WS50 RFID Android Wearable Computer

The world's smallest all-in-one enterprise-class wearable computer — now with RFID

The WS50 RFID is another industry first from Zebra, packing even more functionality into the world's smallest all-in-one enterprise-class Android wearable computer. Now, you can give your disconnected task workers more tools to complete more types of tasks, boosting collaboration, productivity and workflow efficiency to the next level. With this powerful little device, your workers get an integrated ergonomic host-free UHF RFID reader, a barcode scanner that can capture virtually any barcode in any condition, two-way radio instant push-to-talk capabilities and more that can be worn on a wrist, back of the hand or two fingers. The advanced 2-inch touchscreen is perfect for task management, providing the right amount of screen space without compromising wearability. Designed for the enterprise, the WS50 RFID delivers the rugged reliability, multi-shift swappable battery power and easy manageability that your business needs. And Mobility DNA adds unmatched value with features that make these devices easier to use and manage.

Designed for maximum flexibility

True 'no-host' one-piece wearable

With the WS50 RFID, workers only need to wear one device to capture and access data instead of a host mobile computer and ring scanner, providing a true converged wearable solution. And push-to-talk (PTT) support eliminates the need for separate voice devices.

Wear it your way with modular mounting options

With three different wearing styles, the adaptable WS50 RFID is ideal for virtually any task worker in practically any industry. It can be worn on a wrist, two fingers or the back of the hand.

All the key features of a full-size mobile computer

Optimize efficiency and accuracy with enterprise-class UHF RFID

With high performance UHF RFID functionality, the WS50 RFID empowers workers to be more efficient and effective. The WS50 RFID can read RFID tags up to 5 ft./1.5 m away. With an integrated upward facing antenna and external downward antenna, the WS50 RFID is ideal for a wide variety of use cases, including package sorting, item picking and user locationing. And Zebra's industry-leading RFID technology ensures extraordinary reliability and read accuracy.

Better connect your workforce with push-to-talk (PTT) and task management applications

All models are PTT ready, enabling managers and workers to instantly collaborate for faster issue resolution and increased staff productivity. All models also support task management applications, enabling better staff utilization and management.

Advanced enterprise-class scanner for intense barcode scanning

The WS50 RFID includes Zebra's SE4770 imager, delivering superior data capture performance. Scan virtually any barcode in practically any condition, as fast as you can press the trigger — even if they are damaged or poorly printed. Superior motion tolerance enables the capture of barcodes, even if the scanner and barcode are in motion. No need to depress the trigger for every scan — scan continuously with an optional integrated proximity sensor. A wide field of view makes it easy to capture large or multiple barcodes with split-second point-and-shoot simplicity.

Connect your disconnected workers with the WS50 RFID — the world's smallest RFID-enabled Android enterprise-class wearable mobile computer.

And with a single trigger press, capture, properly format and transmit data on all barcodes on a label with Zebra's Multi-Code Data Formatting.

Simplify backroom device and battery management — and purchasing — with modular accessories

Choose the charging solution that matches your deployment and device management needs — 2- or 10-slot charge-only cradles, 4- or 20-slot battery chargers, or an Ethernet cradle that supports five devices and five batteries. In mixed model deployments, color-coding allows you to instantly see whether a cradle or charger is for the RFID, converged or wrist-mount models.

The power of Android

This industry-standard mobile operating system provides a future proof platform designed to easily accommodate new features.

Integrated audio features

Give users the power of instant voice communications with the embedded speaker and microphone. Wirelessly connect a Bluetooth® headset, eliminating cords and enabling more private communications. And you can dedicate a button for PTT communications.

Powerful, centralized management for all models

The WS50 RFID supports major Enterprise Mobility Management (EMM) systems, providing a single pane of glass to manage all of your mobile devices.

All the wireless connections you need

Wi-Fi™, Bluetooth and NFC are all standard in the WS50 RFID, enabling robust Wi-Fi 'won't fail' connections and easy one-tap connections to Bluetooth peripherals.

Full-shift perpetual power

With removable, hot-swappable batteries, devices can remain in service every minute of every shift. A 2400mAh battery powers the WS50 RFID and batteries are ready to go in less than three hours with fast charging. And with hot swap support, users can just swap batteries and keep on working — no need to power down.

Automate workflows with programmable buttons

Make task execution even easier on the two-inch screen with programmable buttons that can be mapped to different functions, such as PTT, navigation, scanning, RFID capture and more.

Small but mighty with a built-in rugged design

Don't underestimate these small devices. They weigh in at just a handful of ounces, but are built to handle all-day everyday enterprise use. Extreme heat and cold, bumps and drops — the WS50 handles it all. The RFID model operates reliably after multiple 5 ft./1.5 m drops and 2,000 consecutive tumbles. With IP65 sealing, the WS50 RFID is dust-tight and survives jetting water. And the protective front shell is replaceable, keeping your devices looking like new.

Advanced touchscreen display

The two-inch AMOLED color display offers exceptional performance. It is extraordinarily bright — no backlight is required. Better contrast and better viewing angles deliver superior readability. And low power consumption extends battery run time.

Drive workforce productivity and device value to a new level with powerful Zebra-only Mobility DNA tools

Easier integration into your environment

The Enterprise Mobility Development Kit (EMDK) makes it easy to take full advantage of all device features. And DataWedge easily captures, properly formats and transmits data in the right order to the right applications — without coding or modifying existing apps.

Increase device and data security

Mobility Extensions (Mx) adds extra layers of features that are crucial to protecting your devices, their resident data and network access. LifeGuard™ for Android provides a lifetime security guard for Android, protecting your devices every day they are in service. And Enterprise Home Screen allows you to specify the apps and device features users can access, protecting productivity and increasing device and network security.

Simplify deployment and management

Stage thousands of devices with a scan of a barcode or a tap of an NFC tag. Test major device systems to eliminate unnecessary trips to the Service Center with the on-device Device Diagnostics Tool. And easily integrate all Zebra APIs via your EMM with OEM Config.

Optimize your Wi-Fi network

Mobility DNA™ Wireless Fusion provides a dependable and superior Wi-Fi experience with Zebra-only features that keep workers connected and productive while roaming your facility.

Specifications

Physical Characteristics

Dimensions	3.18 in. L x 2.4 in. W x 1.49 in. D 81 mm L x 61 mm W x 38 mm D
Weight	6.9 oz./196 g (finger mount)
Display	2 in. AMOLED 460 x 460 color display; optically bonded to touch panel
Imager Window	Corning® Gorilla® Glass
Touch Panel	Capacitive touch panel; fingertip and glove support; Corning® Gorilla® Glass
Power	9.24 Watt Hours; 2400mAh PowerPrecision; Hot Swap (2 minutes, memory persistent)
Network Connections	USB 2.0 High Speed (host and client), WLAN and Bluetooth
Notifications	Audible tone; charge LED; OS notification LED; multi-color Application LEDs (2); haptic feedback
Voice and Audio	Speaker (90dBA); internal mic; PTT ready; Bluetooth headset support
Buttons	Trigger; 2 buttons (programmable)
Interfaces	Docking contacts; Via interface cables: USB-C (USB 2.0) host/client and charging

Scanner Performance

Optical Resolution	1280 x 800 pixels
Roll	360°
Pitch	±60°
Skew	±60°
Aiming Element	655 nm Laser
Illumination Element	1 Hyper Red 660 nm LED or 1 Warm-White LED
Field of View	Horizontal: 48°, Vertical: 30°
Ambient Light Immunity (from total darkness)	Maximum 107,639 lux (direct sunlight)
Supported 1D Symbologies	Code 39, Code 128, Code 93, Codebar/NW7, Code 11, MSI, UPC/EAN, I 2 of 5, Korean 3 of 5, GSI DataBar, Base 32 (Italian Pharma)
Supported 2D Symbologies	PDF417, Micro PDF417, Composite Codes, TLC-39, Aztec, DataMatrix, MaxiCode, QR Code, Micro QR, Chinese Sensible (Han Xin), Postal Codes
Supported OCR Symbologies	OCR-A, OCR-B
Scan Triggering	Manual ambidextrous trigger or automatic via Proximity Sensor technology

Wireless LAN

Radio	IEEE 802.11 a/b/g/n/ac/d/h/i/r; Wi-Fi™ certified; IPv4, IPv6, 1x1 SISO
Data Rates	2.4 GHz: 802.11b/g/n/ac—20 MHz, 40 MHz—up to 200 Mbps 5 GHz: 802.11a/g/n/ac—20 MHz, 40 MHz, 80 MHz—up to 433 Mbps
Operating Channels	Channel 1-13 (2412-2472 MHz); Channel 36-165 (5180-5825 MHz) Channel Bandwidth: 20, 40, 80 MHz Actual operating channels/frequencies and bandwidths depend on regulatory rules and certification agency
Security and Encryption	WEP (40 or 104 bit); WPA/WPA2 Personal (TKIP andAES); WPA3 Personal (SAE); WPA/WPA2 Enterprise (TKIP and AES); EAP-TTLS (PAP, MSCHAP, MSCHAPv2), EAP-TLS, PEAPv0-MSCHAPv2, PEAPv1-EAP-GTC, EAP-PWD
Certifications	WFA (802.11n, 80211ac, WPA2-Personal, WPA3-Personal, WPA2-Enterprise, PMF)
Fast Roam	PMKID caching; 802.11r (Over-The-Air); OKC

Wireless PAN

Bluetooth	Bluetooth 4.2; Bluetooth Low Energy (BLE) support; Class 1

Warranty

Subject to the terms of Zebra's hardware warranty statement, the WS50 RFID is warranted against defects in workmanship and materials for a period of one (1) year from the date of shipment. For complete warranty statement, please visit www.zebra.com/warranty

Recommended Services

Zebra OneCare™ Maintenance Plans keep your WS50 RFID operating at peak performance, while eliminating unexpected repair costs. Choose the right level of support, then further tailor your plan with flexible options like Battery Maintenance.
Zebra VisibilityIQ Foresight™ provides a cloud-based dashboard to view fleet insights, enabling businesses to make decisions based on predictable and actionable analytics across their entire device fleet.
Zebra Professional Services ensures your WS50 RFID operates at its peak performance by successfully using Gold Build to design user profiles. Let us help you put together the device and accessories and/or printed collateral into individual or site boxes to save time in your operation with Zebra Staging by aligning consistency on operating system version, security features and application loading.

Mobility DNA™

Mobility DNA solutions help you get more value out of our mobile computers by adding functionality as well as simplifying deployment and management of our mobile devices. For more information on these Zebra-only features, please visit www.zebra.com/mobilitydnaMobility DNA is available on Android only. Features may vary by model and a Support Contract may be required. For more information on these Zebra-only features and for the most recent list of supported apps, please visit: https://developer.zebra.com/mobilitydna

Markets and Applications

Retail

- Pricing/markdowns
- Back of store operations
- Task management

Warehousing/Distribution

- Sorting
- Receiving/Put-away
- Picking
- Inventory management
- Loading

Transportation and Logistics

- Sorting
- Loading/unloading
- Package handling
- Custom cages

Manufacturing

- Pallet/container management
- Parts tracking
- Finished goods verification

Performance Characteristics

CPU	Snapdragon Wear™ 4100 Platform/SDW429w, quad-core, 2.0 GHZ
Operating System	Android 11 AOSP
Memory	1 GB RAM/8 GB Flash

User Environment

Operating Temperature	14° F to 122° F/-10° C to +50° C
Storage Temperature	-40° F to 158° F/-40° C to +70° C
Humidity	5% - 95% non condensing
Drop Specification	5 ft./1.5 m drop to concrete per MIL-STD 810G across operating temperature
Tumble Specification	2,000 tumbles @ 1.6 ft./0.5 m Meets and exceeds IEC tumble specifications
Sealing	IP65
Vibration	4 g's PK Sine, 5hz to 2khz, 1 hour duration per axis; 0.04 g2/Hz Random (20 Hz to 2 kHz), 1 hour duration per axis.
Electrostatic Discharge (ESD)	+/-15 kV air discharge, +/-8 kV direct/indirect discharge

Interactive Sensor Technology (IST)

Light Sensor	Automatically adjusts display backlight brightness
Motion Sensor	6-axis accelerometer with MEMS Gyro

Data Capture

Scanning	SE4770 1D/2D standard range omni-directional imager
NFC	Tap to Pair, ISO 14443 Type A and B, Felica and ISO 15693 cards, and Card Emulation via Host (HCE) support

RFID

Standards Supported	EPC Class 1 Gen 2; EPC Gen 2 V2
RFID Engine	Zebra proprietary radio technology
Nominal Read Range	~5 ft./~1.5 m
Frequency Range and RF System Output	US: 917-928 MHz; 0-24 dBm EU: 865-868 MHz; 0-24 dBm

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