UHF GEN 2 RFID

Impinj®

Speedway® Revolution

with AUTOPILOT

Superior Performance Made Easy

Technology leader Impinj envisioned the RFID system of tomorrow—and it has a mind of its own. The Speedway Revolution reader automatically delivers peak performance—all day, every day.

Ensuring RFID Success—*Automatically*

Application environments are dynamic. Does your reader keep up?

Did you define your RFID deployment carefully? Did you think of every scenario, anticipate all the ways the system could break and what to do when that happened? And it worked beautifully in the lab, but then the real world threw you some curve balls?

Perhaps you designed your system for cases and pallets. But now you want to track items too?
Maybe you desire expert RFID performance but don't have an RFID expert?
Do you want a system that will continue to function well, even as your business grows and changes?

Impinj's latest fixed reader, the Speedway® Revolution, solves these situations and more. It builds upon the industry-leading reputation of the original Speedway with new innovations to raise the performance bar even higher. Best of all, the Autopilot features ease deployment and maintenance.

Autopilot

Senses, Configures, Adapts—24/7

RF interference, tag quantity, ambient RF noise, and even building materials near an RFID installation all affect system performance. Most users configure their readers for worst case scenarios, often compromising best performance in the process. With the Speedway Revolution's Autopilot, innovative firmware features work together, automatically optimizing the reader operation to its environment—delivering peak performance at all times.

- ***Autoset*** continuously optimizes the reader's configuration for the best, most reliable performance. The Speedway Revolution senses levels of RF noise and interference, automatically selecting the appropriate settings.
- ***Low duty cycle*** reduces RF interference, power consumption, and energy costs. The Speedway Revolution only transmits when tags are in the field, helping to clear the air of unnecessary RF noise.
- ***Dynamic antenna switching*** improves throughput and helps the reader work more efficiently. Speedway Revolution senses where tags are in the field and automatically focuses more time on the antennas with the largest tag populations in view. For example, if a low-height pallet follows taller pallets through a portal, the Speedway Revolution reduces time spent on antennas in the upper positions.

And the Speedway Revolution improves upon the advanced hardware capabilities which made the original Speedway the reader of choice for many demanding customers—capabilities such as best *receive sensitivity, interference rejection*, and item-level *carrier cancellation*.

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Expanding Options, Reducing Costs

With its compact form factor and support for new features such as Power over Ethernet (PoE) and Sierra Wireless cellular modem connectivity, the Speedway Revolution delivers increased application and deployment flexibility. PoE simplifies deployment and dramatically reduces cost by eliminating the need for AC outlet installation at read points. Made possible by the Speedway Revolution's low power consumption, PoE reduces operating costs as well as green house gas (GHG) emissions without compromise. Speedway Revolution delivers the full 30 dBm of transmit power and the highest read performance available—even with PoE operation.

Native support for Sierra Wireless AirLink PinPoint XT and AirLink Raven XT cellular modems opens up new deployment and application models by enabling GSM or CDMA connectivity to the Internet through your preferred cellular carrier. Application examples include remote read points where wired connectivity is not feasible nor cost effective, enabling services and solutions where connecting to the local enterprise network is too cumbersome, or mobile service and delivery vehicles. With Sierra Wireless AirLink PinPoint XT, Speedway Revolution also provides Global Positioning System (GPS) location of the reader along with each tag read.

- 2 and 4 antenna port configurations
- Power over Ethernet (PoE) and cellular modem connectivity
- Autopilot (automatically senses environment and configures settings for best performance)
- Enterprise-class management and monitoring
- Support from industry-leading software vendors such as Microsoft and IBM
- Industry standard application interface with support for EPCglobal Low Level Reader Protocol (LLRP)
- Industry's best sensitivity
- Innovative features to enable read zone containment and eliminate stray reads
- Support for all Monza® 4 family tag chip features
- High transmit power capable to overcome cable losses
- EPCglobal-compliant design
- Quality design resulting in industry's highest reliability
- Global partner and support network

Whether you're initiating a pilot program, transitioning your pilot to full deployment, or expanding your RFID capability, Impinj's Speedway Revolution reader will ensure a rewarding deployment experience.

Impinj—defining the future of RFID—
where superior performance comes easy.

Speedway R220

Speedway R420

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Speedway® Revolution Readers At A Glance

PRODUCT DETAILS	SPEEDWAY R420	SPEEDWAY R220
Air Interface Protocol	EPCglobal UHF Class 1 Gen 2 / ISO 18000-6C	
Performance	Includes all possible performance configurations and functionality to deliver peak performance for even the most challenging of applications	Intended for less demanding applications. Does not support the maximum throughput modes available on R420 including Max Throughput FM0, Hybrid, Max Miller and AutoSet Single Reader
Supported Regions or Geographies	• US, Canada, and other regions following US FCC Part 15 regulations • Europe and other regions following ETSI EN 302 208 v1.2.1 without LBT regulations • Brazil, Hong Kong, India, Uruguay, Vietnam • Pending regulatory approval – Australia, China, Malaysia, Singapore, Taiwan, and Thailand	
Antennas	4 high performance, monostatic antenna ports optimized for Impinj reader antennas (RP TNC)	2 high performance, monostatic antenna ports optimized for Impinj reader antennas (RP TNC)
Transmit Power	• +10.0 to +30.0 dBm (PoE) • +10.0 to +32.5 dBm (external universal power supply)	
Max Receive Sensitivity	-82 dBm	
Max Return Loss	10 dB	
Application Interface	EPCglobal Low Level Reader Protocol (LLRP) v1.0.1	
Network Connectivity	10/100BASE-T auto-negotiate (full/half) with auto-sensing MDI/MDX for auto-crossover (RJ-45)	
Cellular Connectivity*	• Sierra Wireless AirLink PinPoint XT (CDMA or GSM connectivity with GPS data) • Sierra Wireless AirLink Raven XT (CDMA or GSM connectivity) (* Available through Impinj-authorized partners)	
IP Address Configuration	DHCP, Static, or Link Local Addressing (LLA) with Multicast DNS (mDNS)	
Time Synchronization	Network Time Protocol (NTP)	
Management Interfaces	• Impinj Web Management UI • Impinj RShell Management Console using serial management console port, telnet or SSH • SNMPv2 MIBII • EPCglobal Reader Management v1.0.1 • Syslog	
Reliable Firmware Upgrade	• Dual image partitions enable smooth transition to new firmware while the reader is still operating • Scalable upgrade mechanism enables simultaneous scheduled upgrades of multiple readers • USB Flash Drive • Impinj Web Management UI	
Management Console	• RS-232 using a standard Cisco-style management cable (DB-9 to RJ-45) • Baud rate: 115200, Data: 8 bit, Parity: none, Stop: 1 bit, Flow control: none	
USB	• USB 1.1 Device (Type B) and Host (Type A) ports • USB Virtual COM Serial Port and USB drive support for embedded applications	
GPIO	• 4 inputs, optically isolated 3-30V; 4 outputs, optically isolated, 0-30V, non-isolated 5V, 100mA supply (DB-15)	
Power Sources	• Power over Ethernet (PoE) IEEE 802.3af • +24 VDC @ 800mA via external universal power supply with locking connector—sold separately	
Power Consumption	Idle / Typical / LDC PoE at +30 dBm: *3W* / *11.5W* / *6W* Power Supply at +30 dBm: *3W* / *13.5W* / *6W* Power Supply at +32.5* dBm: *3W* / *15W* / *6W* (*maximum is 31.5 dBm for ETSI region readers)	
Environmental Sealing	IEC IP52	
Shock and Vibration	Mil-Std-810G Certified	
Operating Temperature	-20 ºC to +50 ºC	
Humidity	5% to 95%, non-condensing	
Dimensions (H x W x D)	7.5 x 6.9 x 1.2 in (19 x 17.5 x 3 cm)	
Weight	1.5lbs (24.5 oz)	
RoHS	Compliant to European Union directive 2002/95/EC	

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