IMPINJ R420

IMPINJ Speedway Revolution R420 UHF RFID Reader - 4 Port User Manual

Model: R420

INTRODUCTION

This manual provides essential instructions for the setup, operation, maintenance, and troubleshooting of the IMPINJ Speedway Revolution R420 UHF RFID Reader. Please read this document thoroughly before using the device to ensure proper functionality and safety.

Figure 1: IMPINJ Speedway Revolution R420 UHF RFID Reader. This image displays the top-down view of the RFID reader, highlighting its compact design and various ports.

SETUP INSTRUCTIONS

Follow these steps to properly set up your Speedway Revolution R420 RFID Reader.

1. Power Connection

The R420 reader supports Power over Ethernet (PoE) or an external 24V, 1.0A power supply. Ensure you use the appropriate power source.

- **PoE:** Connect an Ethernet cable from a PoE-enabled switch or injector to the Ethernet port on the reader.
- **External Power:** If PoE is not used, connect a compatible 24V, 1.0A power adapter to the '+24V === 1.0A' power input port.

2. Network Connection

Connect the reader to your network using a standard Ethernet cable. The Ethernet port is an RJ45 type.

3. Antenna Connection

The R420 features four antenna ports (ANT 1, ANT 2, ANT 3, ANT 4). Connect your UHF RFID antennas to these ports. Ensure secure connections for optimal performance.

4. Peripheral Connections

- **USB Host:** For connecting USB peripherals.
- **USB Device:** For connecting the reader to a host computer.
- **Console:** For serial communication and configuration.
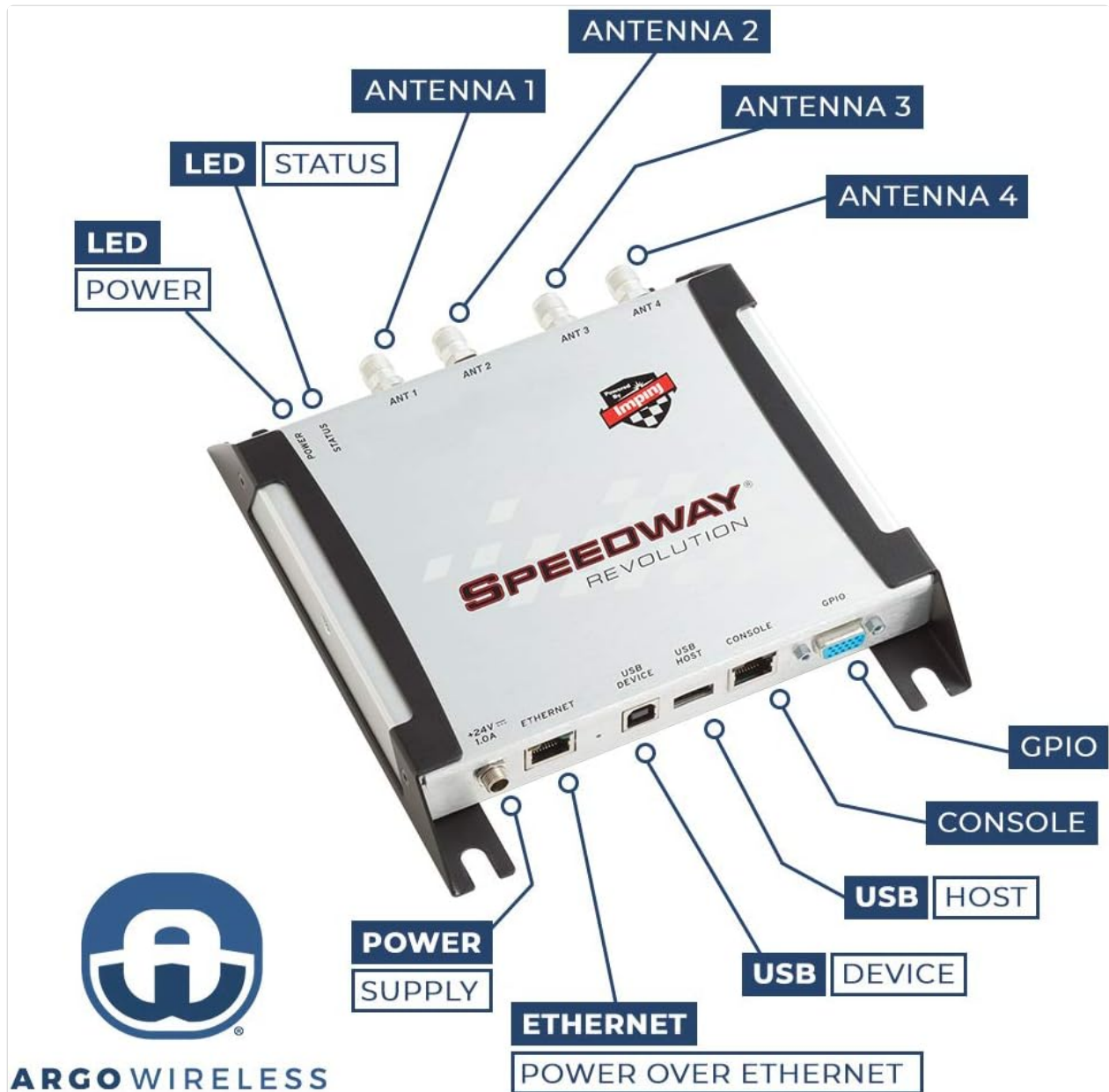- **GPIO:** General Purpose Input/Output for external device control and sensing.

Figure 2: Labeled diagram of the IMPINJ Speedway Revolution R420 ports. This image clearly indicates the location of the Power LED, Status LED, Antenna ports (ANT 1-4), Power Supply input, Ethernet port, USB Device port, USB Host port, Console port, and GPIO port.

Figure 3: Rear view of the IMPINJ Speedway Revolution R420 showing the power input, Ethernet, USB, Console, and GPIO ports. This image provides a detailed look at the connectivity options on one side of the reader.

Figure 4: Front view of the IMPINJ Speedway Revolution R420 displaying the four antenna ports. This image highlights the antenna connectivity side of the device.

OPERATING INSTRUCTIONS

The IMPINJ Speedway Revolution R420 is a high-performance UHF RFID reader designed for various applications.

1. Power On

Once all connections are secure, apply power to the reader. The **POWER** LED indicator will illuminate, and the **STATUS** LED will indicate the operational state.

2. Software Configuration

The reader requires software configuration for specific RFID tag reading operations. This typically involves using Impinj's reader management software or integrating with custom applications via its API. An easy-to-use API is available for C# applications, allowing for custom business logic implementation.

3. Applications

The R420 is suitable for a wide range of applications, including:

- Inventory Management
- Asset Tracking
- Supply Chain Management
- Retail Operations
- Manufacturing Processes
- Healthcare Systems
- Logistics

With proper antenna configuration, the reader can detect standard UHF tags at ranges of 30-50 feet.

MAINTENANCE

To ensure the longevity and optimal performance of your IMPINJ Speedway Revolution R420 reader, follow these general maintenance guidelines:

- **Cleaning:** Keep the device clean and free from dust and debris. Use a soft, dry cloth for cleaning. Avoid liquid cleaners that could damage internal components.
- **Environmental Conditions:** Operate the reader within its specified environmental conditions (temperature, humidity) to prevent damage.
- **Connection Checks:** Periodically inspect all cable connections (power, Ethernet, antennas, USB,

console, GPIO) to ensure they are secure and free from damage.

- **Firmware Updates:** Check the manufacturer's website for any available firmware updates. Keeping the firmware up-to-date can improve performance and add new features.

TROUBLESHOOTING

If you encounter issues with your Speedway Revolution R420, consider the following troubleshooting steps:

- **No Power:** Verify that the power supply is correctly connected and providing the specified voltage (24V, 1.0A) or that the PoE source is active. Check the **POWER** LED indicator.
- **No Network Connectivity:** Ensure the Ethernet cable is securely connected to both the reader and the network switch/router. Check network settings and IP configuration.
- **Unable to Read Tags:**
  - Confirm antennas are properly connected to all four ports.
  - Verify antenna cables are not damaged.
  - Check software configuration for antenna power levels and read settings.
  - Ensure tags are within the read range and orientation.
- **Status LED Issues:** Refer to the Impinj documentation for specific **STATUS** LED patterns and their meanings to diagnose operational issues.
- **Software Communication Problems:** Ensure the correct drivers are installed for USB or console connections. Verify network settings for Ethernet communication.

For advanced troubleshooting or persistent issues, consult the official Impinj documentation or contact technical support.

SPECIFICATIONS

Feature	Detail
Brand	IMPINJ
Model Number	R420 (LYSB00KHR41CY-ELECTRNCS)
Connector Type	RJ45 (Ethernet)
Cable Type	Ethernet
Compatible Devices	Network Device, Personal Computer, Router, Server
Special Feature	PoE (Power over Ethernet)
Recommended Uses	Inventory management, asset tracking, supply chain management, retail, manufacturing, healthcare, logistics
Connector Gender	Female-to-Female
Number of Pins	8 (for RJ45)
Unit Count	1 Count

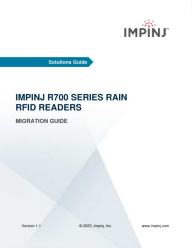| Specification Met	FCC
Item Weight	2.29 pounds
Package Dimensions	12.3 x 9.5 x 2.9 inches
UPC	754235664055, 633131662788
Date First Available	March 20, 2013

WARRANTY INFORMATION

The IMPINJ Speedway Revolution R420 RFID Reader is sold as a brand new unit and comes with a full manufacturer's warranty. For specific terms and conditions of the warranty, please refer to the official Impinj warranty documentation or contact Impinj directly.

SUPPORT AND CONTACT

For technical assistance, product inquiries, or to explore the full line of Impinj products, please contact your authorized Impinj reseller or visit the official Impinj website. If you purchased this product from a reseller and require support, please reach out to them directly for assistance.

Related Documents - R420

	Impinj Speedway Reader Quick Start Guide A concise guide to quickly start using the Impinj Speedway reader, covering powering options, network connectivity, firmware updates, and using the Impinj ItemTest software.
	Impinj R700 Series RAIN RFID Readers Migration Guide This guide provides essential information for migrating from Impinj Speedway R420 RAIN RFID readers to the Impinj R700 and R720 series, detailing differences in mechanical specifications, connectivity, RF performance, and software compatibility.
	Impinj R510 RAIN RFID Reader Quick Start Guide A concise guide for setting up and using the Impinj R510 RAIN RFID Reader, covering connections, firmware updates, and basic tag reading with Impinj ItemTest software.

[Impinj RS1000 Development Kit Quick Start Guide](#)

Quick start guide for the Impinj RS1000 Development Kit, detailing hardware setup, software installation, initial tag reading, and troubleshooting common issues for RAIN RFID applications.

[Impinj R700 Antenna Hub Quick Start Guide](#)

This guide provides basic instructions to configure an RFID system using the Impinj R700 Antenna Hub with an Impinj R700 RAIN RFID Reader. It covers connecting RF cables, logging into the reader, enabling the Antenna Hub feature, verifying antenna connections, and mounting the hub.

[Impinj R700 RAIN RFID Reader: Enterprise-grade IoT Solutions](#)

Discover the Impinj R700 RAIN RFID Reader, designed for global enterprise deployments. Features industry-leading performance, security, IoT edge capabilities, and support for next-generation RAIN tags.