

| Fonts | Matrix (in dots) (H x W) | Minimum Char. Size (H x W) | Maximum CPI |
|---|---|---|---|
| 0 (Standard) | 9 x 8 | .044" x .039" | 25.4 |
| 1 (min. width) | 48 x 13 | .236" x .064" | 15.6 |
| 1 (max. width) | 48 x 39 | .236" x .192" | 5.2 |
| 2 (OCR-A) | 12 x 20 | .059" x .099" | 10.2 |
| 4 Size 0 (min. width) | 47 x 11 | .232" x .054" | 18.5 |
| 4 Size 0 (max. width) | 47 x 43 | .232" x .212" | 4.7 |
| 5 Size 0 (min. width) | 24 x 7 | .118" x .034" | 29 |
| 5 Size 0 (max. 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 |

- Fonts supported: Standard Fonts: 25 bitmapped, 1 smooth, scalable (CG Triumvirate Bold Condensed*)
- Optional Fonts: downloadable bitmapped/scalable fonts
- International Character Sets (optional): Chinese 16x16 (traditional), 16x16 (simplified), 24x24 (simplified); Japanese 16x16, 24x24, Hebrew/Arabic
- Scalable text feature
- Standard resident fonts can be rotated in 90° increments
- Supports user defined fonts and graphics and logos
- Text concatenation to assign different character styles
- Allows text magnification 1-16 times the original size
- Proportional and fixed-width fonts
- *Contains UFST from Agfa Monotype Corporation

## Communications Specifications

- USB 2.0 Full Speed Interface (12 Mbps)
- Serial interface: 8-pin DIN RS-232C port for one-way or two-way communication to terminal or other host up to 115.2 Kbps
- Default Parameters: Baud Rate- 19,200; Parity- None; Data Bits- 8; Stop Bits-1; Handshaking RTS/CTS
- Software (XON/XOFF) or hardware (RTS/CTS) communication handshake protocols
- Serial Port Pin definitions

| PIN Number | Signal Name | Signal Type | Description |
|---|---|---|---|
| 1 | NC | Do not use | |
| 2 | NC | Do not use | |
| 3 | RXD | Input | Receive data |
| 4 | TXD | Output | Transmit data |
| 5 | DTR | Output | Data terminal ready. Set high when printer is on. |
| 6 | GND | | Ground |
| 7 | DSR | Input | Data set ready. Low to high transition turns printer on. High to low transition turns printer off (if enabled). |
| 8 | RTS | Output | Request to send. Set high when printer ready to accept a command or data. |
| 9 | CTS | Input | Clear to send from host. |
| 10 | NC | Do not use | |

## Electrical Specifications

- Standard Battery:
  - ⇒ 7.4 V, 2.1 AHr (QL 220, QL 320) 4.2 Ahr (QL 420) removable, rechargeable Li-Ion battery
  - ⇒ Approx. 3000"(75 m) of print stock per charge
  - ⇒ The QL products are certified for sale and use in the following countries:

US, Canada, Australia, New Zealand, Mexico, Nicaragua, EU/EFTA members, Turkey, Russia, India, Japan, Taiwan, Korea, Malaysia, China, Singapore, Thailand, Philippines, Argentina, and Brazil. Check with your local Zebra representative for the latest approved countries and product options.

## Physical Specifications (*with battery*)

| | QL 220 | QL 320 | QL 420 |
|---|---|---|---|
| **Height**: | 7.15" (181.6mm) | 8" (203.2mm) | 7.5" (190.5mm) |
| **Width**: | 3.57" (90.77mm) | 4.6" (116.8mm) | 6.0" (152.4mm) |
| **Depth**: | 2.96" (75.2mm) | 3.1" (78.7mm) | 3.0" (76.58mm) |
| **Weight (w/battery)**: | 1.32 lbs. (598g) | 1.65 lbs. (748g) | 2 lbs. (907g) |

## Environmental Specifications

- Operating temperature range: 5 °F(-15°C) to 122°F (50°C)
- Storage temperature range: -13°F(-25°C) to 158°F (70°C)
- Relative humidity:
  - ⇒ Operation: 10% to 80% non-condensing
  - ⇒ Storage: 10% to 90% non-condensing

## Preventative Maintenance

Zebra recommends cleaning the *Mobile Line* printer 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 alcohol 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.

- **Lubrication:**
  All mechanical parts are self-lubricating and do not require additional lubrication.

- **Registration:**
  Media registration and minimum length are affected by media type, width and print speed. Performance improves as these factors are optimized. Zebra recommends always qualifying any application with thorough testing.