

unitech RM300 Plus UHF RFID Reader Module User Manual

Home » unitech » unitech RM300 Plus UHF RFID Reader Module User Manual



Contents

- 1 unitech RM300 Plus UHF RFID Reader
- Module
- 2 FAQs
- 3 Overview
- 4 Dimension
- **5 Pin Assignment**
- **6 Specifications**
- 7 Getting Started
- 8 FCC
- 9 Adapter Notice
- **10 Warranty Policy**
- 11 Documents / Resources
 - 11.1 References
- 12 Related Posts



unitech RM300 Plus UHF RFID Reader Module



FAQs

Q: Can I use this device outdoors?

A: The device is recommended for indoor use only to comply with regulations and reduce interference with other systems.

Q: How far should RFID tags be from the reader for optimal scanning?

A: Position RFID tags within a suitable range specified in the manual for accurate scanning results.

Overview

Package

Please make sure the following contents are in the RM300 Plus gift box. If something is missing or damaged, please contact your Unitech representative.

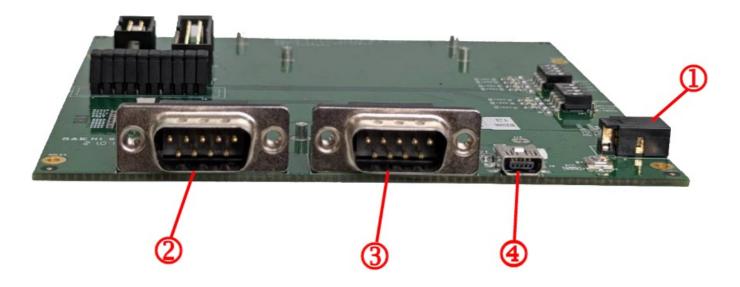
- 4-Port UHF RFID Reader Module
- Interface Board
- Power Adaptor
- Heat Sink
- Antenna

- Antenna Cable
- RFID Tags
- Screws

Optional Accessories

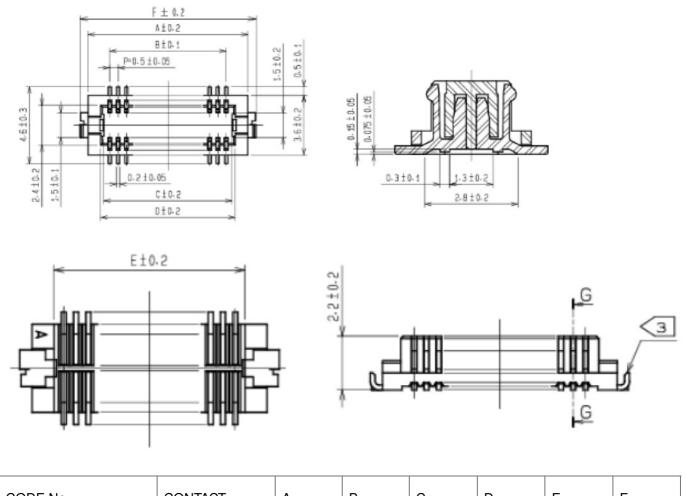
- mini-USB Cable
- RS232 Cable

Interface Board



- 1. Power Inlet
- 2. Debug Port
- 3. UART Inlet
- 4. mini USB Port

Dimension



CODE No.	CONTACT	А	В	С	D	E	F
CL537-0189-0-51	50	14.6	12	12.7	13.1	12.8	15.6

Pin Assignment

Pin	Туре	Function
1	I	UART_CTS
2	0	UART_RTS
3	0	UART_TX
4	I	UART_RX
5	Р	Power / Signal Ground
6	I	BD_RESET
7	I	BD_PWR_EN_N

8	Ю	GPIO_6
9	10	GPIO_5
10	10	GPIO_4
11	10	GPIO_3
12	10	GPIO_2
13	I	DBUG_RX
14	О	DBUG_TX
15	Р	Power / Signal Ground
16	Р	+5V Power Supply
17	Р	+5V Power Supply
18	Р	+5V Power Supply
19	Р	+5V Power Supply
20	Р	+5V Power Supply
21	Р	+5V Power Supply
22	Р	+5V Power Supply
23	Р	+5V Power Supply
24		N/C
25	Р	VBUS 5V

Pin	Туре	Function
26	Р	Power / Signal Ground

27	Ю	USB_D-
28	Ю	USB_D+
29	Р	Power / Signal Ground
30	Р	Power / Signal Ground
31	Р	Power / Signal Ground
32	Р	Power / Signal Ground
33	Р	Power / Signal Ground
34	Р	Power / Signal Ground
35	Р	Power / Signal Ground
36	Р	Power / Signal Ground
37	Р	Power / Signal Ground
38	Р	Power / Signal Ground
39	Р	Power / Signal Ground
40	Р	Power / Signal Ground
41	Р	Power / Signal Ground
42	Р	Power / Signal Ground
43	Р	Power / Signal Ground
44	Р	Power / Signal Ground
45	Р	Power / Signal Ground
46	Р	Power / Signal Ground
47	Р	Power / Signal Ground

48	Р	Power / Signal Ground
49	Р	Power / Signal Ground
50	Р	Power / Signal Ground

Specifications

Protocol			
RFID	EPCglobal Gen 2 (ISO 18000-6C), DRM		
Architecture			
RFID ASIC	IMPINJ E710		
Processor	STM32F413VGH6TR		
Power			
Voltage	5V VDC		
Current Consumption	Scan Mode: 2 A (Max), Idle Modes: 0.2 A (Typical)		
Interface			
Connector	50-pin (HRS-DF12 SMT connector)		
UART	Baud rates: 9,600 to 115,200 bps, Logic levels: 3.3 / 5 V		
USB	USB 2.0 Full Speed (12 Mbps)		
GPIO	4 GPIO pins, Logic levels: 3.3 / 5 V		
API Interface	Impinj		
RF			

Antenna Connector	Four MMCX antenna connectors supporting 4 mono-static antennas, or one bi-st atic antenna		
	FCC (US) 860-960MHz SRRC (China) 920.5 – 924.5 MHz		
	TELEC (Japan) 916.8 – 923.4 MHz		
Frequency	NCC (Taiwan) 922 – 928 MHz		
TX power	Adjustable from 5-33 dBm @ +/-1 .0 dBm accuracy		
Frequency Stability	±20 ppm		
Harmonic	under 65.0dBc		
Modulation Depth	90% nominal		
Data Encoding	FM0 or Miller code		
Bit Rate	Supports uplink data rates of up to 640 Kbps		
Performance			
Tag Read Rate	1,000 tags/second		
Inventory Reliability	Through anti-collision		
Tag Read Distance	15m with a 6 dBi antenna (36 dBm EIRP)		
Regulatory Approvals			
Certification obtained: FCC, CE, TELEC, NCC Certifiable: SRRC			

Environmental Compliance			
Temperature Range	Operating: -20 to +60°C; Storage: 30 to + 85°C		
Humidity	10% – 85% Non-condensing		
Electrostatic	10 KV to antenna conductor with the antenna attached		
Shock	2000 G ± 5% for a period of 0.85 ± 0.05msec over three (3) axes (X, Y and Z), two (2) directions per axis at all temperatures		
ESD	±2kV (HBM) at pins; receiver pin ±1kV		
Physical			
Dimensions	76.5mm (L) x 50mm (W) x 4.2 mm (H)		
Software			
Platform support	PC Windows & Android		
Development Tools	TagAccess		

Note: The device is restricted to indoor use only when operating in the $5250-5350 \, \text{MHz} / 5945 \, \text{to} \, 6425 \, \text{MHz}$ (for LPI) frequency range

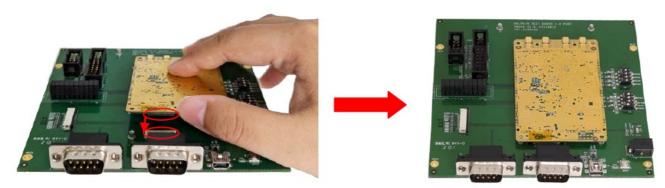


Getting Started

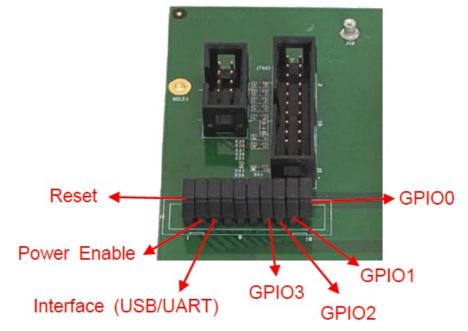
Connect the RM300 Plus to A PC

Before operating the TagAccess software for RFID device development, follow the steps below to connect the RM300 Plus to a PC.

- 1. Install the TagAccess on your PC.
- 2. Mount the RM300 Plus UHF RFID Reader Module onto the interface board.



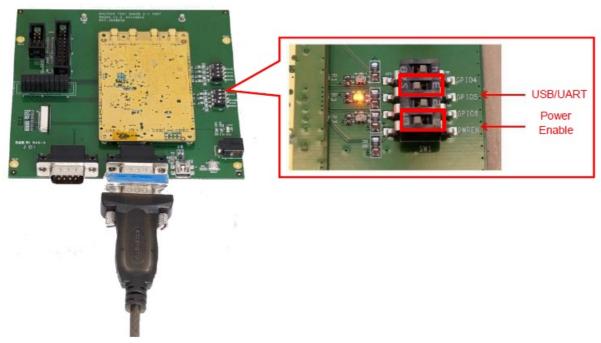
3. Set up the jumper. The jumper settings are defined below.



- 4. Connect the interface board to a PC using either a mini USB cable (default setting) or an RS232 cable, as described in Options A and B, respectively.
 - Options A: Use a mini USB cable



• Options B: Using a RS232 cable



5. Insert the power connector into the power inlet on the interface board, and then plug the power adapter into an electrical socket.



6. Insert the antenna connector into one of the four antenna ports of the RM300 Plus UHF RFID Reader Module. You can connect up to four antennas at the same time.



Date	Change Description	Version
20240719	First Published Version	V1.0

Preface

Thank you for purchasing the Unitech product. This manual explains how to install, operate and maintain our product. No part of this publication may be reproduced or used in any form, or by any electrical or mechanical means, such as photocopying, recording, or information storage and retrieval systems, without permission in writing from the manufacturer. The material in this manual is subject to change without notice.

FCC

FCC Warning Statement

This device has been tested and found to comply with the limits for a Class B 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 with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with 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.
 - This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
 - This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. To
 maintain compliance with FCC RF exposure requirements, avoid direct contact to the transmitting
 antenna during transmitting.
 - Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.
 - Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

FCC Label Statement

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.
- 2. This device must accept any interference received, including interference that may cause undesired operation.

RF Radiation Exposure Statement

For body contact during operation, this device has been tested and meets FCC RF exposure guidelines when used with an accessory that contains no metal and that positions the handset a minimum of 1.0 cm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

IC Statements

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- 1. this device may not cause interference, and
- 2. this device must accept any interference, including interference that may cause undesired operation of the device
- (i) The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems; Devices shall not be used for control of or communications with unmanned aircraft systems

IC Radiation Exposure Statement

This EUT is in compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and has been tested in accordance with the measurement methods and procedures specified in IEEE 1528 and IEC 62209. This equipment should be installed and operated with a minimum distance of 10 mm between the radiator and your body. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

European Conformity Statement

Unitech Electronics Co., Ltd herewith declares that the Unitech product is in compliance with the essential requirements and all other provisions of the RED 2014/53/EU directive. The declaration of conformity is available for download at:

https://portal.Unitech.eu/public/Safetyregulatorystatement

UK Declaration of Conformity (DoC)

Hereby, Unitech electronics co., ltd. declares that the radio equipment type Rugged Handheld Computer is in compliance with UK Radio Equipment Regulations 2017(RER 2017 (SI 2017/1206)).

The full text of the UK Declaration of Conformity is available at the following internet address: https://www.ute.com

CE RF Exposure Compliance

For body-worn operation, this device has been tested and meets the ICNIRP guidelines and the European Standard EN 62209-2, for use with dedicated accessories, SAR is measured with this device at a separation of 0.5 cm to the body, while transmitting at the highest certified output power level in all frequency bands of this device. Use of other accessories that contain metals may not ensure compliance with ICNIRP exposure guidelines.

RoHS Statement

This device conforms to RoHS (Restriction Of Hazardous Substances) European Union regulations that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.

Waste Electrical and Electronic Equipment (WEEE)

Unitech has set up a policy and process to meet the 2012/19/EU concerning electronic waste disposal. For more detailed information on the electronic waste disposal of the products you have purchased from Unitech directly or

via Unitech's resellers, you shall either contact your local supplier or visit us at: https://portal.Unitech.eu/public/WEEE

Laser Information

The Unitech product is certified in the U.S. to conform to the requirements of DHHS/CDRH 21CFR Subchapter J and to the requirements of IEC 60825-1. Class II and Class 2 products are not considered to be hazardous. The Unitech product contains internally a Visible Laser Diode (VLD) whose emissions do not exceed the maximum limits as set forth in the above regulations. The scanner is designed so that there is no human access to harmful laser light during normal operation, user maintenance, or prescribed service operations. The laser safety warning label required by the DHHS/IEC for the Unitech product's optional laser scanner module is located on the memory compartment cover, on the back of the unit. Laser information only applies to products with laser components.

CAUTION! Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light. Use of optical instruments with the scanner, including binoculars, microscopes, and magnifying glasses, will increase eye damage. This does not include eyeglasses worn by the user.

LED Information

The Unitech product contains LED indicator(s) or LED ring whose luminance is not harmful to human eyes during normal operation, user maintenance, or prescribed service operations. LED information only applies to the products with LED components.

Storage and Safety Notice

Although charged batteries may be left unused for several months, their capacity may be depleted due to the build-up of internal resistance. If this happens, they will require recharging prior to use. Batteries may be stored at temperatures between -20°C to 60°C, however, they may deplete more rapidly at higher temperatures. It is recommended to store batteries at room temperature. * The message above only applies to the usage of removable batteries. For the products with non-removable batteries / without batteries, please refer to the specifications of each product.

Product Operation and Storage Notice

The Unitech product has applicable operation and storage temperature conditions. Please follow the limitations of suggested temperature conditions to avoid failure, damage, or malfunction. *For applicable temperature conditions, please refer to the specifications of each product.

Adapter Notice

- 1. Please do not leave the power adapter in the socket when it is not connected to your Unitech product for charging.
- 2. Please remove the power adapter when the battery is fully recharged.
- 3. The bundled power adapter that comes with your Unitech product is not meant to be used outdoors. An adapter exposed to water or rain, or a very humid environment can cause damage to both the adapter and the product.
- 4. Please only use the bundled power adapter or the same specification of adapter to charge your Unitech product. Using the wrong power adapter can damage your Unitech product.

The message above only applies to the product connected to the adapter. For the products without using the adapters, please refer to the specifications of each product

Hearing Damage Warning

To prevent possible hearing damage, do not listen at high volume levels for long periods.



Worldwide Support

Unitech's professional support team is available to quickly answer questions or assist with technical-related issues. Should an equipment problem occur, please contact the nearest Unitech regional service representative. For complete contact information please visit the Web sites listed below:

Taipei, Taiwan – Headquarters		Europe	
Tel:	+886-2-89121122	Tel:	+31-13-4609292
E-mail:	info@hq.ute.com	E-mail:	info@eu.ute.com
Address:	5F, No. 136, Lane 235, Baoqiao Road, X indian District, New Taipei City 231, Taiw an (R.O.C.)	Address:	Kapitein Hatterasstraat 19, 5015 BB, Tilburg, the Netherlands
Website:	http://www.ute.com	Website:	http://eu.ute.com
China		Japan	
Tel:	+86-59-2310-9966	Tel:	+81-3-62310896
E-mail:	info@cn.ute.com	E-mail:	info@jp.ute.com
Address: Website:	Room401C, 4F, RIHUA International Mansion, Xinfeng 3nd Road, Huoju Hi-tech District, Xiamen, Fujan, China	Address: Website:	Tosei Building 3F.,18-10 Nihonbashi- Hakozakicho, Cyuouku, Tokyo, 103-0 015, Japan http://jp.ute.com
Asia & Pacific / Middle East		Latin America	3
Tel:	+886-2-27911556	Tel:	+52-55-5171-0528

E-mail:	info@apac.ute.com info@india.ute.co m info@mideast.ute.com	E-mail: Addr ess:	info@latin.ute.com 17171 Park Row, Suite 210 Houston, TX 77084USA (Rep.)	
Address:	4F., No. 236, ShinHu 2nd Rd., NeiHu Chiu, 114, Taipei,Taiwan	Website:	- http://latin.ute.com	
Website:	http://apac.ute.com / http://mideast.ute.com		mtp.//atm.ute.com	
North Americ	North America		Please scan the QR code to visit us:	
Tel:	+1-714-8916400	F.	T F-20 - F-21	
E-mail: Addr ess: Website:	info@us.ute.com/info@can.ute.com 6182 Katella Ave, Cypress, CA 90630, U SA http://us.ute.com			

Warranty Policy

The following items covered under the Unitech Limited Warranty are free from defects during normal use: The warranty period varies from each country. Please consult with your supplier or Unitech local office for the actual length of the warranty period for your purchased product. The warranty becomes void if the equipment is modified, improperly installed or used, damaged by accident or neglect, or if any parts are improperly installed or replaced by the user.

Documents / Resources



unitech RM300 Plus UHF RFID Reader Module [pdf] User Manual
RM300 Plus RM300 Plus UHF RFID Reader Module UHF RFID Reader Module F

RM300 Plus, RM300 Plus UHF RFID Reader Module, UHF RFID Reader Module, RFID Reader Module, Reader Module, Module

References

• Unitech Electronics

- unitech Electronics
- Unitech Europe (EMEA) | Your Brilliant AIDC Solution Provider
- " Unitech Global | Your Brilliant AIDC Solution Provider
- Unitech Global | Your Brilliant AIDC Solution Provider
- " Unitech Global | Your Brilliant AIDC Solution Provider
- Unitech Global | Your Brilliant AIDC Solution Provider
- Unitech Global | Your Brilliant AIDC Solution Provider
- " Unitech Global | Your Brilliant AIDC Solution Provider
- "The United Global | Your Brilliant AIDC Solution Provider
- 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.