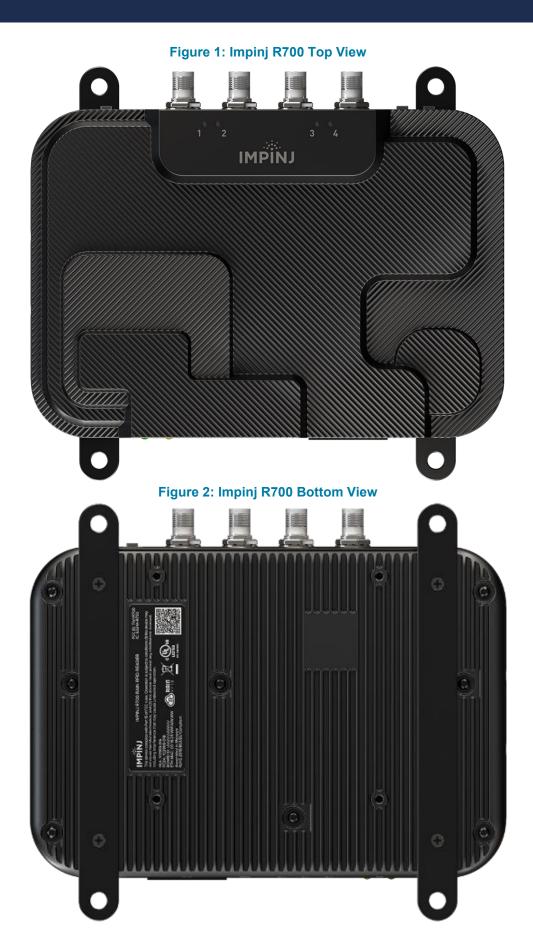# DOCUMENT OVERVIEW

The all-new Impinj R700 reader is designed to support global enterprise RAIN deployments that need high performance and reliability.

- **Enterprise-grade reliability and security**—Secure and field-upgradable; built on a heritage of best-in-class reliability

- **Designed for enterprise-grade deployments**—High-speed processing power and superior receive sensitivity for next-generation, enterprise RAIN applications

- **Connects like other IoT devices**—Easily connect to IoT applications with RESTful API and support for popular IoT data transfer technologies

- **Build powerful, custom solutions**—Embed powerful, custom on-reader applications and use versatile, standardized connections

- **Fast Connection to IoT Applications**—Gigabit Ethernet connectivity prevents data bottlenecks and lowers latency

- **Built to Withstand Tough Environments**—Ruggedized cast aluminum enclosure withstands shock; ISO IP54 water-resistant case available.

Table 1: Impinj R700 Key Specifications

SPECIFICATION	DESCRIPTION
Physical Dimensions	With mounting brackets 8.4 in. long x 7.4 in. wide x 1.2 in. deep (21.5 cm x 18.7 cm x 3.0 cm) Without brackets: : 8.4 in. width x 5.9 in. depth x 1.2 in. height inch (21.4 x 14.9 x 3.0 cm)
Power Supply	PoE (802.3af), PoE+ (802.3at)
Air Interface Protocol	EPCglobal UHF Gen2 v2 / ISO 18000-63 RFID
Antenna Ports	4, Monostatic (RP-TNC)
Transmit Power	33 dBm max (PoE+), 30 dBm max (PoE)
Receive Sensitivity	-92 dBm max
Supported Regions	USA and Canada
Processor	Dual-Core 1 GHz
Memory	1 GB Flash, 1 GB RAM
Network Connectivity	10/100/1000 BASE-T Ethernet
Device Connectivity	3 USB Type-A device connections
General Purpose I/O	3 out, 2 in

Figure 1: Impinj R700 Top View

Figure 2: Impinj R700 Bottom View

Figure 3: Impinj R700 Front View

Figure 4: Impinj R700 Back View

SPECIFICATIONS
Mechanical

Impinj R700 Mechanical Specifications

SPECIFICATION	DESCRIPTION
Physical Dimensions	With mounting brackets 8.4 in. long x 7.4 in. wide x 1.2 in. deep (21.5 cm x 18.7 cm x 3.0 cm) Without brackets: : 8.4 in. width x 5.9 in. depth x 1.2 in. height inch (21.4 x 14.9 x 3.0 cm)
Mounting	• VESA 100 x 100 • Removable bracket compatible with Impinj Speedway mounting system
Weight	2.12 lb, 0.96 kg
Housing Material	Die-cast Aluminum
Factory Reset Button	Restores reader to known factory state
LED Indicators	System status, inventory, firmware upgrade, antenna activity, network activity

Environmental

Impinj R700 Environmental Specifications

SPECIFICATION	DESCRIPTION
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Humidity	5% - 95% non-condensing
Sealing	Ingress Protection (IP) 50 rating
Shock and Vibration	United States Military Standard, MIL-STD-810G

RFID

Impinj R700 RFID Specifications

SPECIFICATION	DESCRIPTION
Air Protocol	EPCglobal UHF Class 1 Gen 2 / ISO 18000-63 RFID
Transmit Power	10 – 30 dBm (PoE), 10 – 33 dBm (PoE+)
Frequency Range	FCC: 902-928 MHz
Return Loss	10 dB min
Read Rate	Up to 1100 reads per second
Antenna Impedance	50 ohm
Max Receive Sensitivity	-92 dBm at 10^{-3} bit error rate
Gen 2 Reader Modes	11 fixed modes, 3 autopilot modes

Connectivity

Impinj R700 Connectivity Specifications

SPECIFICATION	DESCRIPTION
Network	10/100/1000 Base-T Ethernet (RJ45)
Antenna Ports	4 monostatic ports (RP-TNC)
USB	3 Type A host, 1 micro device
Power	PoE (802.3af), PoE+ (802.3at)
General Purpose I/0	3 out, 2 in optically isolated
General Purpose I/O Header	Phoenix Contact 9 pin 3.81 mm pitch

Hardware and Operating System

Impinj R700 Hardware and Operating System Specifications

SPECIFICATION	DESCRIPTION
Processor	Dual-Core 1 GHz Cortex A7
Memory	1 GB Flash, 1 GB RAM
Operating System	Linux, 5.1 kernel
Firmware	Impinj R700 LLRP with Impinj extensions
Firmware Upgrade	Web-based and remote capable
Network Stack	IPv4, IPv6
Network Services	SSH, HTTP, NTP, DHCP, SFTP, mDNS
Network Security	802.1x port security
Network Management	Event logs with syslog forwarding