Datasheet

IMPINJ® xARRAY® GATEWAY

OVERVIEW, APPLICATIONS AND SPECIFICATIONS

Version 2.3

www.impinj.com

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1 OVERVIEW

Improve item visibility throughout your facility or across your global supply chain with the Impinj xArray Gateway. The Impinj xArray gateway is a fixed infrastructure RAIN RFID reader system that provides always-on, wide-area monitoring, location, and direction of items. Designed for large-scale, item-level applications in retail, healthcare, and manufacturing, the xArray gateway provides real-time Item Intelligence events including an item's identity, location, and movement. Improve customer service, increase employee productivity, and make better business decisions. Within the RFID ecosystem, readers and gateways perform the essential role of connecting tagged items to software-based business solutions.

1.1 Key Features & Benefits

Continuous, Hands-free Monitoring

Always-on connectivity installs overhead to automatically monitor a wide area

- A single xArray gateway has a field of view up to 1,500 ft² (139m²)-monitoring portals and entrances, tracking movement and location of items
- Expand coverage area with additional xSpan or xArray Gateways

Real-Time Item Identification, Location, and Movement

Monitor inventory, determine x-y location, and track item movement along two axes

- Resolve x-y locations to within 5 ft (1.5m) and track movement in two dimensions
- Integrated phase array antenna supports 52 dual-linear polarized beams in 9 sectors

Turnkey deployment

Integrated system streamlines the deployment process and minimizes installation costs

- Power and control through a single power over Ethernet (PoE) connection
- Software options simplify configuration, application development, deployment and management

2 SPECIFICATIONS

2.1 Operation

The xArray Gateway is a high-performance RAIN RFID reader system with an integrated phased array antenna. The phase array antenna supports fifty-two beams organized into nine sectors. Each beam can be either horizontally or vertically polarized. An on-board processor controls the beam direction, orientation and polarization. The system has the capability to steer its antenna beam to read RFID tags over a wide area and detect item location and movement. The xArray can be mounted on a ceiling with power and control through a Power over Ethernet (PoE) connection.

2.2 UHF RFID Specifications

DESCRIPTION	MEASURE
Operating Frequencies *Refer to country-specific regulations for channel allocation within the band	FCC: 902-928 MHz EU1: 865-868 MHz EU2: 915-921 MHz GX1: 902-928 MHz GX2: 902-925 MHz GX3: 920-926 MHz JP2: 916-921 MHz
Radiated Power (max) *Refer to regulations for country-specific limitations"	FCC: 4W EIRP AC/PoE EU1: 2W ERP AC/PoE EU2: 4W ERP AC/PoE+ GX1: 4W EIRP AC/PoE GX2: 4W EIRP AC/PoE GX3: 4W EIRP AC/PoE JP2: 4W EIRP AC/PoE
Operating Roles	3 (inventory, direction, location)
Antenna Beams	52
Maximum Read Rate	1100 tags/s
Antenna Type	Phased array with dual linear polarized antenna elements
3dB beam width (sum of all beams)	116° major axis: all models except EU1 model 120° major axis: EU1 model
Coverage Area (typical)	1,500 ft² (139 m²): all models except EU2 model 2,000 ft² (186 m²): EU2 model
Dimensions (H x W x D)	18.0 x 18.0 x 3.0 in (46.7 x 46.7 x 7.5 cm)
Weight	17.8 lb (8.0 kg))
Regulatory Certifications	For a list of supported regions and geographies please go to: www.impinj.com/supported_regions
Power Sources	AC-DC power supply: all models IEEE 802.3af PoE: all models except EU2 IEEE 802.3at PoE+: EU2 model
Air Interface Protocol	RAIN RFID: EPCglobal UHF RFID Class 1 Gen2v2 / ISO 18000-63
Reduced Power Option (FCC region only)	YES
Receive Sensitivity (max)	-84 dBm
Network Connectivity	10/100BASE-T

USB Ports	1 device, 1 host
Management Console Port (RS-232)	RJ-45
GPIO Serial Port	NA
Factory Reset Button	YES
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-4°F to 122°F (-20°C to 50°C)
Humidity	95% non-condensing
Environmental Sealing (IEC)	IP50
Environmental Air Handling Space	NA
Shock and Vibration	NA
RoHS Compliant	YES
Reliability	Enterprise Grade
Network Protocols	SSH, HTTP, HTTPS, NTP, DHCP, SFTP, mDNS
Networking Stack	IPv4, IPv6
Management	SNMPv1, v2, v3
Security	802.1x (Port Security), TLS 1.2 for Secure LLRP
Host Interface	LLRP with Impinj Extensions
Custom Application Partition	YES
Development Libraries	Octane SDK (.NET and Java) LTK (C, C++, .NET, Java) ETK (C, C++)

2.3 Software Tools

DESCRIPTION	MEASURE
Application Development	• ItemSense • Speedway Connect • Octane Software Development Kit (SDK)

	• Octane Embedded Tool Kit (ETK) • EPCglobal Low Level Reader Protocol (LLRP) Tool Kit (LTK)
Gateway Management	• Impinj Web Management UI • Impinj Rshell Management Console using serial management console port or SSH • SNMPv2 MIBII • EPCglobal Reader Management v1.0.1 • Syslog
Site Management	• ItemSense
Performance Optimization	• ItemTest

3 REGULATORY INFORMATION

The xArray Gateway uses a common hardware and radio design but is configured at time of manufacture for specific regulatory regions. For a list of the regions and geographies that the xArray supports, go to www.impinj.com/supported_regions .

4 MAINTENANCE AND SUPPORT

All readers and gateways are covered by a Limited Hardware Warranty.

Extended warranty adds 1, 2, or 3 years of warranty benefits to the initial limited hardware warranty for an Impinj reader or gateway. For example, if a you purchase a 3-year extended warranty when purchasing a new Impinj reader or gateway, you receive 4 years of warranty benefits (1-year Initial Limited Hardware Warranty + 3-year extension). An extended warranty must be purchased at least 90-days prior to the expiration of an existing initial limited hardware or extended warranty. Product warranty options

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