RM7202S User Manual

Catalog

Warning:

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.
changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Please notice that 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 FCC ID:TGBRM7202S" any similar wording that expresses the same meaning may be used.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

1、Safety Information

Read the safety information carefully to ensure the correct and safe use of your wireless device. Applicable safety information must be observed.

1.1、Interference

Power off your wireless device if using the device is prohibited. Do not use the wireless device when it causes danger or interference with electric devices.

1.2、Medical Device

- Power off your wireless device and follow the rules and regulations set forth by the hospitals and health care facilities.
- Some wireless devices may affect the performance of the hearing aids. For any such problems, consult your service provider.
- Pacemaker manufacturers recommend that a minimum distance of 15 cm be maintained between the wireless device and a pacemaker to prevent potential interference with the pacemaker. If you are using an electronic medical device, consult the doctor or device manufacturer to confirm whether the radio wave affects the operation of this device.

1.3、Area with Inflammables and Explosives

To prevent explosions and fires in areas that are stored with inflammable and explosive devices, power off your wireless device and observe the rules. Areas stored with inflammables and

explosives include but are not limited to the following:

- Gas station
- Fuel depot (such as the bunk below the deck of a ship)
- Container/Vehicle for storing or transporting fuels or chemical products
- Area where the air contains chemical substances and particles (such as granule, dust, or metal powder)
- Area indicated with the "Explosives" sign
- Area indicated with the "Power off bi-direction wireless equipment" sign
- Area where you are generally suggested to stop the engine of a vehicle

1.4、Traffic Security

- Observe local laws and regulations while using the wireless device. To prevent accidents, do not use your wireless device while driving.
- RF signals may affect electronic systems of motor vehicles. For more information consult the vehicle manufacturer.
- In a motor vehicle, do not place the wireless device over the air bag or in the air bag deployment area. Otherwise, the wireless device may hurt you owing to the strong force when the air bag inflates.

1.5、Airline Security

Observe the rules and regulations of airline companies. When boarding or approaching a plane, power off your wireless device. Otherwise, the radio signal of the wireless device may interfere with the plane control signals.

1.6、Safety of Children

Do not allow children to use the wireless device without guidance. Small and sharp components of the wireless device may cause danger to children or cause suffocation if children swallow the components.

2、Intoduction

The RM7202S module is a low-power RF module, that provides long-range, low bit rate transmitting data to RF applications.

With Class A functionality implemented, the RM7202S module is LoRaWAN™ 1.0 compliant. By using sub-GHz ISM bands, the RM7202S module providing bi-directional data communication up to 15 km line-of-sight and over 2 km into harsh environment.

The secure transmission with security protocols such as 'Packet engine up to 256 bytes with CRC', the long battery by fitting with ultra low power consumption transceiver and MCU, the easier connectivity with superior transmit power and receive sensitivity.

3、Global Electrical Characteristics

Item	Parameters
Frequency	868/915MHz
Transmitted Power	10 dBm～18 dBm
Supply Voltage	2.4 V～3.7V
Sleep Mode Current(Typ.)	2 uA
Standby Mode Current(Typ.)	2 mA
Receive Mode Current(Typ.)	12 mA
Transmit Mode Current(Typ.)	110 mA
Operational Temperature Range	-40℃～80℃
Est. Sensitivity(SF=12,BW=125KHz)	-142 dBm
Modulation	FSK/LoRa
Crystal oscillator frequency	32MHz
Transceiver	SX1272
MCU	STM32F412RGT6

4、Module Package

4.1 Pin Definition

The RM7202S module has forty-one pins, specific definitions as the following table:

Pin	Name	Direction	Description
1	PB5	Output	GPIOB_PB5
2	PB6/I2C1_SCL	Output	I2C1_SCL
3	PB7/I2C1_SDA	Output	I2C1_SDA
4	PB8/I2C1_SCL	Output	I2C1_SCL
5	PB9/I2C1_SDA	Output	I2C1_SDA
6	VBAT	—	VBAT+
7	PC13	Output	GPIOC_PC13
8	PC0/ADC1_10	Input	Analog to Digital Converter port
9	PC1/ADC1_11	Input	Analog to Digital Converter port
10	PC2/ADC1_12	Input	Analog to Digital Converter port
11	PC3/ADC1_13	Input	Analog to Digital Converter port
12	PA0/ADC1_0	Input	Analog to Digital Converter port
13	PA1/ADC1_1	Input	Analog to Digital Converter port
14	PA2/ADC1_2	Input	Analog to Digital Converter port
15	GND	—	Ground
16	VDD	—	Supply Voltage 3.3V
17	PB12/SPI2_NSS	Output	SPI chip select input
18	PB13/SPI2_SCK	Output	SPI clock output
19	PB14/SPI2_MISO	Output	SPI data output
20	PB15/SPI2_MOSI	Output	SPI data Input
21	NC	—	NC
22	PC7	Output	GPIOC_PC7
23	PC8	Output	GPIOC_PC8
24	PC9	Output	GPIOC_PC9
25	PA8	Output	GPIOA_PA8
26	PA9/USART1_TX	Output	USART1_TX

27	PA10/USART1_RX	Input	USART1_RX
28	GND	—	Ground
29	PA11/USART6_TX	Output	USART6_TX
30	PA12/USART6_RX	Input	USART6_RX
31	PC10/USART3_TX	Output	USART3_TX
32	PC11/USART3_RX	Input	USART3_RX
33	PD2	Output	GPIOD_PD2
34	PC12	Output	GPIOC_PC12
35	JTMS	Input	JTAG Download and debug port
36	JTCK	Input	JTAG Download and debug port
37	JTDI	Input	JTAG Download and debug port
38	JTDO	Input	JTAG Download and debug port
39	JTRST	Input	JTAG Download and debug port
40	NRST	Input	JTAG Download and debug port
41	GND	—	Ground

4.2 Module Dimensions