



## Zebra Technologies Corporation

475 Half Day Road, Suite 500  
Lincolnshire, Illinois 60069 U.S.A.  
Telephone +1 847.634.6700  
Facsimile +1 847.913.8766  
www.zebra.com



## ZEBRA LP/TLP 2824 PLUS PRINTER SPECIFICATIONS

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

- Print speeds of 4 inches/second (ips) (102 mm)
- 203 dpi print resolution (8 dots/mm)
- OpenACCESS™ design for easy media loading
- Direct thermal (LP) and thermal transfer (TLP) printing of bar codes, text, and graphics
- Fully enclosed 5.0" (127mm) media compartment
- Double-walled ABS case construction
- EPL and ZPL® programming language, co-resident
- 32-bit RISC processor
- 8 MB SDRAM, 4 MB Flash memory
- Zebra E<sup>3</sup> printhead energy control
- Interfaces available: Serial (RS232) with auto-sensing port, USB (V1.1), and Parallel (Centronics)
- Odometer for printer length tracking
- Unicode™ compliant for multi-language printing
- Reset button feature
- Auto-calibration of media
- 16 resident expandable ZPL II® bitmap fonts
- One resident scalable ZPL font
- 5 resident expandable EPL2® fonts
- Auto-switching 100V and 240V power supply
- Linear & 2-D bar code symbologies
- Transmissive and reflective media sensing
- Head-up sensor
- Standard tear-off mode feature
- Certified Microsoft® Windows® drivers

### Optional Features

- **64 MB Flash Memory** w/ Real Time Clock for a total of 68 MB
- **Ethernet 10/100** – Internal Ethernet, offered in combination with USB
- **Label Dispenser** – label peel and present with label taken sensor
- **Cutter** – may be used on the following media types with a maximum thickness of 0.007" (0.18mm) and minimum label length of 1.0" (25.4mm)
  - **Continuous Paper** – most receipt or fax paper is generally acceptable
  - **Label Liner** – cuts on the liner only. Cutter should not be used to cut through labels as adhesives may cause jams
  - **Tag Stock** – tag stock is generally acceptable as long as it is no more than 0.07" (0.18mm) thickness
- **Liner-free platen (LP only)** – for use with liner-free media
- **ZBI 2.0** – field upgradeable

### Accessories

- **Media Adapter Guide (LP only)** – supports wristband media
- **Font Packs** – Asian and other international font kits
- **KDU Plus** – full size keyboard with LCD for stand alone printing applications
- **KDU** – keyboard Display Unit for stand-alone printing applications where space is limited

### ZebraLink™ Solutions

#### Software:

- **Zebra Setup Utilities** – Windows® utility drivers to setup and configure your Zebra printer
- **ZebraDesigner** – offers basic features for simple label design
- **ZebraDesigner™ Pro** – an intuitive, easy-to-use software program for creating complex label designs (option)
- **ZebraNet Bridge Enterprise** – centrally manage Zebra printers from a single PC screen anywhere on your global network (standard and option)
- **ZebraNet Utilities v 7.0** – provides enhanced printing, conversion, and administration capabilities; message management and more (standard)
- **Zebra Universal Driver** – the most powerful driver available from Zebra Windows drivers (standard)

#### Networking Options:

- **Web View** – connect and control Zebra bar code printers via the printer's web interface using a web browser
- **Alert** – printers equipped with ZebraNet print servers will notify you via any email-enabled, wired or wireless device to minimize downtime
- **ZBI 2.0** – Powerful programming language that lets printers run stand-alone applications, connect to peripherals, and much more (option)
- **ZBI-Developer** – Programming utility makes it dramatically easier for programmers to create and test complex ZBI 2.0 programs and distribute them to the printer (standard with ZBI 2.0)

### Programming Languages

- **ZPL II** – Universal language for Zebra printers. Simplifies label formatting and enables format compatibility with existing systems that run Zebra printers
- **EPL2** – Eltron Programming Language simplifies label formatting and enables format compatibility with legacy applications
- **EPL** – Line Mode support (LP 2824 Plus) enables format compatibility with legacy applications

### Printing Specifications

- Resolution: 203 dots/inch (dpi) (8 dots/mm)
- Dot Pitch: 0.0049" (0.125mm)
- Maximum print length: 39.0" (991mm)

- Minimum print length: 0.005" (0.125mm – one dot)
- Maximum print width: 2.2" (56mm)
- Minimum print width: 0.005" (0.125mm – one dot)
- Programmable print speed: 2, 3, 4 ips (51,76 and 102mm/s)
- Bar code modulus “X” dimension: 5mil to 50 mil

### Ribbon Specifications (TLP model)

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

- Ribbon Width: 1.33" (33.8mm) to 2.24" (58mm)
- Ribbon Capacity: 1 roll of 5" OD media full ribbon capacity
- Core ID: 0.5" (12.7mm)
- Ribbon OD: 1.36" (35mm)
- Ribbon Length: 244' (74m) 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: 1.00" (25.4mm) - 2.36" (60mm)
- Media Width w/ 2" Media Guide: 0.585" (15mm) - 1.44" (36.6mm)
- Label Length:  
Minimum - 0.38" (9.7mm)  
Minimum with label taken sensor used - 0.50" (12.7mm)  
Minimum with cutter - 1.0" (25.4mm)  
Maximum with standard memory - 39.00" (991mm)
- Core Inner Diameter: 1.00" (25.4mm), 1.5" (38mm)
- Max Roll Diameter: 5.00" (127mm)
- Media Thickness: 0.003" (0.08mm) - 0.007" (0.18mm)
- Media Sensing: gap, black line, 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, wristbands, and optional liner-free direct thermal media

### Calibration Procedure

- The 2824 Plus is equipped with a standard auto-calibration feature that initiates automatically during start-up of the printer - utilizing two to four labels to calibrate for efficient operation and less waste. The printer will also save the new settings in memory until the next calibration is performed.
- A manual calibration procedure can also be performed, if required. Consult your User Manual for more details on the specific manual calibration steps.

### 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

Font	Matrix (in dots) (H x W)	Type*	Minimum Char. Size (H x W)	Maximum 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	
Ø	15 x 12	U-L-D	Scalable (Smooth) Font	

- 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.

### ZPL Bar Code Symbolologies

- **Bar Code Ratios:** 2:1 (non-rotated) and 3:1
- **Linear Bar Codes:** 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, MicroPDF-417, Code 49, Maxicode, Codablock, Data Matrix, QR code, Aztec

### EPL Programming Language (EPL2)

- ASCII EPL2 programming language (Page Mode)
- EPL Line Mode
- Field Rotations
- Variable field support (up to 100)
- Counter support (up to 10)
- Variable field addition and subtraction
- Status reporting
- Form, fonts, and graphics storage
- Simple set of formatting commands
- Support of selected bar codes

## EPL Font Specifications

Font	Width (dot)	Height (dot)	CPI
1	8	12	20.3
2	10	16	16.9
3	12	20	4.5
4	14	24	12.7
5	32	48	5.6
8-Simp	32	32	6.3*
8-Trad	32	32	6.3*

\* Spacing of Asian characters is controlled via the *i* command. The formula for CPI is  $203 / (32 + i)$ . Thus as *i* increases, CPI decreases. For example: If *i* = 2,  $CPI = 203/34 = 6.0$

## EPL Bar Codes

- **Linear Bar Codes:** Code 39, Code 128A, B & C (User selectable/Auto), UCC/EAN-128, Code 93, Codabar, Interleaved 2 of 5, UPC-A, UPC-E, UPC-A with 2 and 5 add on, UPC-E with 2 and 5 add on, EAN 13, EAN 8, EAN 13 with 2 and 5 add on, EAN 8 with 2 and 5 add on, Postnet (5, 9, 11, & 13 digit) Japanese Postnet, Plessey (MSI-1), MSI-3, German Post Code, and GS1 DataBar™ (formerly RSS)
- **2-Dimensional:** Maxicode (modes 2,3,4,6), PDF417, MacroPDF417, QR Code, Data Matrix, and Aztec

## Communications Specifications

- Centronics® Parallel (36 Pin) connector ports
- RS-232 Serial and USB V1.1 interface
- 10/100 Ethernet (option)

## Electrical Specifications

- Auto-detectable (PFC Compliant) 100-240VAC, 50-60Hz

## Agency Approvals

- **Emissions:** FCC Part 15, Subpart B, VCCI, C-Tick
- **Emissions and Susceptibility:** (CE): EN55022 Class-B, EN61000-3-2, EN61000-3-3 and EN55024
- **Safety:** CB Scheme IEC 60950:1991 +A1 +A2 +A3 +A4, UL 60950 and C-UL, IRAM, NOM, AAMI

## Physical Specifications *(no options installed)*

	LP 2824 Plus	TLP 2824 Plus
Height	6.75" (171 mm)	7.0" (178 mm)
Width:	4.37" (111 mm)	5.3" (135 mm)
Depth:	8.5" (216 mm)	9.5" (241 mm)
Weight:	2.7 lbs (1.2 kg)	3.5 lbs (1.6 kg)
Shipping Weight:	5.3 lbs (2.4 kg)	6.1 lbs (2.8 kg)

## Environmental Specifications

- Operating Temperature: 40° to 105° F (5° 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 Manual for further details.