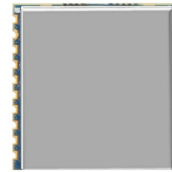



 **RoyalRay**
Ex10-UHF-RFID
Module



RoyalRay Ex10 UHF RFID Module User Guide

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RoyalRay Ex10 UHF RFID Module



Specifications:

- **Model:** RRU72121M RRU52121M RRU32121M
- **Size:** 21mm x 21mm x 3.5mm
- **Antenna Gain:** 3.81dBi
- **RF Output Power:** 5-27dBm
- **Operating Temperature:** -20°C to +65°C
- **Storage Temperature:** -40°C to +85°C
- **Frequency Range:** 865-868MHz (ETSI), 902-928MHz (FCC)

Product Usage Instructions

Power Supply Connection:

Connect the module as per the following pinout:

- VCC – Power Supply (3.6V to 5.5V)
- GND – Ground

Antenna Connection:

Connect the antenna to the ANT pin and ensure proper grounding.

Data Communication:

Use the RXD and TXD pins for serial data input and output communication respectively.

Module Reset:

To reset the module, apply a low signal to the RST pin.

FAQ

- **Q: What is the maximum RF output power of the module?**
 - **A:** The module has a maximum RF output power of 27dBm.
- **Q: What is the operating temperature range of the module?**
 - **A:** The module can operate within a temperature range of -20°C to +65°C.

Model: RRU72121M

RRU52121M

RRU32121M

Size: 21mmx21mmx3.5mm

GENERAL DESCRIPTION

Based on the E310 chip design, Gen2 Extension Ready, ultra-small size, low power consumption, low cost, SMD form factor, maximum RF output of 27dBm, real-time temperature monitoring, making it the best choice for various small desktop and mobile devices.

FEATURES

- Self-intellectual property;
- Designed with IMPINJ 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);
- Support external antenna;
- Effective distance up to 6m*(with external 8dbi antenna and tag E41);
- Maximum inventory speed up to 350 pcs/s;
- Tag buffer size up to 1000PCS@96bits EPC;
- Low power dissipation with single +3.6~5.5VDC power supply;
- Support RSSI;
- High stability with air cooling and no extra heat sinking;
- Capable of continuous operation for 24 hours×365 days;
- Support on-the-site firmware upgrading.
- **Antenna type:** Ceramic Antenna,
- **Antenna gain:** 3.81dBi
- Effective reading distance and tag interrogation speed are directly related to the antenna, tags, and the working environment.

CHARACTERISTICS

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

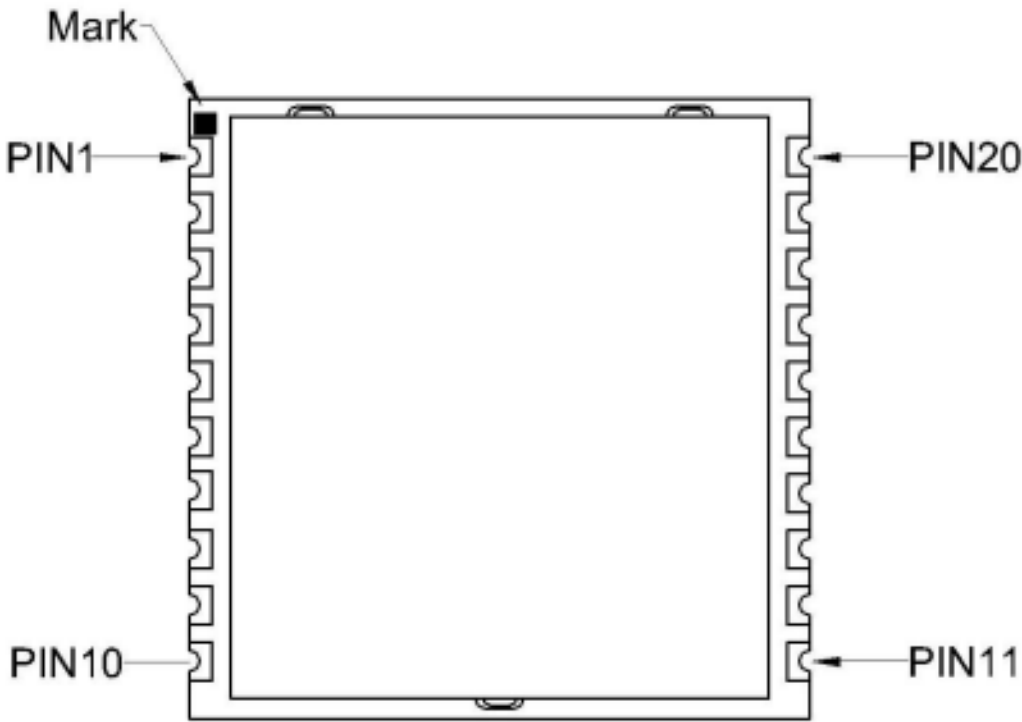
- Absolute Maximum Ratings

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	I _C (active) I _C (standby)	67		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		dBm

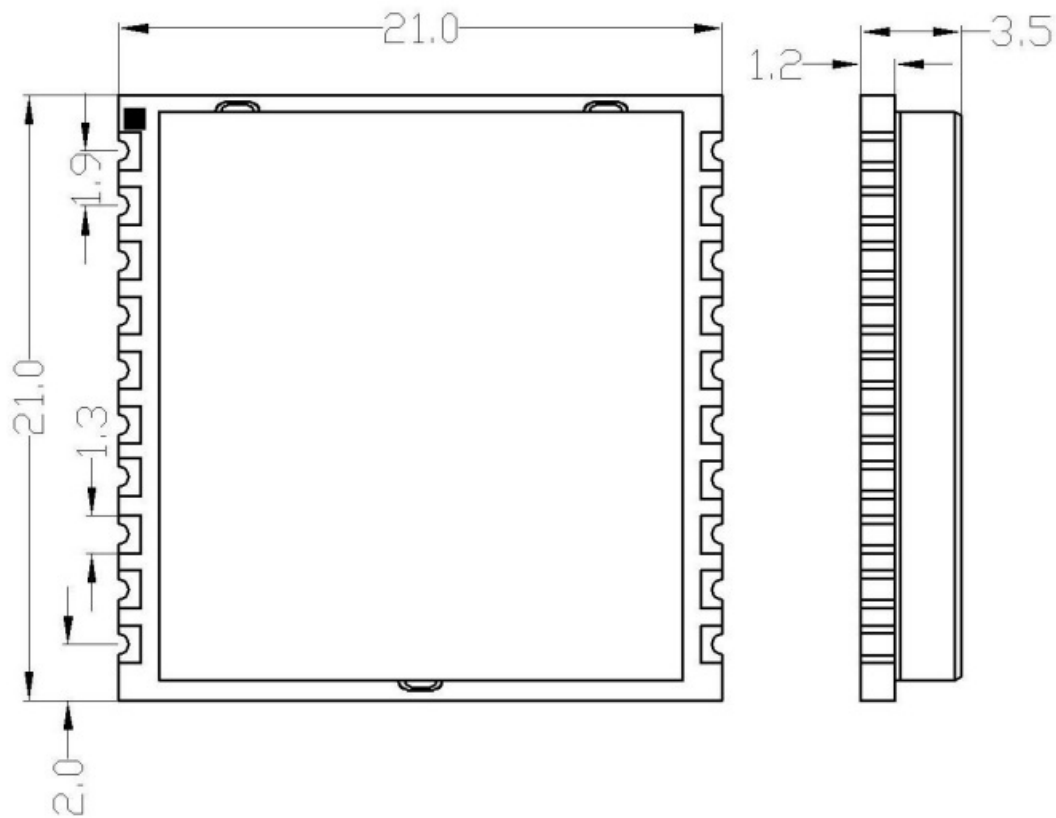
INTERFACE



NO.	SYMBOL	COMMENT
1	VCC	+3.6V ~ +5.5V 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

This equipment has been tested and found to comply with the limits for a ClassB digital device, pursuant to 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 in accordance with 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 into 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 environments. This equipment should be installed and operated with a minimum distance 20cm between the radiator and your body.


Shenzhen RoyalRay Science and Technology Co., Ltd

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Documents / Resources

	<p>RoyalRay Ex10 UHF RFID Module [pdf] User Guide RRU72121M, RRU52121M, RRU32121M, Ex10 UHF RFID Module, Ex10, Ex10 RFID Module, UHF RFID Module, RFID Module, UHF Module, Module</p>
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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