



Speedway[®] Revolution

August 2009

Speedway® Revolution with Autopilot



- **Next generation Speedway reader platform**
 - Builds upon the industry-leading reputation of Speedway
 - Delivers peak performance 24/7 with Autopilot
- **Compact form factor**
 - 7.5 x 6.9 x 1.2 in (19 x 17.5 x 3 cm)
 - 80% smaller than Speedway
- **Low power consumption**
 - 57% less power than Speedway
 - No compromising performance
- **Power over Ethernet (PoE)**
 - Standard IEEE 802.3af
- **USB device and host ports**
 - Connectivity options and peripheral support
- **Opto-isolated GPIO**
 - 4 inputs and 4 outputs



Regional Support

FCC (Shipping now)
ETSI (Oct '09)
Brazil (Oct '09)
Others (TBD)

Speedway® Revolution Models

	Speedway R420	Speedway R220
		
MSRP	\$1585	\$1385
Antenna ports	4	2
Performance	~430 tags / second	~300 tags / second

- **Speedway R420 delivers uncompromised performance for even the most challenging applications**
- **Speedway R220 delivers great performance for less demanding applications**

Autopilot

- **Autopilot is an innovative set of features working together to deliver peak performance**
- **Continuously and automatically optimizing the reader for the changing environment and application**
- **Senses, configures, adapts – 24/7**
 - Responds to changes in RF environment and tag population
- **Key Autopilot features include:**
 - Autoset
 - Low Duty Cycle
 - Dynamic Antenna Switching

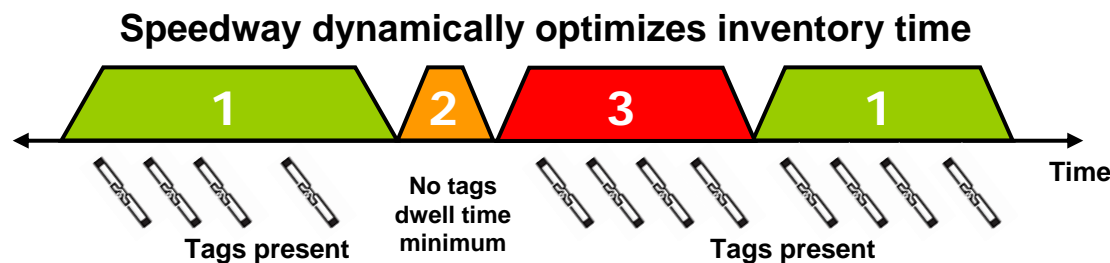


Autoset

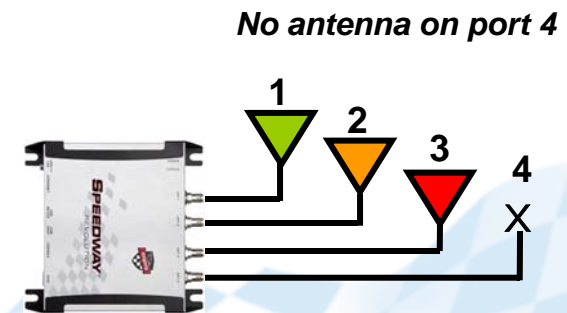
- **Impinj's patented Autoset algorithm automatically optimizes the reader for best performance**
 - Monitors the environment for RF noise and interference
 - Dynamically adjusts the configuration
 - Always operates at peak performance
- **No need to use RF engineers to install and configure readers**
- **No need to “re-tune” the reader when the environment changes**
- **Other readers must be statically configured for worst case scenarios resulting in compromised performance**

Dynamic Antenna Switching

- Senses where tags are in the field to optimize inventory time on each antenna enabling the reader to work more efficiently
- Readers that support static antenna sequences waste time on antennas with no tags or minimal activity
- Example: Tall vs. short pallet through a portal

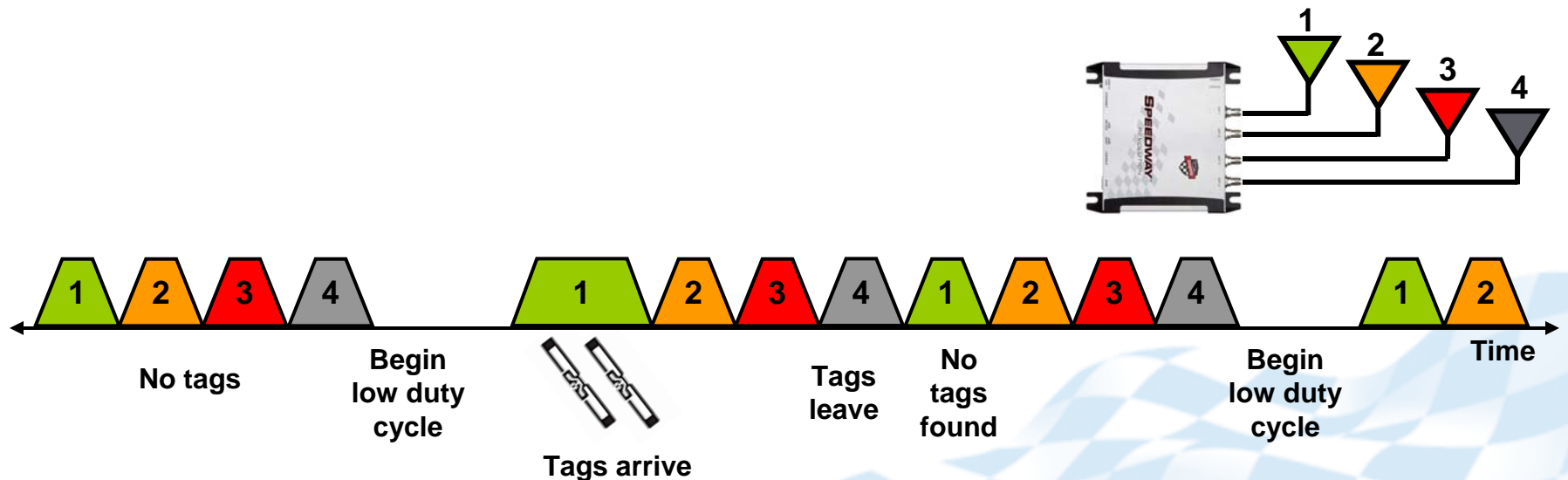


Reader auto-detects antenna connections



Low Duty Cycle (LDC)

- **LDC reduces environmental RF noise by limiting the amount of transmit time when there are no tags in the field**
 - Enters LDC after a configurable period of time of seeing not tags
 - “Pings” for tags entering the field of view
 - Comes out of LDC very quickly (ms) to read new tags
- **Autoset takes advantage of LDC to maximize performance**
- **LDC reduces reader power consumption (down to 6W)**



Receive Sensitivity

- **Speedway Revolution has the highest receive sensitivity**
 - Enables long read range
 - Ability to read difficult to read tags
 - Coupled with carrier cancellation enables near-field tag reads
- **Every 3dB of sensitivity increases read range by ~30%**

Reader	Max Receive Sensitivity	Max Read Range *
Impinj Speedway Revolution	– 82dBm	18.6m
Impinj Speedway	– 80dBm	16.6m
Sirit INfinity 510	– 75dBm	12.4m
Motorola FX7400	Not released or FCC certified yet (based on Indy R2000)	
Motorola XR450 / XR480	Data not collected by Impinj and not publicly available	
Alien ALR-9900	– 60dBm	5.25m

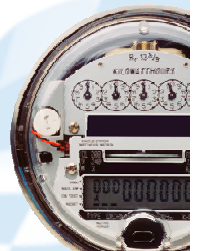
* Dependent on tag type and environment

Power Consumption

- **Low power consumption design delivers measurable savings**
 - Energy costs
 - Up to 75% lower than Alien ALR-9900
 - Up to 78% lower than Sirit INfinity 510
 - Reduced greenhouse gas emissions (GhG) footprint

UHF Gen 2 Reader @ +30dBm	Idle	Typical	LDC*
Impinj Speedway Revolution (PoE)	3W	11.5W	6W
Impinj Speedway	12.5W	27W	13W
Alien ALR-9900	11W	30W	-
Motorola FX7400	Not released or FCC certified yet (based on Indy R2000)		
Motorola XR450 / XR480	Data not collected by Impinj and not publicly available		
Sirit INfinity 510	13W	34W	-

* Impinj Low Duty Cycle mode



Power over Ethernet

- **Speedway Revolution supports two power supply options**
 - +24 VDC external universal power supply with locking connector
 - Industry standard IEEE 802.3af Power over Ethernet (PoE)
- **PoE Advantages**
 - Reduced installation costs – IT versus licensed electrician
 - Install readers anywhere, not just where AC power is available
 - Increased system availability via network infrastructure
 - Uninterruptible Power Supply (UPS) and battery backup

	Number of Readers					
	100	500	1K	5K	10K	15K
AC Power and Ethernet Installation Costs	\$75K	\$375K	\$750K	\$3,750K	\$7,500K	\$11,250K
Ethernet Only (PoE readers) Installation Costs	\$15K	\$75K	\$150K	\$750K	\$1,500K	\$2,250K
Installation Cost Savings	\$60K	\$300K	\$600K	\$3,000K	\$6,000K	\$9,000K

Calculations made using \$600 USD per reader for AC only and \$150 USD per reader cost for Ethernet only

Enterprise Ready

- **Enterprise-class quality and reliability**
 - Same rigorous design, test and manufacturing methodology as Speedway
 - Speedway had <0.3% field failures in 3 years and over 20K deployed
- **Enterprise-class management and monitoring**
 - SNMPv2 MIBII, EPCglobal Reader Management v1.0.1 and SYSLOG
 - Robust firmware upgrade mechanism
 - Dual images for safe transition while the reader is still reading tags
 - Scheduled, simultaneous upgrade of deployed readers
 - Fall back to primary image if issues encountered during upgrade
 - Scriptable RShell management console
 - Easy to integrate into existing IT infrastructure

“These Impinj devices are amazing: sturdy, easy to manage, reliable. Love 'em!”
- Customer switching to Speedway from competitor

Reader Comparison

The Speedway reader product family has the most innovative feature set available

	Impinj Speedway Revolution	Impinj Speedway	Alien ALR-9900 ALR-8800	Motorola FX7400	Motorola XR450 XR480	Sirit INfinity 510
Autopilot features	✓					
Carrier cancellation for near-field	✓	✓		Indy R2000		
Low power consumption	✓			✓		
Power over Ethernet (PoE)	✓			✓		
Compact Form Factor	✓		✓	✓		
LLRP application interface	✓	✓		✓	✓	
On reader application support	✓	✓	✓	✓	✓	✓

Backup

Side by Side



Speedway



Speedway R220

Speedway R420

- **Speedway Revolution is 78% smaller**
- **Speedway Revolution consumes 57% less power**

Speedway[®] Revolution Connectors

