RFID At-a-Glance
Maximize the benefits of RFID with Motorola’s complete RFID product portfolio
MOTOROLA’S RFID
PRODUCT PORTFOLIO

Proven performance and reliability

When you choose Motorola for your RFID solution, you choose the peace of mind that comes with over thirty years of industry leadership. Every day, companies of all sizes and across all industries count on Motorola mobility solutions that incorporate wireless networking, RFID, bar code scanning, imaging and more to streamline business processes and maximize the value of business data.

Motorola established its RFID leadership through active deployments — working with global, industry-leading companies on some of the largest RFID implementations. The company’s history showcases a long list of RFID firsts — including the first commercially available EPC RFID handheld reader, EPC RFID portal system and EPC RFID mobile reader. No matter what your RFID solution requires, Motorola’s complete RFID portfolio will meet your needs with:

• The broadest portfolio of RFID readers in the industry with: two classes of readers — business and industrial — to meet the needs of virtually any type of environment; and three types of readers for virtually any RFID application — fixed, handheld and mobile.

• A broad ecosystem of partners that provide our customers with the right application to maximize the business benefit of Motorola’s RFID solutions.

Regardless of which Motorola products you need in your RFID solution, you can count on proven and tested products that deliver the reliability, performance and throughput required — even in the most demanding environments.
The Motorola RFID Portfolio

FIXED RFID READERS

FX7400  Compact business-class fixed RFID reader. The Motorola FX7400 RFID reader sets a new standard in design for indoor customer-facing and carpeted environments, packing best-in-class RFID features into a small and attractive form factor that is less than half the size of a typical fixed industrial RFID reader. The low profile combines with an impressive array of integrated features and functionality to enable highly cost-effective RFID solutions for business-class applications such as item-level inventory management, IT asset management and more. Many unique features make this standards-based device easy to deploy and manage: Plenum rating, which allows for deployment flexibility in air tight spaces, such as mounting above a drop ceiling; Power over Ethernet (PoE), which eliminates the need for an electrical outlet and power supply; auto-discovery to automatically detect devices once they are plugged into the network; and ShowCase II, a new tool which enables remote configuration and management to ensure that your readers are up, running and ready for operation. The FX7400 offers a comprehensive set of APIs in .NET and C, and support for leading business systems including Microsoft BizTalk and IBM WebSphere Sensor Events (WSS) 6.2.

XR450  Rugged 902-928 mHz industrial-class fixed RFID reader. The XR450 Gen 2 reader offers user-selectable mono-static or bi-static operation, as well as the best-in-class performance, features and manageability required in large-scale RFID deployments in the U.S. and other regions including China and South Korea. Superior read rates and enhanced read ranges make it ideal for multiple RFID applications — from dock doors and conveyor belts to the warehouse floor or store front. Reliable and efficient tag reading in dense RF environments eliminates interference issues associated with multiple RFID readers in close proximity. Easy to deploy, application specific setup enables rapid and seamless integration into your environment, further reducing implementation time and costs. Advanced data collection features — such as filtering, reconciliation, user-defined association and selective visibility — deliver the refined real-time information required to maximize the benefits of RFID data. The XR450 also offers support for leading business systems including Microsoft BizTalk, IBM WSS and SAP RFID infrastructure; leading development tools such as .NET 2.0 and Java APIs; and off-the-shelf applications.

XR480  Rugged 865.7-867.5 mHz industrial-class fixed RFID reader for European deployments. The XR480 Gen 2 reader offers user-selectable mono-static or bi-static operation, as well as the best-in-class performance, features and manageability required in large-scale European RFID deployments. Superior read rates and enhanced read ranges make it ideal for multiple RFID applications — from dock doors and conveyor belts to the warehouse floor or store front. Reliable and efficient tag reading in dense RF environments eliminates interference issues associated with multiple RFID readers in close proximity. Easy to deploy, application specific setup enables rapid and seamless integration into your environment, further reducing implementation time and costs. Advanced data collection features — such as filtering, reconciliation, user-defined association and selective visibility — deliver the refined real-time information required to maximize the benefits of RFID data. The XR480 also offers support for leading business systems including Microsoft BizTalk, IBM WSS and SAP RFID infrastructure; leading development tools such as .NET 2.0; and off-the-shelf applications. The XR480 is based on the Windows® CE operating system with support up to eight read points, increasing the flexibility and reducing the complexity of RFID implementations.

MOBILE RFID READERS

RD5000  Rugged mobile RFID reader. Extend the reach of your RFID network and increase visibility into inventory and other enterprise assets with the self-contained, cable-free RD5000 Mobile RFID reader. This compact reader can be easily installed anywhere — on a wide range of mobile material handling equipment or just about any hard to reach indoor or outdoor location. Designed for true mobility and rugged use, the device provides real-time wireless LAN connectivity so assets and inventory are easily tracked as they move throughout your operations. The result is a new level of granular real-time information — allowing you to achieve a new level of productivity and efficiency throughout your operations.
Achieve maximum visibility in your RFID solution with Motorola’s full line of RFID readers — fixed, mobile and handheld.
**AN700 Series**  Compact antennas for customer-facing environments. The AN700 Series of RFID antennas satisfies many of the unique requirements for carpeted and customer-facing environments, such as retail. A perfect complement for Motorola’s FX7400 RFID reader, the AN700 Series of antennas are extremely compact, with the aesthetics required for the most discrete installation in the most space constrained areas — for example, under the point of sale (POS) counter. The integrated mounting bracket enables easy installation in minutes. And two models provide coverage wherever you need it. The AN710 is designed for the customer-facing sales floor, while the rugged AN720 is ideal for dock door shipping and receiving, or outdoor shopping areas.

**AN480**  Single port antenna for worldwide use. The AN480 Single Port Antenna offers maximum performance and flexibility. The low axial ratio is nearly 50 percent lower than typical competitive devices, delivering a more uniform gain — and better performance. The wide frequency range provides support for worldwide deployments, providing cost-efficiencies and a simplified RFID infrastructure. And environmental sealing enables indoor and outdoor operation.

**AN200**  General purpose antenna for indoor or outdoor applications. The AN200 General Purpose Antenna delivers maximum installation versatility. Able to withstand extreme heat and cold as well as moisture and vibration, the AN200 can be installed indoors or outdoors, enabling RFID from the warehouse floor and production line to the dock door and the yard. This all-purpose antenna can be used in standard RFID applications with power levels up to one watt, as well as custom high-power applications requiring up to 20 watts. The antenna is traditionally used in pairs, with right and left hand polarization.

**AN400**  High-performance area antenna for high-capacity, high throughput environments. The AN400 High-Performance Area Antenna is designed to deliver the capacity and range required in high throughput RFID applications that require RFID tag reading in large areas. These packaged, rectangular antenna arrays offer a wide read field and high-speed RF signal conversion for fast and optimal communication of EPC-compliant passive tag data. Optimized to perform in all environments, the easy to mount antenna enables the easy creation of superior read zones around shelves, doorways and dock doors — anywhere boxes and pallets are moving into and out of a facility.
## RFID PRODUCTS AT-A-GLANCE

### READERS

#### Fixed

**FX7400**
- The Motorola FX7400 RFID reader sets a new standard in design for indoor customer-facing and carpeted environments, packing best-in-class RFID features into a small and attractive form factor that is less than half the size of a typical fixed industrial RFID reader.
- 4 read points (4 transmit; 4 receive)
- 2 inputs, 2 outputs, optically isolated (Terminal Block)
- USB Client — USB Type B
- 10/100 Base-T Ethernet (RJ45) with PoE support
- North America: 902 MHz-928 MHz, EU: 865 MHz-956 MHz
- Other global frequencies as regionally defined
- EPC Gen 2 (Dense Reader Mode)

**XR450**
- The XR450 is an industrial-class Windows® CE standards-based Gen 2 EPC RFID reader that delivers maximum functionality, while reducing the complexity of RFID implementations.
- 4 mono-static ports or 4 bi-static ports
- Control IO Port — DB15
- USB Host — USB Type A
- USB Client — USB Type B
- RS232 Serial Console — DB9
- 10/100 Base-T Ethernet; RJ45
- UHF band — 902-928 MHz US
- EPC Gen 2 (Dense Reader Mode) Byte

**XR480**
- The XR480 is an industrial-class Windows® CE standards-based Gen 2 EPC and ETSI 302 208 compliant RFID reader for European deployments that delivers maximum functionality, while reducing the complexity of RFID implementations.
- 8 mono-static ports or 4 bi-static ports
- Control IO Port — DB15
- USB Host — USB Type A
- US Client — USB Type B
- RS232 Serial Console — DB9
- 10/100 Base-T Ethernet; RJ45
- EU band — 865 MHz-868 MHz
- EPC Gen 2 (Dense Reader Mode) Byte

#### Mobile

**RD5000**
- The self-contained, cable-free and compact RD5000 Mobile RFID reader can be installed anywhere — on a wide range of mobile material handling equipment and just about any hard-to-reach indoor or outdoor location.
- N/A
- N/A
- 802.11a/b/g; WPAN
- UHF band — 902-928 MHz US
- EPC Gen 2 (Dense Reader Mode)

### Handheld

**MC3090-Z RFID**
- MC3090-Z RFID handheld reader is the first business-class handheld RFID reader designed specifically for customer-facing and business environments. At just half the weight of its industrial counterparts, the MC3090-Z combines Motorola’s signature rugged design and high performance with the ergonomics required for all day comfort and ease of use.
- Microsoft Windows Mobile 6.1
- Intel XScale™ Bulverde PXA270 @ 520 MHz
- RAM 128 MB; Flash 1 GB
- 48-key alphanumeric
- 3 in. QVGA color
- IP54 (exce 810f)

**MC3090-G RFID**
- The rugged MC3090-G RFID is ideal for exception processing and pinpointing the location of a specific item — even in large areas of inventory. This wireless LAN-enabled device can read and write Gen 1 and Gen 2 RFID tags, and capture 1D and 2D bar codes and images.
- Microsoft Windows Mobile 5.0 Premium Edition
- Intel XScale™ Bulverde PXA270 @ 624 MHz
- RAM 64 MB; ROM 164 MB
- SD/MMC card
- 53-key alphanumeric
- 3.8 in. QVGA color
- IP64 encl and

### ANTENNAS

#### Description

| AN710 | The AN710 compact antenna offers the aesthetics and durability for indoor customer-facing and carpeted enterprise environments. | Compact General Purpose Indoor Antenna | US and Canada: 900-928 MHz Europe: 865-868 MHz | -22° F to 158° F | N/A | N/A | On Site System Support — Bronze |
| AN720 | The AN720 compact rugged antenna is designed for outside areas in customer-facing and enterprise environments, such as the retail backroom or outdoor shopping areas. | Compact Rugged Indoor-Outdoor Antenna | US and Canada: 900-928 MHz Europe: 865-868 MHz | -22° F to 158° F | IP67 | Cold, heat, temperature, shock, humidity, rain, salt fog, random vibration | On Site System Support — Bronze |
| AN480 | The AN480 Wide Band Antenna offers maximum performance and flexibility with a low axial ratio that is nearly 50 percent lower than typical competitive devices, delivering a more uniform gain. | Wide Band RFID Antenna | 865-956 MHz | -40° F to 149° F | IP54 | Cold, heat, temperature, shock, humidity, rain, salt fog, random vibration | On Site System Support — Bronze |
**The self-contained, cable-free and compact RD500 Mobile RFID reader can be installed in any hard-to-reach indoor or outdoor location. It delivers RFID performance in a compact, lightweight package designed specifically for customer-facing material handling equipment and just about anywhere — on a wide range of mobile and carpeted environments, packing best-in-class RFID features into a small and attractive form factor.**

**The XR480 is an industrial-class Windows®-based device designed for customer-facing businesses and material handling environments. It delivers maximum functionality, while reducing maintenance costs.**

**The rugged MC9090-G RFID is ideal for deployments that need a durable and reliable RFID solution.**

**The MC3090-Z RFID handheld reader is the first business-class handheld RFID reader designed specifically for customer-facing businesses and material handling environments. At just half the weight of its industrial counterparts, the MC3090-Z combines Motorola's signature performance, reliability, and ease of use.**

### ANTENNAS

| AN200 | The AN200 Dual Directional Antenna delivers RFID performance in a compact, low profile housing designed for greater mounting and application flexibility. | General Purpose, Indoor/Outdoor RFID Antenna | 900-928 MHz | -40° F to 149° F | -40° C to 65° C | Cold, heat, temperature, shock, humidity, rain, salt fog, random vibration | On Site System Support — Bronze |
| AN400 | The AN400 High-performance Antenna is designed to deliver high performance in reading RFID tags in large areas. | High-performance RFID Antenna | 902-928 MHz | 32° F to 122° F | 0° C to 50° C | Cold, heat, temperature, shock, humidity, rain, salt fog, random vibration | On Site System Support — Bronze |

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### Specification Tables

#### Edition

**Operating System**

- Microsoft Windows CE 5.0 (Professional)
- Microsoft Windows CE 5.0 (Core)

**CPU**

- Intel XScale™ Bulverde
- Intel XScale™ PXA270 @ 624 MHz

**Memory**

- ROM 64 MB
- RAM 64 MB; Flash 64 MB; DRAM 64 MB
- ROM 128 MB; Flash 64 MB; DRAM 64 MB

**Flash**

- Flash 64 MB; DRAM 64 MB
- Flash 64 MB; DRAM 64 MB
- Flash 64 MB; DRAM 64 MB

#### Connectivity

- 802.11a/b/g; WPAN UHF band — regionally defined frequencies as 865 MHz-868 MHz and 902 MHz-928 MHz, respectively.
- 10/100 BaseT Ethernet; RJ45
- USB Client — USB Type B
- USB Host — USB Type A
- 10/100 BaseT Ethernet; RJ45 (RJ45) with PoE support
- 10/100 BaseT Ethernet

#### Sealing

- IP64 drop spec: 30 in./76.2 cm to concrete; over 3500 70-g and 21,800 80-g shocks
- IP54; drop spec: 30 in./76.2 cm to concrete; over 1,000 hits
- IP64 (electronic enclosure, display and keypad)
- IP54; meets and exceeds MIL-STD 810F

#### Tumble Test

- 500 1.64 ft./0.5 m across the operating temperature range (1,000 hits)
- 6 ft./1.8 m across the operating temperature range (4,000 hits)
- 4 ft./1.2 m across the operating temperature range
- 2,000 one-meter tumbles at room temperature (4,000 hits)

#### Data Capture

- Gen 2 RFID tags and 1D bar codes
- EPC Gen 2 (DRM compliant up to 0.5W)
- Gen 1 (Class 0 & Class 1), Gen 2 RFID tags and 1D bar codes; image capture

#### RFID Standards

- EPC Gen 2
- EPC Gen 1 (Class 0 and Class 1), Gen 2

#### Wireless Connectivity

- 802.11b/g/n: WPAN (Bluetooth) — regional-dependent
- 802.11a/b/g: WPAN (Bluetooth)

#### Temperature

- -20° C to 55° C
- -20° C to 55° C
- -10° C to 50° C

#### Warranty

- 1 year
- 1 year
- 1 year

#### Recommended Services

- Advanced Services for RFID
- Service from the Start Advance Exchange Support
- Service from the Start Advance Exchange Support
- Service from the Start with Comprehensive Coverage
- Service from the Start with Comprehensive Coverage