





RoyalRay RRU Series Ex10 UHF RFID Module User Manual

Home » RoyalRay » RoyalRay RRU Series Ex10 UHF RFID Module User Manual

Contents

- 1 RoyalRay RRU Series Ex10 UHF RFID
- Module
- **2 Product Information**
- **3 Product Information**
- 4 Models
- **5 GENERAL DESCRIPTION**
- **6 FEATURES**
- 7 CHARACTERISTICS
- 8 INTERFACE
- 9 MECHANICAL DATA
- **10 Application Information**
- 11 FCC Statement
- 12 Documents / Resources
 - 12.1 References
- 13 Related Posts



RoyalRay RRU Series Ex10 UHF RFID Module



Product Information

Specifications

• Model: RRU71717M RRU51717M RRU31717M

• **Size:** 17 x 17 x 2.5mm

Product Information

General Description

The Ex10 UHF RFID Module(1-Port) is based on the E310 chip design, Gen2 Extension Ready, with ultimate small size, low power consumption, and low cost. It comes in an SMD form factor with a maximum RF output of 27dBm, making it suitable for various small desktop and mobile devices. The module supports ISO18000-6C(EPC C1G2) protocol tags and offers excellent multi-tag anti-collision functionality.

Features

- · Self-intellectual property
- Supports IMPINJ E710/E510/E310 designs
- Frequency band: 865~868MHz/902~928MHz
- RF output power up to 27dBm (adjustable)
- Effective distance up to 6m*
- Maximum inventory speed up to 1000pcs/s (using E710) or 600pcs/s (using E510) or 350 pcs/s

Characteristics

Absolute Maximum Ratings:

Power Supply: -20 ~ +65 V
Operating Temp: -40 ~ +85 °C

• Storage Temp: -40 ~ +85 °C

Electrical and Mechanical Specification

Under TA=25°C, VCC=+5V unless specified:

• Power Supply: 3.6-5V

• Current Dissipation: 360mA (active), 67mA (standby)

• Frequency: 865~868MHz (ETSI), 902~928MHz (FCC)

• RF Output Power: up to 27dBm

• Receive Sensitivity: -74dBm (using E310), -81dBm (using E510), -87dBm (using E710)

Interface

NO.	SYMBOL	COMMENT
1	VCC	Power Supply

Mechanical Data

(UNIT: mm)

Product Usage Instructions

FAQQ: Can I customize the frequency band for this module?

A: Yes, frequency customization is optional for the Ex10 UHF RFID Module.

Models

- RRU71717M
- RRU51717M
- RRU31717M

Size: 17 x 17 x 2.5mm

GENERAL DESCRIPTION

Based on the E310 chip design, Gen2 Extension Ready, has the ultimate small size, low power consumption, low cost, SMD form factor, and maximum RF output of 27dBm, making it the best choice for various small desktop and mobile devices. Additionally, sub-versions based on the E710 and E510 are available.

FEATURES

- Self-intellectual property;
- Designed with IMPINJ E710/E510/E310 and support ISO18000-6C(EPC C1G2) protocol tag, featuring excellent multi-tag anti-collision functionality;
- 865~868MHz/902~928MHz frequency band(frequency customization optional);
- FHSS or Fix Frequency transmission;
- RF output power up to 27dbm(adjustable);
- Positioning holes used to facilitate connection to the external antenna;
- Effective distance up to 6m*(with external 3.81dBi antenna and tag E41);

- Maximum inventory speed up to 1000pcs/s (using E710) or 600pcs/s (using E510) or 350 pcs/s (using E310);
- Tag buffer size up to 1000PCS@96bits EPC;
- Low power dissipation with single +3.6~5.5VDC power supply;
- Support RSSI;
- Capable of continuous operation for 24 hours × 365 days;
- Support on-the-site firmware upgrading.
- Effective reading distance and tag interrogation speed are directly related to the antenna, tags, and the working environment.

CHARACTERISTICS

Absolute Maximum Ratings

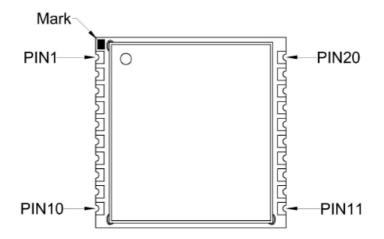
ITEM	SYMBOL	VALUE	UNIT
Power Supply	VCC	6	V
Operating Temp	TOPR	-20 ~ +65	°C
Storage Temp	TSTR	-40 ~ +85	°C

Electrical and Mechanical Specification

Under TA=25°C,VCC=+5V unless specified

ITEM	SYMBOL	MIN	TYP	MAX	UNIT
Power Supply	VCC	3.6	5	5.5	V
Current Dissipation	Ic(active) Ic(standby)	360	67(standby)	600(27dBm)	mA
Frequency	F _{REQ}	-	865~868(ETSI) 902~928(FCC)	-	MHz
RF Output Power	P_RF	5		27	dBm
Receive Sensitivity	SR		-74(using E310) -81(using E510) -87(using E710)		dBm

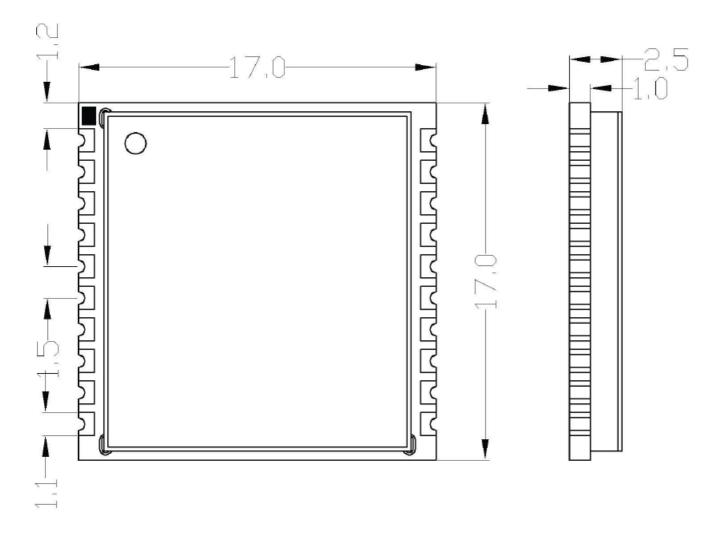
INTERFACE



NO.	SYMBOL	COMMENT
1	VCC	Power Supply
2	GND	Ground
3	EN	Enable, active high
4	GPO2	General Output 2 (3.0V TTL level)
5	GPI1	General Output 1 (3.3V TTL level compatible)
6	GPI2	General Output 2 (3.3V TTL level compatible)
7	RXD	Serial data Input (3.3V TTL level compatible)
8	TXD	Serial data Output (3.3V TTL level compatible)
9	RST	Module reset, active low
10	GPO1	General Output 1 (3.0V TTL level)
11	GND	Ground
12	ANT	Antenna
13	GND	Ground
14	GND	Ground
15	NC	Reserved
16	NC	Reserved
17	NC	Reserved
18	NC	Reserved
19	VOUT	3.0V output (max. 20mA)
20	GND	Ground

MECHANICAL DATA

MECHANICAL DATA (UNIT: mm)



Application Information

- 1. When designing a fixed reader, please take care of heat sinking and remember to make sure the heat sinker of the module is closely and stably attached to the reader's bottom plate;
- 2. Please refer to the User's Manual for a detailed protocol description.

Remark:

- 1. Specifications are subject to change, please pay attention to our latest version.
- 2. Shenzhen RoyalRay Science and Technology Co., Ltd. reserves the right to the final interpretation of the above terms.

FCC Statement

FCC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fixed devices only. This modular cannot be installed in any portable device, for example, USB dongle-like transmitters are forbidden. This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and the user body. If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: 2BA5U-RRU31717M"

When the module is installed inside another device, the user manual of this device must contain below warning statements:

- 1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 - 1. This device may not cause harmful interference, and
 - 2. This device must accept any interference received, including interference that may cause undesired operation.
- 2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

The host product manufacturer is responsible for compliance with any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

The end user manual shall include all required regulatory information/warning as shown in this manual, including:

This product must be installed and operated with a minimum distance of 20 cm between the radiator and the user body.

This equipment has been tested and found to comply with the limits for a Class B digital device, under part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used by the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party. Responsible for compliance could void the user's authority to operate this equipment. (Example- use only shielded interface cables when connecting to computer or peripheral devices).

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference, and
- 2. This device must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement:

The equipment complies with FCC Radiation exposure limits set forth for uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

Shenzhen RoyalRay Science and Technology Co., Ltd

• ADD: Suite FC, 4F, A1 Building, Xiufeng Industrial Park, NO.2 Xiufeng Road, Longgang District, Shenzhen,

P.R.C.

• Website: www.rr-rfid.com

• Fax: +86 755 25531562

• Tel: +86 755 25531562 25606619 25636705

• Email:

- support@rr-rfid.com
- market@rr-rfid.com.

Documents / Resources



RRU71717M, RRU51717M, RRU31717M, RRU Series Ex10 UHF RFID Module, RRU Series, E x10 UHF RFID Module, UHF RFID Module, RFID Module, Module

References

- Products | HID Global
- O RoyalRay RFID Module | RFID Reader | IMPINJ GOLDPARTNER
- User Manual

Manuals+, Privacy Policy

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.