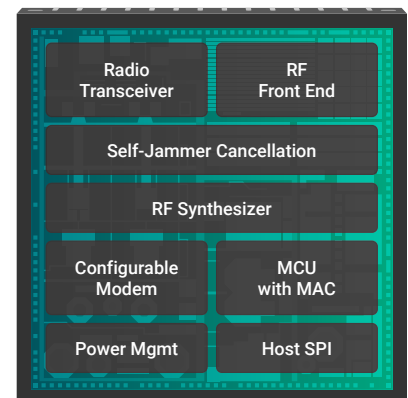# Impinj E300 Series RAIN RFID Reader Chips

Good receive sensitivity for close read range, improved read rate, and support for next-generation RAIN tags—this chip is designed for IoT devices that quickly identify, locate, and authenticate individual or small groups of tagged items.

The Impinj E310 reader chip is designed for cost-effective printers, kiosks, and security and access management systems. The Impinj E310 joins a portfolio of new systems-on-chips (SoCs) built on a heritage of the Impinj Indy series that set performance standards for over a decade. Compared to the Impinj Indy R500, the new Impinj E310 reader chip delivers:

- Good sensitivity and up to 7 dB better receive sensitivity for reliable performance in proximity uses

- 50% lower chip power consumption, supporting battery-powered, energy-efficient devices

- Up to 80% smaller RAIN RFID system designs ideal for small, next-generation devices

With industry-leading system integration and easy-to-use development tools, the Impinj E310 enables the development of quick-to-market IoT devices.

Impinj E310 Reader Chip

Why use Impinj E300 series reader chips

Embed RAIN RFID into a range of cost-effective devices: Bring RAIN RFID reading and writing capabilities to all types of devices, balancing both performance and cost. Turn any barcode product into a true IoT device that adds automation to digital transformation programs.

Build small, powerful, energy-efficient products: Target emerging use cases with small, efficient devices that stay powered longer. Add connectivity to authenticate and manage consumable products for ultimate service and convenience.

Accelerate innovation of next-generation IoT solutions: Reach emerging markets quickly with a powerful, differentiated product portfolio. The ease of use, development tools, and pre-certified partner-built modules, reduce the complexity and timeline of new product development

A new bar for performance, integration, and ease of use

High-performance, low-power design
Enables fast reading, writing, and authenticating of tags with high sensitivity and an energy-efficient design.

Integrated systems-on-chips in a 6x6mm package
Includes a radio modem, self-jammer cancellation, RF front-end, microcontroller, and power regulation.

Tools for easy design and development
Brings an uncomplicated design with fewer components to integrate, a developer-friendly SDK, simple development kit, and worldwide region support.

Impinj Reader Chip Portfolio

R500 and R2000 are not recommended for new designs.

		E910	E710	E510	E310	R2000	R500
SPECS	Air interface protocol	RAIN RFID / ISO 18000-63 and EPCglobal Gen2v2 compliant					
	Receive sensitivity[1] (dBm)	-94	-88	-82	-75	-84	-68
	Maximum read rate[2] (tags/second)	1,000		700	250	900	190
	Typical power consumption (watts)	0.5				1.5	1.1
	Package type	56-pin QFN				64-pin QFN	
	Package size (mm)	6 x 6				9 x 9	
FEATURES	Self-jammer cancellation	✓	✓	✓	✓	✓	
	Reader modes	12	12	9	5	4	4
	Impinj adaptive tag access	✓	✓	✓	✓		
	RAIN RFID integration	Radio, Modem, MAC, Baluns, and Power Detectors				Radio + Modem	
	Pin- and software-compatible	Impinj E910, E710, E510, E310				Impinj R2000, R500	
	Worldwide region support	✓	✓	✓	✓	✓	✓

[1]Sensitivity measured with 10dBm antenna reflection, at chip receive pins, FCC DRM Reader Mode, 99% success rate
[2]Maximum tag read rate measured over the air with a large tag population in a quiet RF environment

Impinj product performance is based on Impinj's modeling and test data, actual results may vary.

Ready to discuss how Impinj can help your business?

Contact us: www.impinj.com

Impinj (NASDAQ: PI) helps businesses and people analyze, optimize, and innovate by wirelessly connecting billions of everyday things—such as apparel, automobile parts, luggage, and shipments—to the Internet. The Impinj platform uses RAIN RFID to deliver timely data about these everyday things to business and consumer applications, enabling a boundless Internet of Things.

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