



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.



HANDHELD RFID READERS

MC3090-Z



Lightweight business-class handheld RFID reader. The MC3090-Z represents another RFID first from Motorola — the first business-class handheld RFID reader designed specifically to extend the benefits of RFID beyond industrial spaces and into customer-facing and business environments. The MC3090-Z starts with Motorola's signature rugged design and high performance, and adds the ergonomics required for all day comfort and ease of use in retail stores, healthcare facilities and more. At just half the weight of its industrial counterparts, the MC3090-Z is the lightest UHF RFID rugged handheld reader on the market, offering a well-balanced design and a convenient gun-style grip for read-intensive applications. And a groundbreaking new antenna combines the benefits of linear and circular polarization, creating a hybrid that offers the best of both antenna technologies — a superior read range and superior coverage. In addition, the orientation-insensitive antenna eliminates the need to precisely align the reader with the tag, enabling the instant capture of even the most challenging items.

MC9090-G RFID



Industrial-class handheld RFID reader. The MC9090-G RFID offers added flexibility for comprehensive tracking of EPC tagged assets. Handheld RFID readers are specifically used for their ability to read data in remote areas that fixed readers cannot reach. Motorola handheld RFID readers are known for their outstanding read range and accuracy, and are ideal for exception processing and ability to pinpoint the location of a specific item — even in large blocks of inventory. These multi-modal, wireless LAN-enabled handheld RFID readers are capable of bar code scanning, digital imaging and RFID tag reading and writing. And out-of-the-box deployment ensures quick implementation of your RFID program with minimal investment.

RFID ANTENNAS

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

RFID	Description	Read Points	External Interfaces	Network Connectivity	Frequency	European ETSI EN 302 208 Standard	Tag Protocol	
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 BaseT Ethernet (RJ45) with PoE support	North America: 902 MHz-928 MHz, EU: 865 MHz-868 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 BaseT Ethernet; RJ45	UHF band — 902-928 MHz US	•	EPC Gen 2 (Dense Reader Mode)	
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 BaseT Ethernet; RJ45	EU band — 865 MHz-868 MHz	•	EPC Gen 2 (Dense Reader Mode)	
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								
	Description	Operating System	CPU	Memory	Expansion Slot	Keyboard	Display	
MC3090-Z 	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	
MC9090-G RFID 	The rugged MC9090-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 64 MB	SD/MMC card	53-key alphanumeric	3.8 in. QVGA color	
ANTENNAS								
	Description	Type	Frequency Range	Operating Temperature	Sealing	Rugged Tested	Worldwide Use	Services
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 -30° C to +80° C	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 -30° C to +70° C	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 -40° C to +65° C	IP54	Cold, heat, temperature, shock, humidity, rain, salt fog, random vibration	•	On Site System Support — Bronze

Host Interface Protocols	Management Protocols	Rugged Specifications	Operating Temperature	Operating System	Memory	Warranty	Recommended Services
LLRP	RM 1.0.1 (with XML over HTTP/HTTPS and SNMP binding); AirBEAM firmware upgrade (Level 2 support)	•	14° F to 122° F -10° C to 50° C	Microsoft Windows CE 5.0 (Core)	Flash 64 MB; DRAM 64MB	1 year	Advanced Services for RFID; Service from the Start Advance Exchange Support
XML and Byte Stream; LLRP	SNMP and AirBeam level 2	IP53	-4° F to 141° F -20° C to 55° C	Microsoft Windows CE 5.0 (Professional)	Flash 64 MB; DRAM 64MB	1 year	Advanced Services for RFID; Service from the Start Advance Exchange Support
XML and Byte Stream; LLRP	SNMP and AirBeam level 2	IP53	-4° F to 141° F -20° C to 55° C	Microsoft Windows CE 5.0 (Professional)	Flash 64 MB; DRAM 64MB	1 year	Advanced Services for RFID; Service from the Start Advance Exchange Support
N/A	N/A	IP66; drop spec. 30 in./76.2 cm to concrete; over 3500 70-g and 21,600 60-g shocks	-4° F to 122° F -20° C to 50° C	Microsoft Windows CE 5.0	Flash 64 MB; DRAM 64MB	1 year	Advanced Services for RFID; Service from the Start Advance Exchange Support

Sealing	Drop Spec	Tumble Test	Data Capture	RFID Standards	Wireless Connectivity	Warranty	Recommended Services
IP54; meets and exceeds MIL-STD 810F	4 ft./1.2 m across the operating temperature range	500 1.64 ft./0.5 m tumbles at room temperature (1,000 hits)	Gen 2 RFID tags and 1D bar codes	EPC Gen 2 (DRM compliant up to 0.5W)	802.11a/b/g; WPAN (Bluetooth) - regional dependent	1 year	Service from the Start with Comprehensive Coverage
IP64 (electronic enclosure, display and keypad)	6 ft./1.8 m across the operating temperature range	2,000 one-meter tumbles at room temperature (4,000 hits)	Gen 1 (Class 0 & Class 1) and Gen 2 RFID tags, omnidirectional reading of 1D and 2D bar codes; image capture	EPC Gen 1 (Class 0 and Class 1), Gen 2	802.11a/b/g; WPAN (Bluetooth)	1 year	Service from the Start with Comprehensive Coverage

ANTENNAS

	Description	Type	Frequency Range	Operating Temperature	Sealing	Rugged Tested	Worldwide Use	Services
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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