# RD5000 Mobile RFID Reader

## The next evolution in RFID readers
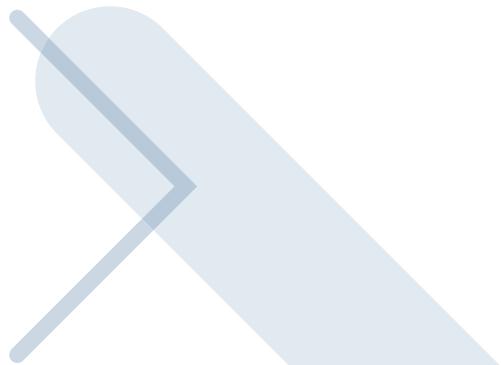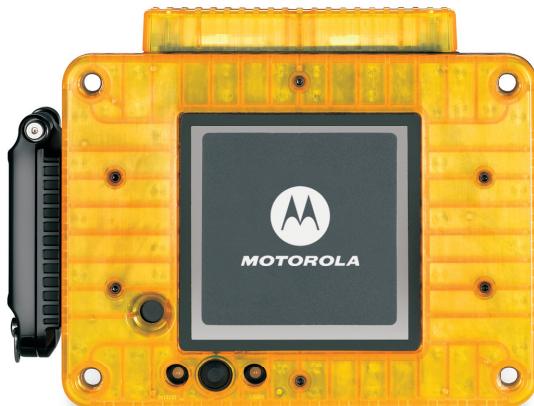


## FEATURES

**100% free of network, power and antenna cables**
Enables the implementation of RFID read points in new areas of the enterprise; expands visibility of product movement; enables new productivity-saving applications

**Integrated 802.11a/b/g WLAN radios**
Flexible, reliable connection with wireless LAN for real-time inventory visibility; features unique to Motorola that deliver superior and reliable wireless connectivity

**Integrated Bluetooth®**
Enables wireless communication between RD5000 and an on-board vehicle computer for a completely cable-free solution; ensures constant connection to the on-board computer — even in areas where there is no reliable WLAN connection

## A new class of RFID reader — a new level of visibility

Motorola introduces the next phase in the evolution of RFID with the RD5000 Mobile RFID Reader. By adding mobility to Motorola's proven reader technology, companies can extend the reach of their RFID network throughout the enterprise environment. Designed for true mobility, the device is cable-free, provides real-time wireless LAN connectivity and has motion-smart features that work together to help conserve battery power. The completely self-contained device offers an integrated battery and antenna as well as a very small footprint for easy installation and deployment. From the warehouse and loading dock to the retail floor and more, the RD5000 increases the level of visibility of inventory and other assets — as well as increases the benefits gained from RFID-enabled real-time information management.

## RFID anywhere

The RD5000 is a wireless, compact mobile RFID reader that can be installed anywhere — on material handling equipment like forklifts and clamp trucks, on mobile carts, portable skate wheel conveyors, or even in hard to reach locations where a cabled reader would not be practical. With the RD5000, assets are easily tracked as they move throughout the enterprise. The rugged design ensures continuous operation in the most demanding environments, both inside and outside your four walls. The result is a new level of granular real-time information — allowing you to realize a new level of productivity and efficiency throughout your operations.

## In the warehouse

The RD5000 is ideal in the warehouse and distribution center, where its rugged compact design and mobile features are a natural fit for adding RFID capabilities to forklifts, clamp trucks and other material handling equipment. When used in conjunction with a mobile computer such as Motorola's VC5090, a forklift operator who picks up an RFID-tagged pallet for put-away can now receive additional, important information when a tag is read. In addition to the exact location to place the product, the operator can also receive the shortest route to the put-away location, as well as instant notification if the product is placed in the wrong spot. Now, inventory is placed in the right location, available when needed, and easily visible, which eliminates overstocking due to ordering of product that is not actually needed — but simply misplaced. Products on clamp trucks can be identified, ensuring the right amount of pressure is automatically applied to provide a sure grip — without damage.

**Integrated rugged antenna**
Eliminates need for separate antennas, cables, mounting brackets and connectors to further simplify installation and reduce maintenance

**Integrated battery with optional external power source**
Self-contained battery power enables true mobility and eliminates the need to run power cabling — and the associated expense; optional external power source available

**Interactive sensing technologies: acceleration sensor and proximity sensor**
Ability to detect motion of reader to enable a variety of applications — for example, can be used to maximize battery life by enabling the RD5000 to activate RFID operation based on vehicle motion; triggers RFID reads based on proximity to objects, such as pallets

**IP66 sealing**
Completely sealed against dust and jets of water, ensuring reliable operation in nearly any environment, from the warehouse to the yard and more

**Intel® XScale® 624 MHz PXA270 processor; Enhanced memory architecture**
Industry standard platform for easy integration into your existing technology environment

**Microsoft® Windows® CE 5.0**
Advanced operating system provides robust application support

**MC9000 series compatible battery and chargers**
Significantly reduces investment in batteries and chargers for enterprises that are already using Motorola's MC9000 series mobile handheld computers

## On the retail floor

By using the RD5000 on mobile carts, retail sales personnel can take a complete inventory of the retail front and back rooms by simply rolling the cart through the store. Real-time inventory data is then available to retail workers on a handheld PDA, such as Motorola's MC50 or MC70, enabling instant inventory checks or analysis of inventory data. Since an accurate inventory can be taken in a mere fraction of the time it would take to manually count inventory, retailers can conduct daily inventories quickly, easily and cost-effectively, providing a new level of insight into inventory metrics. Ordering can be improved since purchase trends are readily visible; seasonal items can be easily identified to ensure replenishment on a timely basis; and more. You can obtain an immediate accounting of new shipments when utilizing mobile carts and portable conveyors equipped with the RD5000 mobile reader. RFID-tagged goods are read in real time as they are transported off the truck and into your facility.

## In a delivery zone

Since the RD5000 is completely cable-free, it can be mounted safely and securely on portable skate wheel conveyors to verify shipment deliveries. The portable conveyor is easily moved from delivery vehicle to delivery vehicle, with the mobile reader providing instant identification of all items within the shipment — without opening the boxes or pallets. Receiving processes are streamlined and accurate.

## In other challenging locations

The self-contained design of the RD5000 is also ideal for stationary deployment in areas previously unsuitable for RFID readers. The compact design can be mounted nearly anywhere, with minimal intrusion in the working area. Built to endure bumps from equipment and rough handling, as well as exposure to dust, water, and grease, it is rugged enough to be installed in the toughest environments and compact enough to fit into spaces where a cabled, stationary reader would just not be practical — such as pallet stretch wrap machines.

## The value of Motorola…a family of solutions

The RD5000 is part of the Motorola family of mobility solutions, designed to seamlessly integrate with Motorola's broad family of products for complete application flexibility. The RD5000 is designed to work with the VC5090 Vehicle/Fixed-Mount Mobile Computer to provide manufacturing, warehouse and distribution centers with a complete forklift solution. It can be used in conjunction with Motorola's mobile

| Industries and Applications | |
|---|---|
| **Manufacturing & Distribution** | |
| • Forklifts | • Shipping and receiving |
| • Pallet jacks | • Put-away |
| • Clamp trucks | • Picking |
| • Conveyors/Skate wheel conveyors | • Packing |
| • Stretch wrap machines | • Work-in-process |
| • Yards/Gated yards | • Asset tracking |
| • Rolling ladders | • Yard management |
| **Retail** | |
| • Mobile carts | • Back-room inventory |
| • Portable skate wheel conveyors | • Front-room inventory |
| **Transportation & Logistics** | |
| • Forklifts | • Shipping and receiving |
| • Pallet jacks | • Put-away |
| • Clamp trucks | • Picking |
| • Terminals/yards | • Asset tracking |
| | • Yard management |

or wearable computers to provide an advanced warehouse picking solution — voice, text or a combination of voice and text. And Motorola's wireless LANs set the bar for performance, providing the robust connectivity you need to ensure constant contact between devices and your business systems for reliable real-time data.

## Easy installation and maintenance

Regardless of where you need additional read points, the RD5000 offers easy and inexpensive installation. No network or power cabling is required, enabling rapid and cost-effective installation nearly anywhere in the enterprise. In addition, advanced power management capabilities ensure that vehicle operators have adequate power for a full shift, eliminating both the need to purchase and manage a large pool of spares, and the time spent away from critical tasks to locate, shut down and change batteries. And with all the components integrated into a single contained unit, from power to the wireless network connection, maintenance is simple and easy — no need to worry about managing power or network cables.

## Maximize ROI for your RFID system

By increasing the functionality in your RFID system, the RD5000 enables you to get the most from your RFID implementation through a new level of product visibility, process automation, and error proofing that

maximizes your return on investment. An exceptional investment, the device can  be easily moved and temporarily mounted from one application to the next — from skate wheel conveyor receiving to pallet jack storage to mobile cart inventory — providing the flexibility to meet multiple and temporary RFID needs throughout the enterprise. Your expanded view of operations enables tighter management control. Present staff can accomplish more throughout the workday, better controlling labor costs. Improved inventory visibility enables a reduction in stocking inventory, as well as in the associated costs and space requirements. And the rugged design ensures maximum uptime — and a low total cost of ownership.



RD5000 Mobile RFID Reader accessories

### Expanded visibility … and a world of benefits

The ability to extend the reach of RFID in the enterprise with real-time transmission of information via your wireless LAN enables immediate inventory visibility whenever movement takes place. At any point in time, you know where product is and how many steps were taken in its journey. By extending RFID to new areas of the enterprise, you have the power to streamline additional operations and eliminate any associated pen-and-paper based processes. The result is a reduction in holding inventory, an increase in the speed at which product moves through your supply chain, and an elimination of stock outs — contributing to faster revenue growth, a healthier bottom line and more satisfied customers.

### Total integration support for emerging technologies

As a leader in RFID technology, Motorola has the knowledge and industry expertise needed to successfully implement the RD5000 in your organization. Motorola services span the entire solution lifecycle — from initial assessment, commissioning and rollout through ongoing training and support — to provide maximized uptime and productivity and ensure a seamless connection to your mobile enterprise. The RD5000 offers a new level of business information delivering true business value and true business advantage.

For more information on how the RD5000 can enrich your RFID system, access our global contact directory at www.motorola.com/enterprise/contactus, or visit us on the Web at www.motorola.com/rd5000



The integrated self-contained battery provides the on-board power source required to enable mobility. In addition, for stationery installation in challenging locations, it eliminates the need to run power cabling, as well as the associated expense.

# RD5000 Specifications

## Physical and Environmental Characteristics

| | |
|---|---|
| Dimensions: | 7 in. L x 9 in. W x 2 in. H<br>17.78 cm L x 22.86 cm W x 5.08 cm H |
| Weight: | 3 lbs 10 oz./1.64 kg (includes battery) |
| Battery: | Removable, rechargeable 7.2 volt Lithium Ion 2200 mAh battery pack, 15.8 watt hours |

## Performance Characteristics

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|---|---|
| CPU: | Intel® XScale® Bulverde PXA270 processor at 624 MHz |
| Operating System: | Microsoft Windows CE 5.0 |
| Memory (RAM/ROM): | 64 MB/64 MB |
| Application Development: | PSDK, DCP and SMDK available through Support Central Web site |

## User Environment

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|---|---|
| Operating Temperature: | -4° to 122° F / -20° to 50° C |
| Charging Temperature: | 32° to 104° F / 0° to 40° C |
| Storage Temperature: | -40° to 158° F / -40° to 70° C |
| Humidity: | 5% to 95% non-condensing |
| Drop Specification: | 30 in. /76.2 cm to concrete |
| Repetitive Shock: | Over 3,500 70-g shocks and 21,600 60-g shocks |
| Environmental Sealing: | IP66 |
| Electrostatic Discharge (ESD): | +/-15kVdc air discharge; +/-8kVdc direct/indirect discharge |

## RFID

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|---|---|
| Standards supported: | EPC Gen 2 DRM (DRM compliant up to 0.5W) |
| Nominal read range[1]: | 10 ft./3.04 m with Motorola RFX6000 4x4 tag optimally oriented |
| Field: | Half read range beam width: +/- 80 degrees (with tags optimally oriented) |
| Antenna: | Integrated, circularly polarized, 1.5 dB effective linear gain per axis (nominal); Antenna port for future support of optional external antenna |
| Frequency range: | 902-928 MHz |
| Output power: | 1W conducted (1.4W EIRP with integrated antenna) |

## Wireless Data Communications

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|---|---|
| WLAN: | IEEE 802.11a/b/g |
| Data Rate: | 802.11a: up to 54 Mbps; 802.11b: up to 11 Mbps; 802.11g: up to 54 Mbps |
| Antenna: | Internal |
| Frequency Range: | All country dependent:<br>802.11a - 5 GHz; 802.11b – 2.4 GHz; 802.11g – 2.4 GHz |
| PAN (Bluetooth Support): | Bluetooth® Version 1.2 with BTExplorer™ (manager) included |

## Peripherals and Accessories

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|---|---|
| Battery charger: | 4-slot batteries only charging cradle |
| Power supply: | Input: 85-264 V AC; Output: 15 V DC, 5 A |

## Regulatory

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|---|---|
| Electrical Safety: | Certified to UL60950-1, CSA C22.2 No. 60950-1,IEC 60950-1 |
| WLAN and Bluetooth®: | USA – FCC Part 15.247, 15.407; Canada– RSS-210 |
| RF Exposure: | USA – FCC Part 2, FCC OET Bulletin 65 Supplement C; Canada – RSS-102 |
| RFID: | USA – FCC Part 15.247, 15.205, 15.209; Canada – RSS-210 |
| EMI/RFI: | USA – FCC Part 15; Canada – ICES 0003 Class B |

## Warranty

The RD5000 is warranted against defects in workmanship and materials for a period of one year (12 months) from date of shipment, provided the product remains unmodified and is operated under normal and proper conditions.

[1] - Actual read/write range is dependent upon a number of factors, including the specific tag used, nature of the items tagged, and presence or absence of radio interference.

Note: The contents of this datasheet also apply to Motorola RFID products with the part number prefix RF1224

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