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# ZEBRA® ZD500™ PRINTER SPECIFICATIONS

Specifications are provided for reference and are based on printer tests 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

### Printer Features

- Thermal transfer or direct thermal print methods
- ZPL® programming language
- Dual-wall frame construction
- Tool-less printhead and platen replacement
- OpenACCESS™ for easy media loading
- Quick and easy ribbon loading
- Simplified calibration of media
- Quad connectivity: USB, Parallel, Serial, and Ethernet
- 128 MB Std SDRAM memory (4 MB available to user)
- 256 MB Std Flash memory (56 MB available to user)
- Real-time clock
- LCD user interface
- Zebra E<sup>3</sup>™ Printhead Energy Control
- ENERGY STAR® qualified
- Link-OS®-enabled
- Print Touch™ app
- Unicode compliant for multi-language printing
- 16 resident expandable ZPL II® bitmap fonts
- Two resident scalable ZPL fonts
- Auto-switching 100-240V power supply
- Multi-position gap and moveable black-line media sensors
- Head-up sensor
- Standard tear-off mode feature
- Programmable print speeds of 2, 3, 4, 5 & 6 ips (51, 76, 102, 127 & 152 mm/s)
- 3" media core adaptor
- Zebra printer driver for Windows®

### Firmware

- ZPL II – Universal language for Zebra printers. Simplifies label formatting and enables format compatibility with existing systems that run Zebra printers.
- Web View – Connect and control Zebra bar code printers via the printer's Web interface using a common Web browser.
- Alert – Printers equipped with ZebraNet® print servers will notify you via any email-enabled, wired, or wireless device to minimize downtime.

## Optional Features

- 300 dpi print resolution (12 dots/mm)
- Wireless – 802.11 a/b/g/n and Bluetooth® 3.0
- UHF RFID printer/encoder (factory installed)
- Dispenser (peeler) – Label peel and present with present sensor
- Cutter:
  - Continuous paper, lined label and tag stock
  - Maximum thickness 0.010" (0.254 mm)
- Font Packs – Asian and other international font kits
- Power Cord – US, Europe, UK, Australia, Japan and Taiwan
- ZBI 2.0™ – Field installed via activation key

## Accessories

- ZKDU™ – Keyboard display unit for ZPL and EPL™
- KDU Plus™ – Full-size keyboard with LCD for stand-alone printing applications

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## Link-OS Solutions

### Software Tools

- Document Design: Quickly design a customized print solution using your business data and Zebra's intuitive, plug-and-print design tools
- Printer Integration: Zebra offers apps and products designed to help you integrate Zebra devices into your existing systems
- Printer Management: Manage your print operations locally and globally with Zebra's suite of device management tools
- Developer Tools: Provides you with the tools you need to create your own apps, including documentation, source code, programming languages, templates and more
- Zebra Setup Utility: Single printer configuration utility
- Zebra Universal Driver: The most powerful driver available from Zebra for Windows 95/98/2000/2003/ME/NT/XP
- ZebraDesigner™ Driver: Zebra driver compliant with Windows 95/98/2000/2003/ME/NT/XP, and Vista™ (downloadable from [www.Zebra.com](http://www.Zebra.com))

## Communication and Interface Capabilities

- RS-232 auto-sensing Serial interface, DB-9
- USB V2.0, bi-directional
- Centronics® Parallel 36 pin
- Ethernet – 10/100 internal
- Wireless – 802.11 a/b/g/n and Bluetooth 3.0

## Printing Specifications

| Resolution                          | 203 dots/inch (dpi)<br>(8 dots/mm)                                  | 300 dots/inch (dpi)<br>(12 dots/mm)                  |
|-------------------------------------|---|--|
| Speed<br>inch/sec - ips<br>(mm/sec) | Programmable 2, 3, 4, 5 with 6 max. (51, 76, 102, 127 with max.152) | Programmable 2, 3 with 4 max. (51, 76, with max.102) |
| Dot pitch                           | 0.0049" (0.13 mm)   | 0.0033" (0.08 mm)                                    |
| Max. print length                   | 39.0" (991 mm)  | 39.0" (991 mm)                                       |
| Min. print length                   | One dot   | One dot  |
| Max. print width                    | 4.09" (104 mm)  | 4.09" (104 mm)                                       |
| Min. print width                    | One dot   | One dot  |
| Barcode modulus<br>"X" Dimension    | 5 mil to 50 mil   | 3.27 mil to 32.67 mil                                |

## Ribbon Specifications (Thermal Transfer Units)

**NOTE:** For optimum print quality and printer performance, use of Genuine Zebra ribbon is recommended as well as a notched ribbon core

- Ribbon Width: 1.33" (33.8 mm) to 4.3" (109 mm)
- Ribbon Capacity: 1 roll of ribbon per 1 roll of 5" OD media
- Core ID: 0.5" (12.7 mm)
- Ribbon OD: 1.36" (35 mm)
- Ribbon Length: 244' (74 m) using 0.000328" ribbon thickness
- Ribbon Type: wax, wax/resin and resin

## Media Specifications

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

- Media Width: 0.75" (19 mm) - 4.25" (108 mm)
- Label Length:
  - Minimum using tear-off mode: .25" (6.3 mm)
  - Minimum with label present sensor used - 0.50" (12.7 mm)
  - Minimum with cutter - 1.0" (25.4 mm)
- Core Inner Diameter: 0.5"/12.7 mm, 1.0"/25 mm, 1.375"/35 mm, 1.5"/37.1 mm, 3"/76 mm
- Maximum Roll Diameter: 5.00" (127 mm)
- Media Thickness: 0.003" (0.08 mm) - 0.012" (0.305 mm)
- Media Sensing: fixed reflective and multiposition transmissive gap, moveable black line and notch
- Media Types: Roll-fed or fan-fold, die-cut or continuous direct thermal labels with or without black mark, tag stock, continuous receipt paper and wristbands
- Dispenser peeler may not work with all media types and should be tested for media compatibility.

## Calibration Procedure

- A manual calibration procedure can also be performed, if required. Consult your "User's Guide" for more details on the specific manual calibration steps.



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## ZPL Programming Language (ZPL/ZPL II)

- Communicates in printable ASCII characters
- Compatible with mainframe, mini and PC 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°)
- Slew command
- Programmable label quantities with print, pause
- Status messages to host upon request

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

| Font | Matrix<br>(in dots)<br>(H x W) | Type*  | Minimum Char.<br>Size (H x W)                          | Maximum<br>C.P.I. |
|------|--------------------------------|--------|--|-------------------|
| A    | 9 x 5                          | U-L-D  | .044" x .030"  | 33.3              |
| B    | 11 x 7                         | U      | .054" x .044"  | 22.7              |
| C,D  | 18 x 10                        | U-L-D  | .089" x .059"  | 16.9              |
| E    | 28 x 15                        | OCR-B  | .138" x .098"  | 10.2              |
| F    | 26 x 13                        | U-L-D  | .128" x .079"  | 12.7              |
| G    | 60 x 40                        | U-L-D  | .295" x .236"  | 4.2               |
| H    | 21 x 13                        | OCR-A  | .103" x .093"  | 10.8              |
| GS   | 24 x 24                        | SYMBOL | .118" x .118"  | 8.5               |
| P-V  |                                | U-L-D  | Backward compatible w/ S-300<br>Scalable (Smooth) Font |                   |
| Ø    | 15 x 12                        | U-L-D  |  |                   |

## ZPL Font Specifications 300 dpi (12 dots/mm)

| Font | Matrix<br>(in dots)<br>(H x W) | Type*  | Minimum Char.<br>Size (H x W) | Maximum<br>C.P.I. |
|------|--------------------------------|--------|-------------------------------|-------------------|
| A    | 9 x 5                          | U-L-D  | .030" x .020"                 | 50.8              |
| B    | 11 x 7                         | U      | .037" x .030"                 | 33.8              |
| C,D  | 18 x 10                        | U-L-D  | .060" x .040"                 | 25.4              |
| E    | 41 x 20                        | OCR-B  | .138" x .085"                 | 11.5              |
| F    | 26 x 13                        | U-L-D  | .085" x .053"                 | 19.06             |
| G    | 60 x 40                        | U-L-D  | .200" x .160"                 | 6.36              |
| H    | 30 x 19                        | OCR-A  | .100" x .098"                 | 10.02             |
| GS   | 24 x 24                        | SYMBOL | .80" x .80"                   | 12.7              |
| P-V  |                                | U-L-D  | Scalable (Smooth) Font        |                   |
| Ø    | 15 x 12                        | U-L-D  |                               |                   |

\*U = upper case, L = lower case, 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 & Ø Smooth font (CG Triumvirate™ Bold Condensed)

- 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, while maintaining edges to a max. 1500 x 1500 dots
- Swiss 721 font

\*Contains UFST® from Agfa Monotype Corporation

## ZPL Barcode Symbolologies

- Barcode Ratios: 2:1 (non-rotated) and 3:1
- Linear Barcodes: Code 11, Code 39, Code 93, Code 128, UPC-A, UPC-E, EAN-8, EAN-13, EAN-14, UPC-A and UPC-E with EAN 2- or 5-digit extensions, Plessey, POSTNET, Standard 2 of 5, Industrial 2 of 5, Interleaved 2 of 5, LOGMARS, MSI, Codabar and GS1 DataBar (formerly RSS)
- 2-Dimensional: PDF417, MicroPDF417, Code 49, Maxicode, Codablock, Data Matrix, QR code, Aztec

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## Electrical Specifications

- Auto-detectable (PFC Compliant) 100-240VAC, 50-60Hz, rated at 100 Watts
- ENERGY STAR qualified

## Agency Approvals

- Emissions: FCC Part 15, Subpart B, VCCI, C-Tick
- Emissions and Susceptibility: (CE): EN55022
- Class-B, EN61000-3-2, EN61000-3-0 and EN55024, CCC, Wi-Fi®-certified
- Safety: IEC 60950-1:2005 + A1:2009, EN 60950-1:2006 + A11:2009 + A12:2011 + A1:2010 + AC:2011, UL 60950-1:2007 R12.11, CAN/CSA-C22.2 No. 60950-1-07 + A1:2011 and TUV NRTL

## Physical Specifications *(no options installed)*

|        | ZD500            |
|--------|------------------|
| Height | 7.5" (191 mm)    |
| Width  | 7.6" (193 mm)    |
| Depth  | 10.0" (254 mm)   |
| Weight | 4.9 lbs (2.2 kg) |

## Environmental Specifications

- Operating Temperature: 40° to 105°F (4.4° to 41°C)
- Storage Temperature: -40° to 140°F (-40° to 60°C)
- Operating Humidity: 10% to 90% non-condensing R.H.
- Storage Humidity: 5% to 95% non-condensing R.H.

## Preventative Maintenance

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



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