



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 mobile RFID reader. No matter what your RFID solution requires, Motorola's complete RFID portfolio will meet your needs with:

- A full line of RFID readers, including fixed, handheld and mobile
- A complete range of antennas to maximize the performance of Motorola RFID fixed readers and provide for a wide range of environmental requirements — from space-constrained mounting locations to indoor or outdoor environmental conditions or high-capacity applications
- A broad ecosystem of partners that provide our customers with tagging solutions that meet the needs of diverse applications across industries

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.

FIXED READERS

XR440



The XR440 Gen 2 reader offers the performance, features and manageability required in large-scale 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. The XR440 offers outstanding performance in noisy environments through a lower noise sensitivity floor. 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 refined real-time information, resulting in incremental benefits throughout the enterprise. The XR440 also offers support for leading business systems including IBM's WebSphere® RFID Device Infrastructure (WRDI), Microsoft RFID infrastructure and SAP; leading development tools including .NET 2.0 and Java APIs; and off-the-shelf applications.

XR480



The XR480 Gen 2 reader offers maximum functionality in support of European RFID regulations. Reliable and efficient tag reading in dense RF environments eliminates interference issues associated with multiple RFID readers in close proximity. The standards-based XR480 enables seamless integration and interoperability with your existing IT infrastructure. Robust RFID functionality includes support for standard back-end platforms, direct application hosting, and the ability to interact with additional asset automation equipment — such as conveyor belts. 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 READERS

RD5000



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.

HANDHELD READERS

MC9090-G RFID



Our industrial-class handheld RFID reader 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 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.

Achieve maximum visibility in your RFID solution with Motorola's full line of RFID readers — fixed, mobile and handheld.



ANTENNAS

AN480



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 enable indoor and outdoor operation.

AN400



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.

AN200



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 on 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.

RFID TAGS

Asset Management RFID Tag Solutions

Motorola and our network of molded tag converter partners provide high performance, hardened tag solutions designed for the most demanding asset management applications. These high-performing tags are built to withstand harsh environments and challenging surface applications such as vehicles, chassis, shipping containers, IT equipment, tools and more. Get the real-time visibility you need to improve utilization of your critical assets and reduce the labor and inefficiencies associated with manual tracking processes — with RFID asset management solutions from Motorola.

Cargo Tag

The Cargo Tag is an all-weather, rugged RFID tag designed for the most demanding indoor and outdoor applications. With the durability required for 24-hour-a-day outdoor exposure in most environmental conditions, this robust tag offers proven tolerance of natural and incandescent light, vibration, shock, rain, dust, oil and chemical resistance, and more. This Gen 2 EPC™-compliant tag delivers accurate and reliable read performance of up to 40 feet/12.19 m, enabling you to achieve maximum benefits in RFID cargo and asset tracking applications. Full mounting flexibility ensures the ability to install the tag wherever needed — the integral back plate can be secured with either an adhesive or metal screws.

Supply Chain Management RFID Tag Solutions

Motorola offers supply chain management RFID tags manufactured with our innovative technology and design that provide the long-read range and increased performance required for dependable end-to-end supply chain visibility. Our high-performance tag technology provides optimal reading and writing in a multitude of environments providing the flexibility for successful item, case and pallet-level RFID applications. Every day, Motorola's experience in optimized tag and reader communications and high quality, large volume delivery capabilities helps companies all over the world achieve increased supply chain visibility and automation.

To help you find the best RFID tags for your business needs and for more information about how Motorola RFID solutions can give your organization a competitive advantage, access our global contact directory at www.symbol.com/contact, or visit us on the web at www.symbol.com/rfid

RFID PRODUCTS AT-A-GLANCE

RFID	Description	Read Points	External Interfaces	Network Connectivity	Frequency	European ETSI EN 302 208 Standard	Tag Protocol	
READERS								
Fixed								
XR440 	The XR440 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 read points (4 transmit; 4 receive)	Control IO Port — DB15; USB Host — USB; 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 that delivers maximum functionality, while reducing the complexity of RFID implementations.	8 read points in single port mode; 4 read points in dual-port mode	Control IO Port — DB15; USB Host — USB Type A; US Client — USB Type B; RS232 Serial Console — DB9	10/100 BaseT Ethernet; RJ45		•	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	
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	28-, 43- and 53-key; Terminal Emulation (5250, 3270, VT)	3.8 in. QVGA color	
ANTENNAS								
	Description	Type	Frequency Range	Operating Temperature	Sealing	Rugged Tested	Worldwide Use	Services
AN480 	The AN480 Single Port 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.	Single Port 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
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
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

Host Interface Protocols	Management Protocols	Rugged Specifications	Operating Temperature	Operating System	Memory	Warranty	Recommended Services
.NET/JAVA	SNMP and AlrBeam level 2	IP53	32°F to 141°F 0°C to 55°C	Microsoft Windows CE 5.0	Flash 64 MB; DRAM 64MB	1 year	Advanced Services for RFID; Service from the Start Advance Exchange Support
.NET/JAVA	SNMP and future support for MSP		-14°F to 140°F -10°C to 60°C	Microsoft Windows CE (V4.2.0)	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 with Comprehensive Coverage

Sealing	Drop Spec	Tumble Test	Data Capture	RFID Standards	Wireless Connectivity	Warranty	Recommended Services
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 & Class 1); Gen 2	802.11a/b/g; WPAN	1 year	Service from the Start with Comprehensive Coverage

RFID TAGS

Asset Management RFID Tag Solutions Motorola and our network of molded tag converter partners provide rugged, high-performance hardened tag solutions for the most demanding RFID applications and environments. These RFID tags are ideal for tagging plastic and metal totes, IT equipment, gas bottles, baggage, machinery and more.

Cargo Tag	Description	Type	Dimensions	Read/Write	Read Rate	Read Range	Write Range	Memory	Data Retention	Operating Temperature	RoHS Compliant	Rugged Testing	Services
	All-weather tag designed to withstand 24-hour-a-day exposure to nearly any environmental condition	EPC-compliant Gen 2, Class 1	6 in. x 6 in. x 0.53 in./152.4 mm x 152.4 mm x 13.46 mm	Yes	Up to 400/sec.	Up to 40 ft./12.19 m	Up to 10 ft./3.05 m	96-bit with 16-bit control for lock and kill features	Life of product	-4°F to 185°F -20°C to 85°C	Yes	Vibration, shock, rain, dust, oil/chemical resistance, light immunity	N/A

Supply Chain Management RFID Tag Solutions Motorola offers supply chain management RFID tags manufactured with our innovative technology and design that provide the long-read range and increased performance required for dependable end-to-end supply chain visibility. Our high-performance tag technology provides optimal reading and writing in a multitude of environments providing the flexibility for successful item, case and pallet-level RFID applications.



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