IDN ULR700

Fixed RAIN RFID Reader for Enterprise and IoT solutions

The ULR700 reader is designed to support global RAIN deployments that need industry-leading performance, enterprise-grade reliability and security, and support for next-gen RAIN tags.

Empowers reading tags farther and faster,
and speeds time-to-solution
The ULR700 reader provides industry-leading performance, enterprise reliability and security, and modern developer tools. IoT developers can easily build and deploy custom enterprise applications with a Linux OS, REST API, and native support for industry-standard data formats and protocols, such as MQTT. The URL700 delivers increased support for on-reader applications—including 10x the processing power.

Why use the Impinj R700 reader
Suitable for global RAIN RFID deployments, URL700 readers deliver the performance and ease of use needed by enterprise deployments.
Deliver industry-leading performance: leverage industry-leading sensitivity, powerful edge processing, and highspeed network connectivity to enable fast reading of small, global RAIN RFID tags and open up new use cases.
Simplify RAIN deployments with IoT edge device: speed time-to-solution with increased on-reader memory, plus the IoT device interface that empowers IoT developers to easily connect applications to configure and control devices, and to consume RAIN data.
Meet demands of next-generation RAIN solutions: future-proof investments in RAIN RFID and next-gen tag chips with performance, reliability, and deployment simplicity for enterprise-grade solutions.

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Connect everything with features that deliver industry-leading performance

Industry-leading sensitivity
Empowers reading tags farther and faster, and futureproofing of IoT solutions.
Powerful edge processing
Enables intelligent, on-reader, RAIN tag-processing algorithms.
Secure, upgradable Linux OS
Delivers enterprise-grade security and reliability, and the flexibility to customize with on-reader applications.
Simple IoT device interface
Easily connects IoT applications to configure and control devices, and to consume RAIN data, with native support for MQTT.
Optimized design for inventory
Increases read rate and improves read zone control at lower transmit power.
Rich peripheral and accessory support
Provides versatility with support for USB drives, Wi-Fi adapters, and up to 32 antennas via optional antenna hub.

Front view

Back view

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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 ×100 mm on bottom of the enclosure Two removable brackets 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

Enviromental 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

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) with LLDP for power negotiation
General Purpose I/0	3 out, 2 in optically isolated
General Purpose I/O Header	Phoenix Contact 9 pin 3.81 mm pitch

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RFID Specifications

Specification	Description
Air Protocol	EPCglobal UHF Class 1 Gen 2 / ISO 18000-63 RFID
Transmit Power	10 – 30 dBm (PoE All Models, Japan) 10 – 31.5 dBm (PoE+, ETSI Lower Band) 10 – 33 dBm (PoE+, FCC / ETSI Upper Band)
Transmit Power Resolution	0.25 dB
Transmit Power Accuracy	+/- 0.5 dB
Frequency Range	IPJ-R700-341 Global Reader: 902 – 928 MHz IPJ-R700-241 ETSI Reader 865 – 868 MHz, 915 – 921 MHz IPJ-R700-441 Japan Reader 916.7 to 920.9 MHz
Return Loss	10 dB min
Read Rate	Up to 1100 reads per second
Antenna Impedance	50 ohms
Max Receive Sensitivity	-92 dBm at 10-3-bit error rate, Dense Reader M8 reader mode
Gen 2 Reader Modes	Static and Dynamic RF Modes various per region

Operating System Specifications

Specification	Description
Processor	Dual-Core 1 GHz Cortex A7
Memory	1 GB Flash, 1 GB RAM
Operating System	Linux, 5.4 kernel
Firmware	Impinj R700 Firmware
Firmware Upgrade	Web-based and remote capable
Network Stack	IPv4, IPv6
Network Services	SSH, HTTP, HTTPS, NTP, DHCP, SFTP, mDNS
Network Security	802.1x port security
Network Management	Event logs with syslog forwarding

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GPIO Specifications

Pin	Assignment
1	+5V (500 mA max current)
2	Chassis GND
3	IN 0
4	IN 1
5	OUT 0
6	OUT 1
7	OUT 2
8	V MINUS
9	V PLUS

Specification	Description
V PLUS	5 – 30 V (reference to V MINUS)
Input Logic 0	0 - 0.8 V
Input Logic 1	3 – 30 V
Output Logic 0	0 – 0.5 V (reference to V MINUS)
Output Logic 1	V PLUS – 0.5 V
GPO Current Draw	1.5 A Source or Sink
Isolation	Optical

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