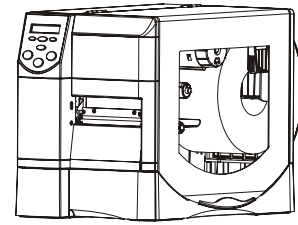




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ZEBRA Z4Mplus™ PRINTER SPECIFICATIONS

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

- 203 dpi print resolution (8 dots/mm)
- Thin film print head with E³ Element Energy Control
- Thermal transfer and direct thermal printing of bar codes, text, and graphics
- ZPL[®] or ZPL II[®] programming language, selectable through software or front panel
- 32 bit high speed processor
- On board Real Time Clock (RTC)
- 8MB DRAM memory (3.5MB User Available)
- 4MB Flash memory (2 MB User Available)
- Serial RS-232, and bi-directional parallel ports
- Transmissive and reflective sensing technology
- Sleek personality / rugged metal design:
 - ⇒ Die-cast aluminum frame: 0.20" (5mm) thick – ensures parallelism of spindles for consistent print quality
 - ⇒ Metal powder-coated base withstands harsh industrial conditions
 - ⇒ Metal media cover with enlarged clear window: easy to view supplies
 - ⇒ Die-cast print mechanism with head open lock withstands general wear & tear and facilitates media loading.
- Standard LCD control panel: Back-lit, 2 line, 16 characters w/ full menu to change set-up options
- Charcoal gray form design for improved smudge resistance
- Zebra[®] printer driver for Windows[™] 3.X and 95/98/NT 2000 operating systems

Optional Features

- Print head 300 dpi (12 dots/mm)
- Full-width guillotine knife cutter and catch tray, operates under software control cutting labels individually or in strips (not compatible with rewind and peel options)
- Choice of 2 peel options:
 - ⇒ A front mount, passive peel option, w/ no take-up spindle
 - ⇒ Liner-Take-Up option - full roll liner take-up spindle accommodates standard printer base –works with peel option
- Rewind – internally rewinds full roll of printed labels on 3" core, or peels & rewinds liner
- Factory Installed 64MB (61MB user available) Flash Memory option
- Memory board socket option
 - ⇒ PCMCIA socket: Supports linear type I & type II, 5 volt memory cards, up to 32MB, ATA format up to 256MB.
 - ⇒ Compact Flash: Supports compact flash cards up to 256MB.

- Adjustable Transmissive sensor option (factory or field installable)
- Additional scalable and smooth bitmapped fonts available
- ZebraNet Wireless Print Server option —provides an internally integrated wireless option and supports Symbol and Cisco radio cards..
- Internal or external ZebraNet 10/100 Print Server — supports 10Base-T, 100Base-TX, and fast Ethernet 10/100 auto-switching networks and enables the use of ZebraLink Webview and Alert features..
- Internal or external ZebraNet[™] PrintServer II –provides cost effective Ethernet connectivity to 10Base-T networks and enables the use of ZebraLink Webview and Alert features..
- RS-232 DB-9 to RS422/485 Adapter
- APL-I firmware – allows a 203 dpi (8 dots /mm) Zebra printer to parse and print IPL code intended for an Intermec 3400D, or 88XX printer. (With APL-I firmware installed, ZPL programming language is not recognized, and ZPL specific features are not available.)
- APL-D firmware – allows 203 dpi (8 dots /mm) Zebra printer to parse and print DPL code intended for a Datamax Prodigy Plus, Prodigy, or Allegro printers. (With APL-D firmware installed, ZPL programming language is not recognized, and ZPL specific features are not available.)

ZebraLink Solutions

Software

ZebraDesigner Pro – An intuitive, easy-to-use software program for creating complex label designs (option).

ZebraDesigner – Offers basic features for simple label design

ZebraNet Bridge Enterprise – Centrally manage Zebra printers from a single PC screen anywhere on your global network.

ZebraNet Utilities v 7.0 – Provides enhanced printing, conversion, and administration capabilities; message management; and more.

Zebra Universal Driver – The most powerful driver available from Zebra

Networking Options

ZebraNet Wireless PrintServer (internal)

ZebraNet 10/100 PrintServer (internal or external)

ZebraNet PrintServer II (internal or external)

Firmware

ZPL II – Universal language for Zebra printers. Simplifies label formatting and enables format compatibility with existing systems that run Zebra printers.

APL – Zebra's Alternative Programming Language allows integration into mixed printer environments without re-programming formats.

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 provide alerts via any email-enabled, wired, or wireless device to minimize downtime.

Printing Specifications

- 203 dpi resolution (8 dots/mm)
 - Dot size (W x L):
0.0049" x 0.0049" (0.125mm x 0.125mm)
- 300 dpi resolution (12 dots/mm)
 - Dot size (W x L):
0.0033" x 0.0039" (0.084mm x 0.099mm)
- First dot location measured from inside media backing edge:
0.10" ±.04" (2.5mm, not to exceed -.5mm +1.0mm)
- Maximum print width: 4.09" (104mm)
- Maximum continuous media print length:

203 dpi	300 dpi
157"	73"
3988mm	1854mm

- Media registration tolerance:
- Vertical = $\leq \pm 0.039"$ (± 1.0 mm) on non-continuous media
Horizontal = $\leq \pm 0.039"$ (± 1.0 mm) within a roll of media
- Programmable print speeds:
 - 203 dpi models = 2.0" (51mm) through 10" (254mm) per second in 1" increments
 - 300 dpi model = 2.0" (51mm) through 6" (152mm) per second in 1" increments

Media Specifications

- Maximum non-continuous label length: 39" (991mm)
- Media type: continuous, die-cut, tags, black-mark
- Media web width (label and liner):
1.0" (25.4mm) to 4.50" (114mm) Tear / Cutter
1.0" (25.4mm) to 4.25" (108mm) Peel / Rewind
- Minimum label length:
 - Rewind mode: 0.5" (12.7mm)
 - Peel mode: 1.0" (25.4mm)
 - Tear-off mode: 0.5" (12.7mm)
 - Cutter mode: 1.0" (25.4mm)
- Media thickness (label and liner):
0.0023" (0.058mm) to 0.010" (0.25mm)
- Maximum full-width media thickness for cutter:
0.25mm (0.010")
- Maximum media roll size:
8.0" (203mm) O.D. on a 3" (76mm) I.D. core
- Maximum fan-fold pack size:
8.0"L (203mm) x 4.5"W (114mm) x 6.2"H (157mm)
- Gap and notch sensing standards:
 - Inter-label gap: 2 - 4mm, preferably 3mm
 - Sensing notch: 0.25"W (6mm) x 0.12"L (3mm)
 - Sensing hole: 0.125" (3mm) diameter
- * Note: Notch & Hole Position centered from 0.15" to 2.25" from media inner edge
- Fixed transmissive sensor location: 7/16" from media inner edge
- Black mark sensing standards:
 - Black mark length (parallel to inside media edge):
0.098" - 0.453" (2.5mm - 11.5mm)
 - Black mark width (perpendicular to inside media edge):
 $\geq 0.37"$ (≥ 9.5 mm)
 - Black mark location: within 0.040" (1mm) of inside media edge
 - Black mark density: > 1.0 Optical Density Units (ODU)
 - Maximum media density: 0.5 ODU

Ribbon Specifications

- Ribbon width: 2.00" (51mm) to 4.33" (110mm)
- Standard Lengths: 984' (300m) or 1476' (450m)
- Maximum ribbon roll size:
3.2" (81.3mm) O.D. on a 1.0" (25.4mm) I.D. core
- Ribbon wound ink-side out

Standard Printer Fonts

Fonts A, B, C, D, E, F, G, H, and GS are expandable up to 10 times, height and width independently. However, fonts E and H (OCR-A and OCR-B) are not considered "in-spec" when expanded. The scalable smooth font 0 (CG Triumvirate™ Bold Condensed) is expandable on a dot-by-dot basis, height and width independent, while maintaining smooth edges. Maximum character size depends on available memory.

IBM Code Page 850 international character sets are available in the fonts A, B, C, D, E, F, G, and 0 through software control.

Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
					Height	Width	Inter-character Gap	Height	Width	Char/mch
A	9	5	1	U-L-D	0.044	0.029	33.90	1.13	0.75	1.33
B	11	7	2	U	0.054	0.044	22.60	1.38	1.13	0.89
C,D	18	10	2	U-L-D	0.088	0.059	16.95	2.25	1.50	0.67
E	28	15	5	OCR-B	0.138	0.098	10.17	3.50	2.50	0.40
F	26	13	3	U-L-D	0.128	0.079	12.71	3.25	2.00	0.50
G	60	40	8	U-L-D	0.295	0.236	4.24	7.50	6.00	0.17
H	21	13	6	OCR-A	0.103	0.093	10.71	2.63	2.38	0.42
GS	24	24	0	SYMBOL	0.118	0.118	8.48	3.00	3.00	0.33
P	20	18	N/A	U-L-D	.098	.089	N/A	2.49	2.26	N/A
Q	28	24	N/A	U-L-D	.138	.118	N/A	3.51	2.99	N/A
R	35	31	N/A	U-L-D	.172	.153	N/A	4.37	3.89	N/A
S	40	35	N/A	U-L-D	.197	.172	N/A	5.00	4.37	N/A
T	48	42	N/A	U-L-D	.236	.207	N/A	5.99	5.26	N/A
U	59	53	N/A	U-L-D	.290	.261	N/A	7.37	6.63	N/A
V	80	71	N/A	U-L-D	.394	.349	N/A	10.0	8.86	N/A
0	Default: 15 x 12			U-L-D	Scalable					

*U = Uppercase, L = Lowercase, D = Descenders

Font Matrices for 8 dot/mm (203 DPI) Print heads

Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-character Gap		Height	Width	Char/inch	Height	Width	Char/inch
A	9	5	1	U-L-D	.030	0.020	50.00	0.76	0.51	1.97
B	11	7	2	U	.037	0.030	33.33	0.93	0.76	1.31
C,D	18	10	2	U-L-D	.060	0.040	25.00	1.53	1.02	0.98
E	41	20	6	OCR-B	.137	0.087	11.54	3.47	2.20	0.45
F	26	13	3	U-L-D	.087	0.053	18.75	2.20	1.36	0.74
G	60	40	8	U-L-D	.200	0.160	6.25	5.08	4.07	0.25
H	30	19	9	OCR-A	.100	0.093	10.71	2.54	2.37	0.42
GS	24	24	0	SYMBOL	.080	0.080	12.50	2.03	2.03	0.49
P	20	18	N/A	U-L-D	.098	.089	N/A	2.49	2.26	N/A
Q	28	24	N/A	U-L-D	.138	.118	N/A	3.51	2.99	N/A
R	35	31	N/A	U-L-D	.172	.153	N/A	4.37	3.89	N/A
S	40	35	N/A	U-L-D	.197	.172	N/A	5.00	4.37	N/A
T	48	42	N/A	U-L-D	.236	.207	N/A	5.99	5.26	N/A
U	59	53	N/A	U-L-D	.290	.261	N/A	7.37	6.63	N/A
V	80	71	N/A	U-L-D	.394	.349	N/A	10.0	8.86	N/A
0	Default: 15 x 12			U-L-D	Scalable					

Font Matrices for 12 dot/mm (300 DPI) Print heads

Bar Code Symbolologies & Specifications

- Bar code modulus "X" dimension:
 - Picket fence (non-rotated) orientation:
 - 203 dpi = 4.9 mil to 49 mil
 - 300 dpi = 3.3 mil to 33 mil
 - Ladder (rotated) orientation:
 - 203 dpi = 4.9 mil to 49 mil
 - 300 dpi = 3.9 mil to 39 mil
- Bar code ratios – 2:1, 7:3, 5:2, & 3:1
- Aztec
- Codabar (supports ratios of 2:1 to 3:1)
- CODABLOCK
- Code 11
- Code 39 (supports ratios of 2:1 to 3:1)
- Code 49 (2-D)
- Code 93
- Code 128 (subsets A, B, C, and UCC case C codes)
- Data Matrix
- EAN-8, EAN-13, EAN extensions
- Interleaved 2 of 5 (supports ratios 2:1 to 3:1, modulus 10 check digit)
- Planet Code
- ISBT-128
- Logmars
- MaxiCode (2-D)
- PDF417 (2-D)
- Micro PDF (2-D)
- Plessy
- Postnet
- QR-Code
- MSI
- Standard 2 of 5
- Industrial 2 of 5
- UPC-A, UPC-E, UPC extensions
- RSS

Zebra Programming Language® (ZPL® and ZPL II®)

- Communicates in printable ASCII characters
- Unicode™ - Compliant (Version V60.14 and higher)
- Compatible with mainframe, mini, and PC hosts
- Downloadable objects include graphics, scalable and bitmap fonts, label templates and formats
- Adjustable print cache
- Data compression
- 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, cut control
- Status messages to host upon request

Communications Specifications

- Bi-directional parallel interface
- High-speed serial interfaces
 - RS-232C, with DB9F connector
 - Configurable baud rate (600 – 115,200kb), parity, and data bits. Stop bits at 1 or 2.
 - Software (XON/XOFF), hardware (DTR/DSR, or RTS/CTS) communication handshake protocols
 - RS422/485 with optional adapter.
- ZebraNet® Wireless Print Server – 802.11b-compliant wireless print server
- ZebraNet® 10/100 Print Server - Ethernet network print server (10BASE-T, 100BASE-TX)
- ZebraNet® Print Server II - Ethernet network print server (10BASE-T)

Electrical Specifications

- Auto-detectable 90-265VAC, 48-62 Hz, 5A fused power supply
- Agency approvals: IEC 60950, EN 55022 Class B, EN55024, EN 61000-3-2, EN 61000-3-3.
- Product Markings: cULus, CE Marking, FCC-B, ICES-003, VCCI, C-Tick, NOM, IRAM, CCC, GOST-R, BSMI (BSMI is pending as of 9-30-03)

Physical Specifications

- Height:** 13.32" (338mm)
- Width:** 10.93" (278mm)
- Depth:** 18.69" (475mm)
- Weight:** 32.4lbs. (15kg)
- Shipping Weight:** 49 lbs (22kg)

Environmental Specifications

- Operating environment:
 - Thermal transfer = 40° to 104°F (5° to 40°C)
 - Thermal direct = 32° to 104°F (0° to 40°C)
 - 20% to 85% non-condensing R.H.
- Storage/Transportation environment:
 - 40° to 140°F (-40° to 60°C)
 - 5% to 85% 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.

- **Cleaning:**
The exterior is cleaned with a lint-free cloth, and if necessary, a mild detergent solution or desktop cleaner. Interior components (print head, platen roller, media sensor, peel bar, ribbon and media paths) are cleaned with alcohol or blown air to remove any particles.
- **Lubrication:**
All mechanical parts are self-lubricating and do not require additional lubrication.
- **Print Registration:**
Media registration and minimum label length are affected by media type and width, ribbon type and print speed. Performance improves as these factors are optimized. Zebra recommends always qualifying any application with thorough testing.