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ZEBRA® ZT410™ PRINTER SPECIFICATIONS

Specifications are provided for reference and are based on printer tests using Genuine Zebra™ supplies and accessories. Results may vary in actual application settings or when using other-than-recommended Zebra supplies. Zebra recommends qualifying any application with thorough testing.

Standard Features

Printing

- Thermal transfer and direct thermal printing
- Thin-film printhead with E3™ (Element Energy Equalizer™)
- 203 dpi print resolution (8 dots/mm)
- Print speed per second up to 14″(356 mm/second)

Communication

- USB 2.0, high speed
- RS-232 Serial (RS-232C with DB9F connector; Configurable baud rate (2400 – 115,200kB), parity, and data bits. Stop bits at 1 or 2; Software (XON/XOFF), hardware (DTR/DSR or RTS/CTS) communication handshake protocols)
- 10/100 Ethernet: ZebraNet® Print Server – supports networks internally integrated option that enables the use of Webview and Alert features
- Bluetooth® 2.1 (including Apple®)
- USB Host

Media Support

- Dual media sensors – transmissive and reflective
- 3" media-supply hanger
- Auto calibration – printer calibrates when printer is turned on or when printhead is closed

Design

- Easy, side-loading metal print mechanism
- Tool-less printhead and platen replacement
- Metal media cover with enlarged clear viewing window
- Robust-gold user touch points indicating key adjustments
- Bi-fold media door decreasing overall operating space by 35%

Operation

- Back-lit, multiline graphic LCD display with intuitive menu and easy-to-use keypad for quick operation
- Bi-colored status LEDs for quick printer status
- 32 bit, 400 MHz processor
- 256 MB RAM memory (4 MB User Available)
- 512 MB Flash memory (64 MB User Available)
- Real-time clock (RTC) – date/time for standalone applications
- Print Touch™ application
- Link-OS® -enabled
- Auto-switching 100-240V power supply
- ENERGY STAR® qualified

Firmware

- Resident ZPL®, ZPL II® and EPL™ programming languages, selectable through software or front panel
- XML-enabled Printing – allows XML communications for barcode label printing—eliminating license fees and printer server hardware while lowering customization and programming costs

Optional Features

Printheads/Resolution

- Printhead 203 dpi (8 dots/mm)
- Printhead 300 dpi (12 dots/mm)
- Printhead 600 dpi (24 dots/mm)

Communication

- Parallel (Bi-directional interface)
- Wireless: ZebraNet Printer Server – supports 802.11 a/b/g/n networks via an internally integrated option

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Media Handling

- **Rewind:** internally rewinds a full roll of printed labels on 3" core, or peels and rewinds liner (Factory installed only)
- **Peel** – choice of two options:
  - Front-mount, passive peel option
  - Liner take-up option – additional full-roll liner take-up spindle accommodates standard printer base
- **Cutter:** front-mount guillotine cutter and catch tray, operates under software control cutting labels individually, or in strips (not compatible with rewind and peel options)
- 1" I.D. Core media supply hanger
- Ink-side-in ribbon supply spindle

Fonts

- Asian and other international scalable and smooth bitmapped fonts

Power Cords

- US, Europe/UK, Israel, China, Japan, Australia, Argentina, Brazil and Taiwan

RFID

- Supports tags compatible with UHF EPC Gen 2 V1.2/ ISO 18000-6C
- Prints and encodes tags with a minimum pitch of 0.6"/16 mm
- Adaptive Encoding Technology simplifies RFID setup and eliminates complex RFID placement guidelines

Keyboard Display Unit (KDU Plus™ and ZKDU):

- Enter variable data and retrieve stored forms for standalone applications (requires null modem adapter with DB9 serial cable)

ZBI 2.0™

- Field installed via activation key

Programming Language

- **ZPL II:** Universal language for Zebra printers. Simplifies label formatting and enables format compatibility with existing systems that run Zebra printers.
  - Fonts: 16 resident expandable ZPL II bitmap and two resident scalable ZPL fonts
  - Unicode: For multi-language printing
  - Web View: Connect and control Zebra barcode 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

Link-OS 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
- **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 TECHNOLOGIES

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Printing Specifications

Parameter	203 dpi (8 dots/mm)	300 dpi (12 dots/mm)	600 dpi (24 dots/mm)
Dot size (W x L):	0.0049" x 0.0049" (0.125 mm x 0.125 mm)	0.0033" x 0.0039" (0.084 mm x 0.099 mm)	0.0016″x 0.0016″ (0.042 mm x 0.042 mm)
Max continuous media print length	157" 3988 mm	73" 1854 mm	39" 991 mm
Max print width	4.09" (104 mm)	4.09" (104 mm)	4.09″ (104 mm)
Programmable print speeds	2.4" (61 mm) through 14" (356 mm) per second in 1" increments	2.4" (61 mm) through 10" (254 mm) per second in 1" increments	1.5″ (38 mm) through 4″ (102 mm) per second in 1″ increments

- **First Dot Location:** Measured from inside media backing edge: 0.10" ±.04" (2.5 mm, not to exceed -.5 mm +1.0 mm)
- **Media Registration Tolerance:**
  - Vertical = < ±0.039" (±1.0 mm) on non-continuous media
  - Horizontal = < ±0.039" (±1.0 mm) within a roll of media

Media Specifications

- **Media Types:** Continuous, die-cut, notch, black-mark
- **Maximum Non-continuous Label Length:** 39" (991 mm)
- **Media Web Width (Label and Liner):**
  - 1.00" (25.4 mm) to 4.50" (114 mm) Tear/Cutter
  - 1.00" (25.4 mm) to 4.25" (108 mm) Peel/Rewind
- **Minimum Label Length:**
  - Tear-off mode: 0.5" (12.7 mm)
  - Peel mode: 0.5" (12.7 mm)
  - Rewind mode: 0.5" (12.7 mm)
  - Cutter: 1.00" (25.4 mm)
- **Media Thickness (Label and Liner):**
  - 0.0023" (0.058 mm) to 0.010" (0.25 mm)
- **Maximum Media Roll Dimensions:**
  - 8.0" (203 mm) O.D. on a 3" (76 mm) I.D. core

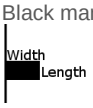
Gap/Notch Sensing Standards

Parameter	Dimensions
Inter-label gap	0.079" - 0.157" (2 - 4 mm), preferably 0.118" (3 mm)
Sensing notch*	Width x Length: 0.25" x 0.12" (6 mm x 3 mm)
Sensing hole*	0.125" (3 mm) diameter

*** Note**: Notch and 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

Parameter	Dimensions
Black mark length 	0.098" - 0.453" (2.5 mm - 11.5 mm)
Black mark width	≥ 0.37" (9.5 mm)
Black mark location (within inside media edge)	0.40" (1 mm)

- **Black Mark Density:** > 1.0 Optical Density Units (ODU)
- **Maximum Media Density:** 0.5 ODU

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Ribbon Specifications (Thermal Transfer Option Only)

- **Ribbon Width:** 2.00" (51 mm) to 4.33" (110 mm)
- **Maximum Ribbon Length:** 1476′ (450 m)
- **Maximum Ribbon Roll Size:** 450 m: 3.2" (81.3 mm) O.D. on a 1.0" (25.4 mm) I.D. core
- **Ribbon Wound Ink-side Out:** Ribbon wound ink-side in can be used with the optional ribbon spindle

ZPL 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
- Code Page 1250, 1252, 1253, 1254, 1255 Support with font 0

**Contains UFST® from Agfa Monotype Corporation*

Font Matrices: 8 dot/mm (203 dpi) Printheads

Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-Char Gap		Height	Width	Char/ inch	Height	Width	Char/ inch
A	9	5	1	U-L-D	.044	.029	33.90	1.13	0.75	1.33
B	11	7	2	U	.054	.044	22.60	1.38	1.13	0.89
C,D	18	10	2	U-L-D	.088	.059	16.95	2.25	1.50	0.67
E	28	15	5	OCR-B	.138	.098	10.17	3.50	2.50	0.40
F	26	13	3	U-L-D	.128	.079	12.71	3.25	2.00	0.50
G	60	40	8	U-L-D	.295	.236	4.24	7.50	6.00	0.17
H	21	13	6	OCR-A	.103	.093	10.71	2.63	2.38	0.42
GS	24	24	0	SYMBOL	.118	.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: 12 dot/mm (300 dpi) Printheads

Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-Char Gap		Height	Width	Char/ inch	Height	Width	Char/ inch
A	9	5	1	U-L-D	.030	.020	50.00	0.76	0.51	1.97
B	11	7	2	U	.037	.030	33.33	0.93	0.76	1.31
C,D	18	10	2	U-L-D	.060	.040	25.00	1.53	1.02	0.98
E	41	20	6	OCR-B	.137	.087	11.54	3.47	2.20	0.45
F	26	13	3	U-L-D	.087	.053	18.75	2.20	1.36	0.74
G	60	40	8	U-L-D	.200	.160	6.25	5.08	4.07	0.25
H	30	19	9	OCR-A	.100	.093	10.71	2.54	2.37	0.42
GS	24	24	0	SYMBOL	.080	.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					
*U = Uppercase, L = Lowercase, D = Descenders										

Font Matrices: 24 dot/mm (600 dpi) Printheads

Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-Char Gap		Height	Width	Inter-Char Gap	Height	Width	Char/ inch
A	9	5	1	U-L-D	.030	.020	50.00	0.76	0.51	1.97
B	11	7	2	U	.037	.030	33.33	0.93	0.76	1.31
C,D	18	10	2	U-L-D	.060	.040	25.00	1.53	1.02	0.98
E	41	20	6	OCR-B	.137	.087	11.54	3.47	2.20	0.45
F	26	13	3	U-L-D	.087	.053	18.75	2.20	1.36	0.74
G	60	40	8	U-L-D	.200	.160	6.25	5.08	4.07	0.25
H	30	19	9	OCR-A	.100	.093	10.71	2.54	2.37	0.42
GS	24	24	0	SYMBOL	.080	.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					
*U = Uppercase, L = Lowercase, D = Descenders										

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ZPL Barcode Symbologies & Specifications

- Barcode modulus "X" dimension:
  - Picket fence (non-rotated) orientation:
    - 203 dpi = 4.9 mil to 49 mil
    - 300 dpi = 3.3 mil to 33 mil
    - 600 dpi = 1.6 mil to 16 mil
  - Ladder (rotated) orientation:
    - 203 dpi = 4.9 mil to 49 mil
    - 300 dpi = 3.9 mil to 39 mil
    - 600 dpi = 1.6 mil to 16 mil
- Barcode Ratios – 2:1, 7:3, 5:2 and 3:1
- Linear Barcodes: Code 11, Code 39, Code 93, Code 128 with subsets A/B/C and UCC Case Codes, ISBT-128, UPC-A, UPC-E, EAN-8, EAN-13, UPC and EAN 2- or 5-digit extensions, Plessey, Postnet, Standard 2-of-5, Industrial 2-of-5, Interleaved 2-of-5, Logmars, MSI, Codabar, Planet Code
- 2-Dimensional Barcodes: Codablock, PDF417, Code 49, DataMatrix, MaxiCode, QR Code, TLC 39, MicroPDF, RSS-14 (and composite), Aztec

Zebra Programming Language (ZPL/ZPL II)

- Communicates in printable ASCII characters
- Unicode™-compliant
- 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 (0º, 90º, 180º, 270º)
- Slew command
- Programmable label quantities with print, pause, cut control
- Status messages to host upon request

Eltron Programming Language (EPL2™)

(Available on 203 dpi only)

- Compatible with mainframe, mini and PC hosts
- Four position field rotation (0º, 90º, 180º, 270º)
- Variable field support (00 to 99)
- Counter support (up to 10)
- Variable field addition and subtraction
- Status reporting
- Form storage
- Metered print odometer

Electrical Specifications

- **Power Supply:** Auto-detectable (PFC Compliant) 100-240VAC, 50-60Hz, rated at 100 Watts
- **ENERGY STAR** qualified
- **Agency Approvals:** IEC 60950, EN 55022 Class B, EN 55024, EN 61000-3-2, EN 61000-3-3
- **Product Markings:** cTUVus, CE Marking, FCC-B, ICES-003, VCCI, C-Tick, NOM, S-Mark (Arg), CCC, CU, BSMI, KCC, SABS, IN-Metro

Physical Specifications

Parameter	ZT410
Height	12.75" (324 mm)
Width	10.6" (269 mm)
Depth	19.50" (495 mm)
Weight	36 lb (16.33 kg)
Shipping Weight	41 lb (18.59 kg)

Environmental Specifications

- **Operating Environment:**
  - Thermal transfer = 40º to 104ºF (5º to 40ºC)
  - Thermal direct = 32º to 104ºF (0º to 40ºC)
  - 20% to 85% non-condensing R.H.
- **Storage/Transportation Environment:**
  - -40º to 140ºF (-40º to 60ºC)
  - 5% to 85% non-condensing R.H.

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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 (printhead, 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.

Printhead Replacement

For optimal printing quality and proper printer performance across our product line, Zebra strongly recommends the use of Genuine Zebra supplies as part of the total solution. Printers are designed to work only with Genuine Zebra printheads, thus maximizing safety and print quality.

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P1073595
(Rev. 7/14)