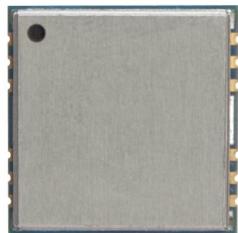


Ex10 UHF RFID Module(1-Port)



**Model: RRU71515M
RRU51515M
RRU31515M**

Size: 15 x 15 x 2.3mm

GENERAL DESCRIPTION

Based on the E310 chip design, Gen2 Extension Ready, ultimate small size, low power consumption, low cost, SMD form factor, 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 external antenna;
- Effective distance up to 6m*(with external 8dbi 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.
- Comply with FCC PART 15 SUBPART C.

*Effective reading distance and tag interrogation speed are directly related to the antenna, tags, and the working environment.

CHARACTERISTICS

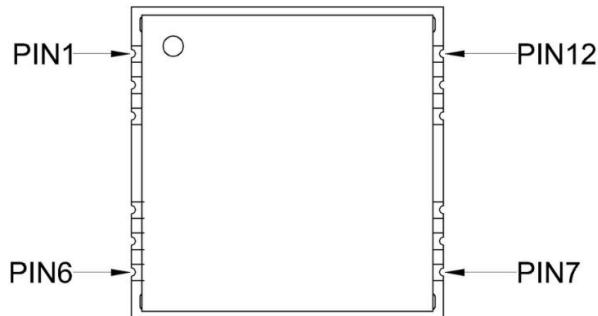
● Absolute Maximum Ratings

ITEM	SYMBOL	VALUE	UNIT
Power Supply	VCC	6	V
Operating Temp	T _{OPR}	-20 ~ +65	°C
Storage Temp	T _{STR}	-40 ~ +85	°C

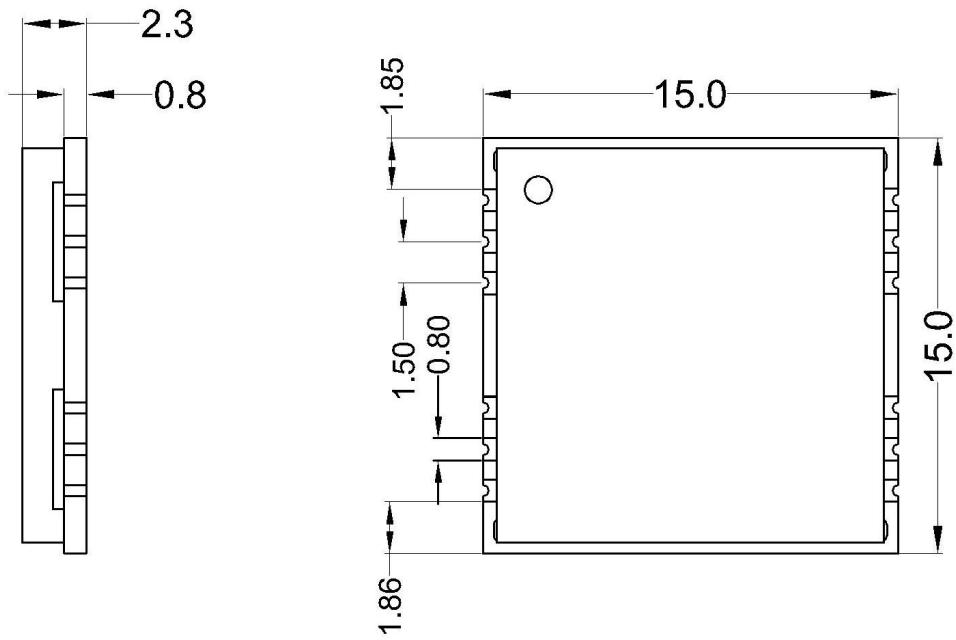
● Electrical and Mechanical Specification

Under $T_A=25^\circ\text{C}$, $VCC=+5\text{V}$ 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)	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	RXD	Serial data Input (3.3V TTL level compatible)
5	TXD	Serial data Output (3.3V TTL level compatible)
6	GPO2	General Output 2 (3.0V TTL level)
7	GND	Ground
8	ANT	Antenna
9	GND	Ground
10	NC	Reserved
11	NC	Reserved
12	GPO1	General Output 1 (3.0V TTL level)

MECHANICAL DATA (UNIT: mm)**Application Information**

1. When designing 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 User's Manual for 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 Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device, for example, USB dongle like transmitters is 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 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-RRU31515M or Contains FCC ID: 2BA5U-RRU31515M"

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 to 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, include:

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

UHF RFID ANTENNA CA504005D-US

Summary

CA504005D-US is based on ceramics, with a double feed point design and a flat structure. It has the characteristics of low reflection loss, small axial ratio, and high gain. The ultra-wide microwave receiving frequency range is 920-925MHz, with a center frequency of 922.5MHz. UHF RFID ceramic antennas are mainly used in production process identification, product anti-counterfeiting detection and other systems.

The ceramic antenna can operate normally at temperatures ranging from -40 °C to 80 °C, and with the UHF RFID reader module, the optimal recognition distance can reach about 3m to 5m. The antenna design has very high stability, and there is no directional requirement for reading RFID electronic tags.

Antenna electrical performance characteristics

NO	PROJECT	INDEX	Allowable error
1	Frequency range	920MHz—925MHz	±5.0MHz
2	Center frequency	922.5MHz	±2.0MHz
3	Bandwidth	10MHzMin	±0.5MHz
4	Standing wave ratio	1.2Min	±0.2
5	Gain	+4.0DBI	±0.2
6	Output Impedance	50Ohm	±0.5
7	temperature coefficient	20max	----

MECHANICAL SPECIFICATIONS

Antenna Dimension	50×50×8mm
RF output Connector	Customizable
Mounting Method	Screw installation
Shockproof Grade	IK08

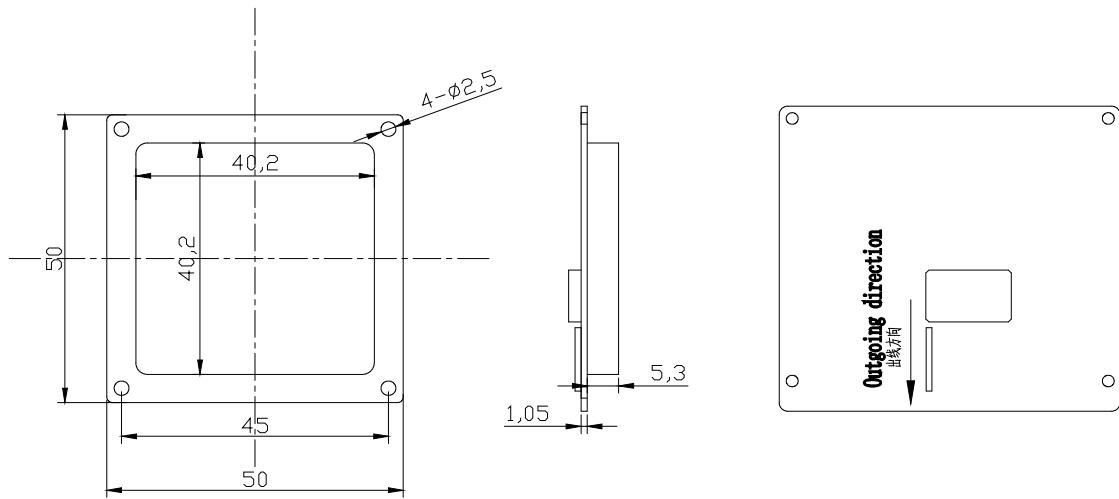
ENVIRONMENTAL CONDITIONS

Operating Temp.	-40°C ~ +85°C
Storage Temp.	-40°C ~ +85°C

Manufacturer: Shenzhen RoyalRay Science and Technology Co., Ltd

Address: West Wing, 4F, A1 Building, Xiufeng Industrial Park, No.2 Xiufeng Road, Longgang District, Shenzhen, China

ANTENNA DIMENSIONS (Unit:mm)



Unmarked dimensional tolerance ± 0.2

