

JS-RK43-3



Table of Contents

Revision History.....	2
1 Product Introduction.....	3
1.1 Overview.....	3
1.2 Product features	3
1.3 Performance	4
1.4 Protocol	5
1.5 Antenna.....	5
1.6 Applications	5
2 Pin Definition	6
2.1 Pin Assignment.....	6
2.2 Description of geomagnetic sensors	7
3 Electrical specifications	7
4 Mechanical specifications	8
5 Interface configuration selections.....	10
5.1 Interfaces description	10
5.2 Block Diagram	10
5.3 Application Circuit.....	10
6 ROHS	10

1 Product Description

1.1 Overview

The JS-RK43-3 is a dual-band (L1, L5) GNSS high-precision positioning module. It adopts a high-performance, low-power architecture, enabling optimized multi-band and multi-mode signal tracking. It also features an advanced anti-multi path and anti-jamming RF front-end, along with up to 6 anti-tone jamming filters for the L1 and L5 bands, significantly improving positioning accuracy and TIF performance in complex scenarios. Based on an advanced SOC chip design, it achieves ultra-high sensitivity and rapid signal acquisition. Innovative dynamic power management technology ensures low power consumption during continuous positioning mode. This module is a new product launched for UAV terminal application scenarios, meeting their high-precision positioning needs. It supports multi-constellation joint solution and maintains centimeter-level positioning stability even in extreme environments like urban canyons and indoor-outdoor transitions.

1.2 Product Features

- Based on a high-performance GNSS SOC chip
- Navigation update rate up to 10 Hz
- 200 tracking channels and a dedicated search engine
- Low power consumption design
- Intelligent interference detection and suppression
- Configured with 2 UART interfaces, enabling simultaneous transmission of differential data and ephemeris data
- Supports GPS, BDS, GLONASS, Galileo, QZSS, and IRNSS
- Supports SBAS and AGNSS
- Indoor/outdoor multi-path detection and compensation
- Integrates TCXO, LNA, SAW, RTC
- Compact size (Bottom: $\Phi 48.00\text{mm}$, Top: $\Phi 43.20\text{mm}$, Height: 37.00mm), lightweight ($< 23.20\text{g}$)
- Compliant with ROHS standards
- Supports standard NMEA 0183 / RTCM3.X protocols
- Supports both Rover and Base Station operation modes
- The module can be equipped with a magnetometer sensor

- 3 50%@30m/s dynamic operation
- 4 Assuming Airborne < 4 g platform
- 5 If debug log is enabled, support for baud rates of 230400 bps or higher is required.

1.4 Protocol

Protocol	Type
NMEA 0183	Input/output, ASCII
RTCM3.X	Input/output

1.5 Antenna

The JS-RK43-3 module uses an active antenna design.

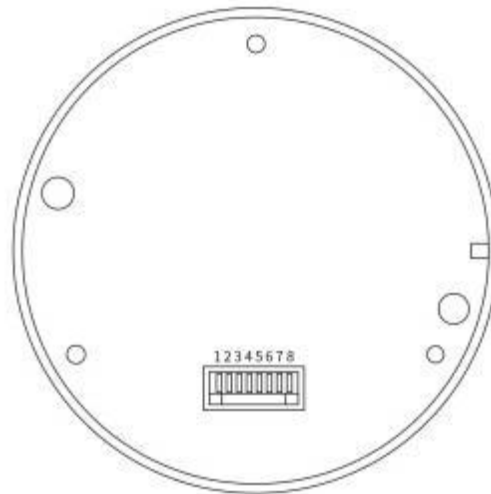
Parameter	Specification
Helical Antenna	Φ35.00mm , H: 25.00mm

1.6 Applications

- UAV/Drones
- Smart Robots
- Intelligent Logistics Dispatch
- Power Grid / Electric Power
- Logistics /Security
- Smart Transportation
- Wearable Devices
- Automotive Navigation and Tracking
- Precision Agriculture
- Handheld Terminal

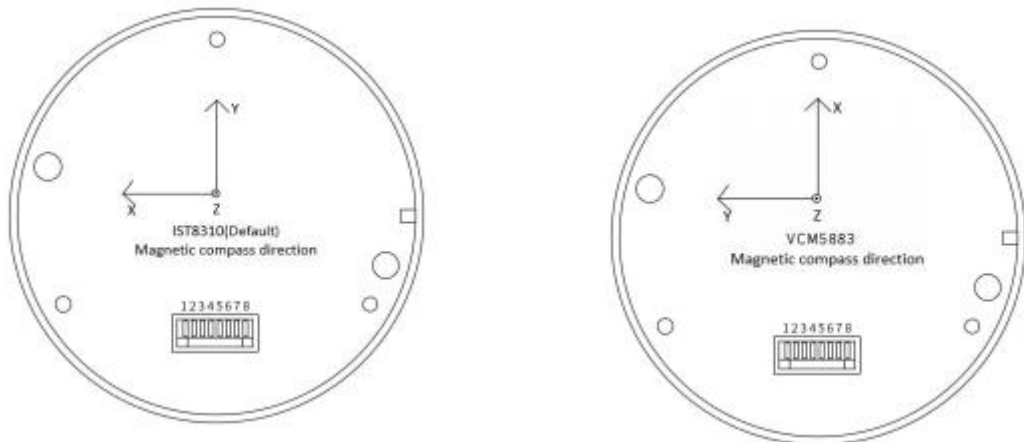
2 Pin Definitions

2.1 Pin Assignment



No.	Name	I/O	Description
1	GND	-	Ground
2	TX2	O	UART2 Outputs RTCM3 Data
3	RX2/PPS	I/O	UART2 (For 1PPS Output <Default> / RTCM3 Input)
4	SDA	I/O	I2C Data (keep open if not used)
5	SCL	I/O	I2C Clock (keep open if not used)
6	TX1	O	UART1 output
7	RX1	I	UART1 input
8	VCC	P	Main supply

2.2 Description of geomagnetic sensors



Note: Magnetometer Model Optional

Model: VCM5883, VCM5883_MS_ADDRESS 0x0C

Model: IST8310(default) , IST8310_MS_ADDRESS 0x0F

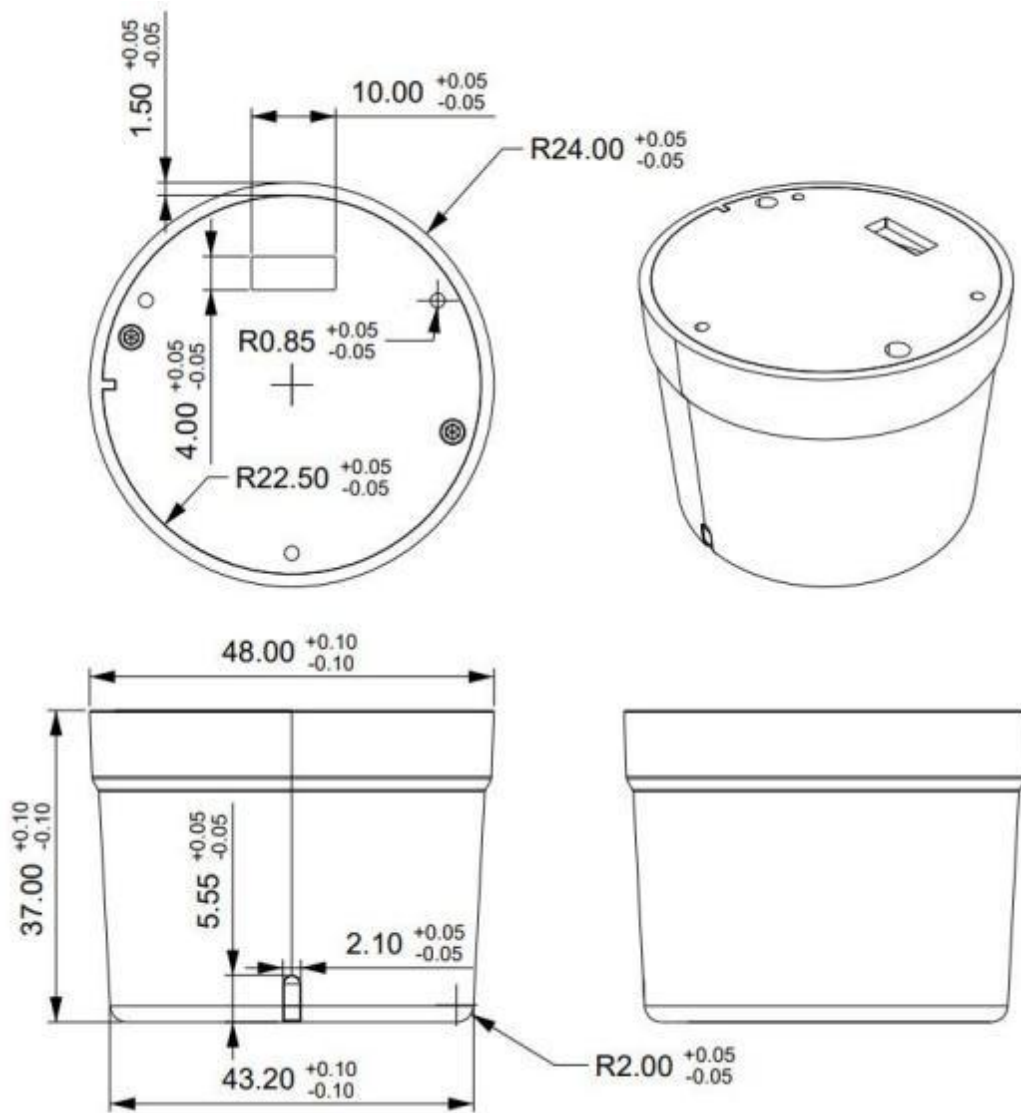
3 Electrical specifications

Parameter	Symbol	Min	Typical	Max	Unit
Power supply voltage	VCC	3.3	5.0	5.5	V
Average Current	I	45mA@5.0V	58mA@5.0V	65mA@5.0V	mA
Backup Battery Voltage	V_BCKP	1.8	3.3	3.6	V
Backup Battery Current	I_BCKP		14uA@3.3V		uA
Storage temperature	Tstg	-40		70	°C
Operating temperature ¹	Topr	-40		70	°C
Farah capacitance ²	Tstg	-25		60	°C
Humidity				95	%

¹ This temperature range is the operating temperature range without the supercapacitor.

² Hot start is not available when the temperature is below -25°C or above 60°C.

4 Mechanical specifications



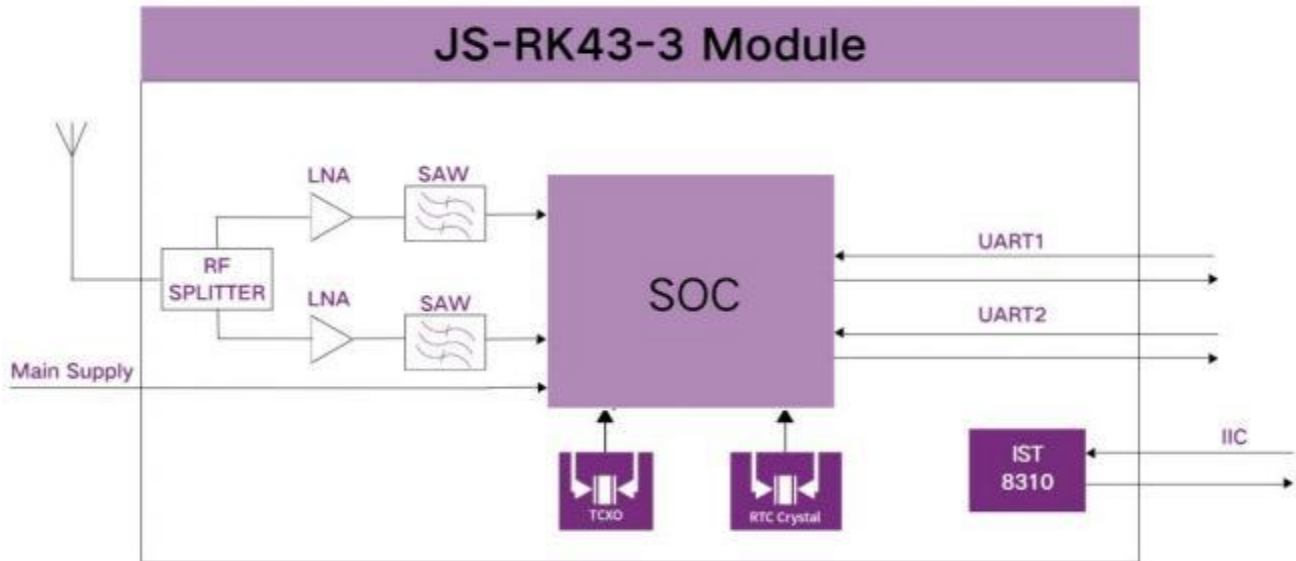
Unit: mm Error: ±0.30mm

5 Interface configuration selections

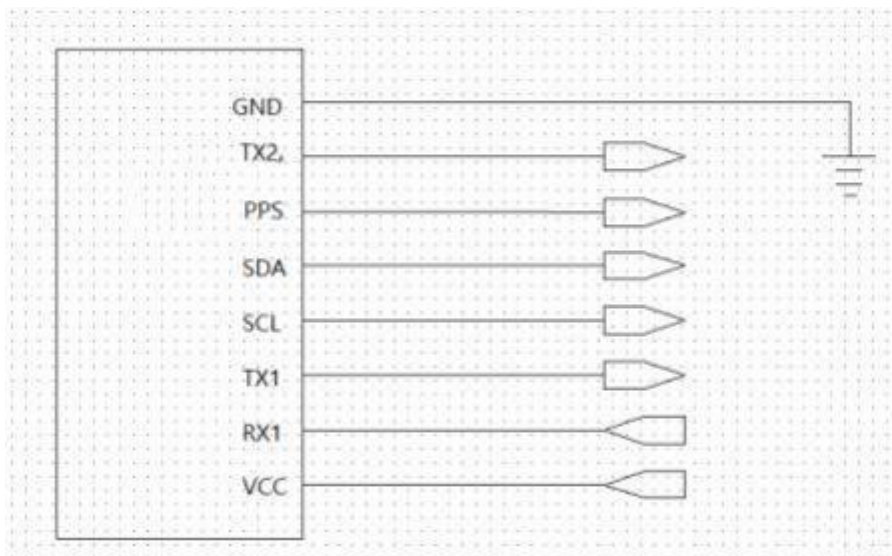
5.1 Interfaces Description

The JS-RK43-3 module is equipped with two UART interfaces and one I2C interface. It supports flexible baud rate configuration.

5.2 Block Diagram



5.3 Application Circuit



6 ROHS

This product is compliant with the RoHS standard.