



# ZT200 Industrial Series Printer

Specifications are provided for reference and are based on testing the ZT200™ Industrial Series printers 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.

## Printer Name

- ZT210™, ZT220™, ZT230™

## Standard Features

### Physical Features

- 203 dpi print resolution (8 dots/mm)
- Thin film printhead with E3™ Element Energy™ Equalizer
- Direct thermal printing of barcodes, text and graphics
- USB 2.0, RS-232 Serial, and Parallel ports (ZT210 only)
- USB 2.0 and RS-232 Serial ports (ZT230 and ZT220 only)
- Dual media sensors — transmissive and reflective sensing technology, selectable through software or front panel
- Media supply hanger designed for 1" (25mm) through 3" (76mm) core diameters
- Side-loading metal print mechanism with head-open lock withstands general wear and tear and facilitates media loading
- Sleek industrial design simplifies printer operation while providing pleasing styling for commercial applications
  - Robust gold user touch points simplify operation by directing user to key areas for adjustment
  - Bi-fold media door decreases overall operating space by 35%
- Printer Construction
  - ZT230: Metal media cover with enlarged clear window for easy-to-view supplies
  - ZT220: Plastic media cover with large clear window for easy-to-view supplies
  - ZT210: Metal media cover with large clear window for easy-to-view supplies



ZT220\*

ZT230

### 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 and lowering customization and programming costs

## Optional Features

### Physical Features

- Thermal Transfer core-to-core ribbon handling system (factory installed only)
- Printhead 300 dpi (12 dots/mm)

### Connectivity Options (one per printer)

- Internal Centronics® Parallel port option
- ZebraNet™ 10/100 Print Server — Supports 10/100 Ethernet networks internally integrated option that enables the use of ZebraLink™ WebView and Alert features
- ZebraNet Printer Server — Supports 802.11a/b/g/n networks via an internally integrated option

\*Not available in all Regions.

## Optional Features (continued)

### Media Handling

- Front mount, passive peel option, with no take-up spindle
- Front mount guillotine cutter
- Liner take-up for ZT230 only rewinds entire 8" roll of liner (includes peel option; factory installed only)

### Printer Operation

- User Interface
  - ZT230: Multiline graphic LCD display with easy-to-use keypad for quick and intuitive menu operation and bi-colored status LEDs for quick printer status
  - ZT220: Simple 3-button keypad with bi-colored status LEDs for quick printer status
  - ZT210: Simple 3-button keypad in Simplified Chinese with bi-colored status LEDs for quick printer status
- 32 bit, 400 MHz processor
- 128 MB RAM memory
- 128 MB Flash memory
- Advanced label counters
- Auto calibration — Printer calibrates when printer is turned on or when printhead is closed using approximately two to three labels

### Field-installed printer options

- Additional scalable and smooth bitmapped fonts available
- Printhead 300 dpi (12 dots/mm)
- A front mount, passive peeler
- A front mount guillotine cutter
- Internal Centronics Parallel port option
- ZebraNet 10/100 Print Server — Supports 10/100 Ethernet networks internally integrated option that enables the use of ZebraLink Web View and Alert features
- ZebraNet Printer Server — Supports 802.11a/b/g/n networks via an internally integrated option
- Real Time Clock (RTC) — Date/time for standalone applications

### ZKDU Keyboard Display Unit

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

## Printing Specifications

Parameter	203 dpi resolution (8 dots/mm)	300 dpi resolution (12 dots/mm)
<b>Dot Size: (W × L)</b>	0.0049" × 0.0049" (0.125 mm × 0.125 mm)	0.0033" × 0.0039" (0.084 mm × 0.099 mm)
<b>Maximum Continuous Media Print Length</b>	157" (3988 mm)	73" (1854 mm)
<b>Maximum Print Width</b>	4.09" (104 mm)	4.09" (104 mm)
<b>Programmable Print Speeds (per second)</b>	2.0" through 6" (51 mm – 152 mm) in 1" increments	2.0" through 6" (51 mm – 152 mm) in 1" increments

- First dot location measured from inside media backing edge:
  - 0.10" ±0.04" (2.5mm, not to exceed -0.5mm +1.0mm)
- Media registration tolerance:
  - Vertical = <±0.039" (±1.0mm) on non-continuous media
  - Horizontal = <±0.039" (±1.0mm) within a roll of media

## Gap/Notch Sensing Standards

Fixed Reflective Sensor Location: 7/16" from media inner edge

Parameter	Standard Dimensions	Metric Dimensions
<b>Inter-label Gap</b>	0.079" to 0.157" preferably 0.118"	2 to 4 mm preferably 3 mm
<b>Sensing Notch* (W × L)</b>	0.25" × 0.12"	6 mm × 3 mm
<b>Sensing Hole*</b>	0.0125" diameter	3 mm diameter

\*Note: Notch and hole position centered from 0.15" to 2.25" from media inner edge

## Ribbon Specifications (Thermal Transfer Option Only)

- Ribbon width: 1.57" (40mm) to 4.33" (110mm)
- Maximum ribbon lengths:
  - ZT230: 1476' (450 m)
  - ZT220: 1476' (450 m)
  - ZT210: 984' (300 m)
- Maximum ribbon roll size:
  - 300 m: 2.7" (68.6 mm) O.D. on a 1.0" (25.4 mm) I.D. core
  - 450 m: 3.2" (81.3 mm) O.D. on a 1.0" (25.4 mm) I.D. core
- Ribbon wound ink-side out

## Media Specifications

- Media Types
  - Continuous, die-cut, notch, black-mark
- Maximum non-continuous label length:
  - 39" (991 mm)
- Media web width (label and liner):
  - 0.75" (19.4 mm) to 4.50" (114 mm)
- Minimum label length:
  - Tear-off mode: 0.7" (17.8 mm)
  - Peel mode: 0.5" (12.7 mm)
  - Cutter: 1.0" (25.4 mm)
- Media thickness (label and liner):
  - .003" (0.076 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
  - 6.0" (152 mm) O.D. on a 1" (25 mm) I.D. core

## LINK-OS® Software Tools

**Document Design** — Use your business data to quickly create customized print solutions with 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

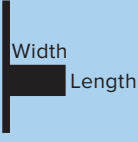
**Printer Management** — Manage your print operations locally and globally with Zebra's suite of device management tools

**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®, 2008, 2012, 7, 8, and 8.1 (downloadable from [www.zebra.com](http://www.zebra.com))

## Black Mark Sensing Standards

Parameter	Dimensions
<b>Black Mark Length</b>	0.098" – 0.453" (2.5 mm – 11.5 mm)
<b>Black Mark Width</b>	≥ 0.37" (9.5 mm)
	
<b>Black Mark Location</b> (within inside media edge)	0.040" (1 mm)

- Black Mark Density: >1.0 Optical Density Units (ODU)
- Maximum Media Density: 0.3 ODU

## Physical Specifications

Parameter	ZT230	ZT220	ZT210
<b>Height</b>	10.9" (277 mm)	11.0" (280 mm)	10.9" (277 mm)
<b>Width</b>	9.5" (242 mm)	9.4" (239 mm)	9.5" (242 mm)
<b>Length</b>	17" (432 mm)	17" (432 mm)	17" (432 mm)
<b>Weight</b>	20 lbs. (9.1 kg)	17 lbs. (7.8 kg)	20 lbs. (9.1 kg)
<b>Shipping Weight</b>	25 lbs. (11.4 kg)	22 lbs. (10 kg)	25 lbs. (11.4 kg)

\*Dimensions are for the base model printer. Consult your sales representative for specifics regarding other configurations.

## Communication Specifications

- USB 2.0, high-speed
- High-speed Serial interfaces
  - RS-232C, with DB9F connector
  - Configurable baud rate (4800 – 115,200kB), parity and data bits. Stop bits at 1 or 2.
  - Software (XON/XOFF), hardware (DTR/DSR, or RTS/CTS) communication handshake protocols
- Bi-directional Parallel interface
- ZebraNet 10/100 Print Server — supports 10/100 Ethernet networks internally integrated option that enables the use of ZebraLink Web View and Alert features
- ZebraNet Printer Server — supports 802.11a/b/g/n networks via an internally integrate option

## Eltron Programming Language (EPL™) (Available On 203 SDPI Only)

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

## ZPL Barcode Symbologies and 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
  - Ladder (rotated) orientation:
    - 203 dpi = 4.9 mil to 49 mil
    - 300 dpi = 3.9 mil to 39 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-digit or 5-digit extensions, Plessey, Postnet, Standard 2-of-5, Industrial 2-of-5, Interleaved 2-of-5, Logmars, MSI, Codabar and Planet Code
- 2D Barcodes: Codablock, PDF417, Code 49, DataMatrix, MaxiCode, QR Code, TLC 39, MicroPDF, RSS-14 (and composite), Aztec

## Font Matrices: 203 DPI (8 dot/mm) Printheads

Font	Matrix		Type†	Character Size			
				Inches		Millimeters	
	H × W	Inter-Character Gap		H × W	Characters Per	H × W	Characters Per
<b>A</b>	9 × 5	1	U-L-D	0.044 × 0.029	33.90	1.13 × 0.75	1.33
<b>B</b>	11 × 7	2	U	0.054 × 0.044	22.60	1.38 × 1.13	0.89
<b>C, D</b>	18 × 10	2	U-L-D	0.088 × 0.059	16.95	2.25 × 1.50	0.67
<b>E</b>	28 × 15	5	OCR-B	0.138 × 0.098	10.17	3.50 × 2.50	0.40
<b>F</b>	26 × 13	3	U-L-D	0.128 × 0.079	12.71	3.25 × 2.00	0.50
<b>G</b>	60 × 40	8	U-L-D	0.295 × 0.236	4.24	7.50 × 6.00	0.17
<b>H</b>	21 × 13	6	OCR-A	0.103 × 0.093	10.71	2.63 × 2.38	0.42
<b>GS</b>	24 × 24	0	SYMBOL	0.118 × 0.118	8.48	3.00 × 3.00	0.33
<b>P</b>	20 × 18	N / A	U-L-D	0.098 × 0.089	N / A	2.49 × 2.26	N / A
<b>Q</b>	28 × 24	N / A	U-L-D	0.138 × 0.118	N / A	3.51 × 2.99	N / A
<b>R</b>	35 × 31	N / A	U-L-D	0.172 × 0.153	N / A	4.37 × 3.89	N / A
<b>S</b>	40 × 35	N / A	U-L-D	0.197 × 0.172	N / A	5.00 × 4.37	N / A
<b>T</b>	48 × 42	N / A	U-L-D	0.236 × 0.207	N / A	5.99 × 5.26	N / A
<b>U</b>	59 × 53	N / A	U-L-D	0.290 × 0.261	N / A	7.37 × 6.63	N / A
<b>V</b>	80 × 71	N / A	U-L-D	0.394 × 0.349	N / A	10.0 × 8.86	N / A
<b>Ø</b>	Default: 15 × 12		U-L-D	Scalable			

† U = Uppercase L = Lowercase D = Descenders

## 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 Ø (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 Ø through software control
- Supports user-defined fonts and graphics — Including custom logos (4 MB SDRAM available to user)
- User Downloadable Fonts, Graphics or Format
  - 58 MB available to user

\*\*Contains UFST® from Agfa Monotype Corporation

## 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 (0°, 90°, 180°, 270°)
- Slew command
- Programmable label quantities with print, pause, cut control
- Status messages to host upon request

## Font Matrices: 300 DPI (12 dot/mm) Printheads

Font	Matrix		Type†	Character Size			
				Inches		Millimeters	
	H × W	Inter-Character Gap		H × W	Character Per	H × W	Character Per
<b>A</b>	9 × 5	1	U-L-D	0.030 × 0.020	50.00	0.76 × 0.51	1.97
<b>B</b>	11 × 7	2	U	0.037 × 0.030	33.33	0.93 × 0.76	1.31
<b>C,D</b>	18 × 10	2	U-L-D	0.060 × 0.040	25.00	1.53 × 1.02	0.98
<b>E</b>	41 × 20	6	OCR-B	0.137 × 0.087	11.54	3.47 × 2.20	0.45
<b>F</b>	26 × 13	3	U-L-D	0.087 × 0.053	18.75	2.20 × 1.36	0.74
<b>G</b>	60 × 40	8	U-L-D	0.200 × 0.160	6.25	5.08 × 4.07	0.25
<b>H</b>	30 × 19	9	OCR-A	0.100 × 0.093	10.71	2.54 × 2.37	0.42
<b>GS</b>	24 × 24	0	SYMBOL	0.080 × 0.080	12.50	2.03 × 2.03	0.49
<b>P</b>	20 × 18	N / A	U-L-D	0.098 × 0.089	N / A	2.49 × 2.26	N / A
<b>Q</b>	28 × 24	N / A	U-L-D	0.138 × 0.118	N / A	3.51 × 2.99	N / A
<b>R</b>	35 × 31	N / A	U-L-D	0.172 × 0.153	N / A	4.37 × 3.89	N / A
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<b>V</b>	80 × 71	N / A	U-L-D	0.394 × 0.349	N / A	10.0 × 8.86	N / A
<b>Ø</b>	Default: 15 × 12		U-L-D	Scalable			

† U = Uppercase L = Lowercase D = Descenders

## 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.

## Electrical Specifications

- ENERGY STAR® qualified auto-detectable 90-265VAC, 48-62 Hz, 100 W Power Supply
- Agency approvals: IEC 60950, EN 55022 Class B, EN55024, EN 61000-3-2, EN 61000-3-3
- Product markings:
  - ZT210: CCC
  - ZT220: cTUVus, CE, FCC, ICES-003, VCCI, C-Tick, NOM, Gost-R, BSMI, S-Mark (Argentina), KC, CCC, UkrSepro, SII, SABS
  - ZT230: cTUVus, CE, FCC, ICES-003, VCCI, C-Tick, NOM, Gost-R, BSMI, S-Mark (Argentina), KC, CCC, UkrSepro, SII, SABS

## 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. Specifically, the ZT230 and ZT220 printers are designed to work only with genuine Zebra printheads, thus maximizing safety and print quality.

For more information, visit [www.zebra.com/zt200](http://www.zebra.com/zt200)



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