JS-ARK37-3

RTK GNSS ANTENNA MODULE

DATA SHEET

Table of Contents

Revision History

Version	Date	Changes & Modifications	Modified by
V1.0	2025-9-28	Initial Release	WW
V1.1	2025-11-21	Added connector description	WW
V1.2	2026-3-13	Added RM3100 geomagnetic sensor option, added Farad capacitor description	HJX

1 Functions Description

1.1 Overview

The JS-ARK37-3 is a full-system, dual-frequency, high-precision RTK positioning module based on BDS, GPS, GLONASS, Galileo, and QZSS. It utilizes advanced low-power design, providing ultra-low power consumption for extended battery life without compromising performance. The JS-ARK37-3 features advanced anti-multipath and anti-jamming RF front-end algorithms, effectively mitigating positioning errors caused by multipath and resisting external interference signals. It is suitable for application scenarios requiring high-precision positioning, such as in-vehicle navigation, logistics dispatch, drones, and inspection robots.

1.2 Product Features

- Utilizes high-performance chip
- 200 tracking channels
- Supports SBAS
- Supports AGPS
- Supports standard NMEA 0183 protocol and RTCM 3.X differential data
- Supports rich communication interfaces including CAN, TTL, RS232, etc.
- Compact (36.00mm * 36.00mm * 9.70mm ±0.2mm), lightweight (<21g), suitable for space-constrained applications

1.3 Performance Metrics

Parameter	Details	
Supported Constellations & Frequency bands	■GPS/QZSS:L1,L5 ■GLONASS:G1 ■Galileo:E1,E5 ■BDS:B1I,B1C,B2a, B2b,B2I ■IRNSS:L5	
Sensitivity	Cold Start	-148dBm
	Hot Start & Reacquisition	-159dBm
	Tracking	-165dBm
Time to First Fix[1]	Cold Start	28s
	Hot Start	1s
	AGPS	1.5s
Positioning Accuracy	**Single Point Positioning**	
	Horizontal:	1.0m CEP[2]
	Vertical:	2.0m CEP[2]
	RTK Accuracy	
	Horizontal:	1.0cm + 1ppm[3] CEP[2]
	Vertical:	1.5cm + 1ppm[3] CEP[2]
Velocity Accuracy	0.1m/s CEP[2]	
Operating Limits	Max Acceleration:	≤4g
	Max Velocity:	≤500m/s
	Max Altitude:	20000m
Baud Rate	9600~921600dps（default 115200dps）	
Timing Accuracy	1PPS output	<20ns（RMS）
Max. Update Rate	10Hz（default 1Hz）	

✌1 All satellites at -130dBm

✌2 CEP 50%, 24-hour static, -130dBm, ≥12 satellites in use

✌3 PPM Accuracy error increases by 1 cm per 10 km distance from the base station (baseline range < 30km)

1.4 Protocols

Protocol	Type
Data Format	NMEA-0183
Differential Data	RTCM 3.X
Private Binary	Custom Binary

1.5 Antenna

The JS-ARK37-3 module is designed to be used with a passive antenna

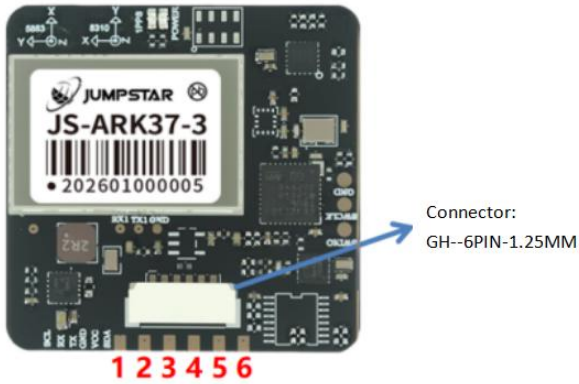
Antenna Type	Details
Passive Antenna	L1: 25*25*2mm L5: 35*35*2mm（default）
	L1: 25*25*4mm L5: 35*35*4mm（optional）

1.6 Product Applications

- UAV/Drones
- Smart Logistics Dispatch
- Autonomous Driving
- •Precision Agriculture and Location Services
- Surveying and Mapping
- Autonomous Robots
- In-vehicle Applications
- Precision Control

2 Pin Definitions

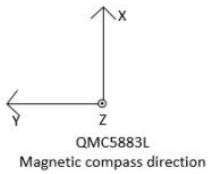
2.1 Pin Assignment



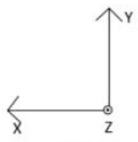
Pin No.	Symbol	I/O	Description
1	SCL	Input	IIC Clock
2	RX	Input	GNSS Receive Data (Default TTL, RS232/CAN optional)
3	TX	Output	GNSS Transmit Data (Default TTL, RS232/CAN optional)
4	GND	-	Ground
5	VDD	Input	GNSS Power Supply 3.5-12.0V, Typical 5V
6	SDA	Input/Output	IIC Data

×Connector type can be customized.

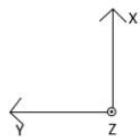
2.2 Magnetometer Description



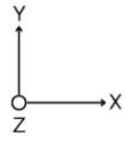
QMC5883L
Magnetic compass direction



IST8310
Magnetic compass direction



VCM5883
Magnetic compass direction



RM3100
Magnetic Compass Direction

Note: Magnetometer model is optional.

Default Magnetometer Model: IST8310, IST8310_MS_ADDRESS 0x0F

Optional Magnetometer Model: VCM5883, VCM5883_MS_ADDRESS 0x0C

Optional Magnetometer Model: QMC5883L, QMC5883L_MS_ADDRESS 0x0D

Optional Magnetometer Model: RM3100, RM3100_MS_ADDRESS 0x20

2.3 Indicator LED

LED#	Name	Input/Output	Description
1	1PPS	Output	Second pulse (Red LED)
2	POWER	Output	Power Indicator, Lit when powered on (Red LED)

3 Electrical Characteristics

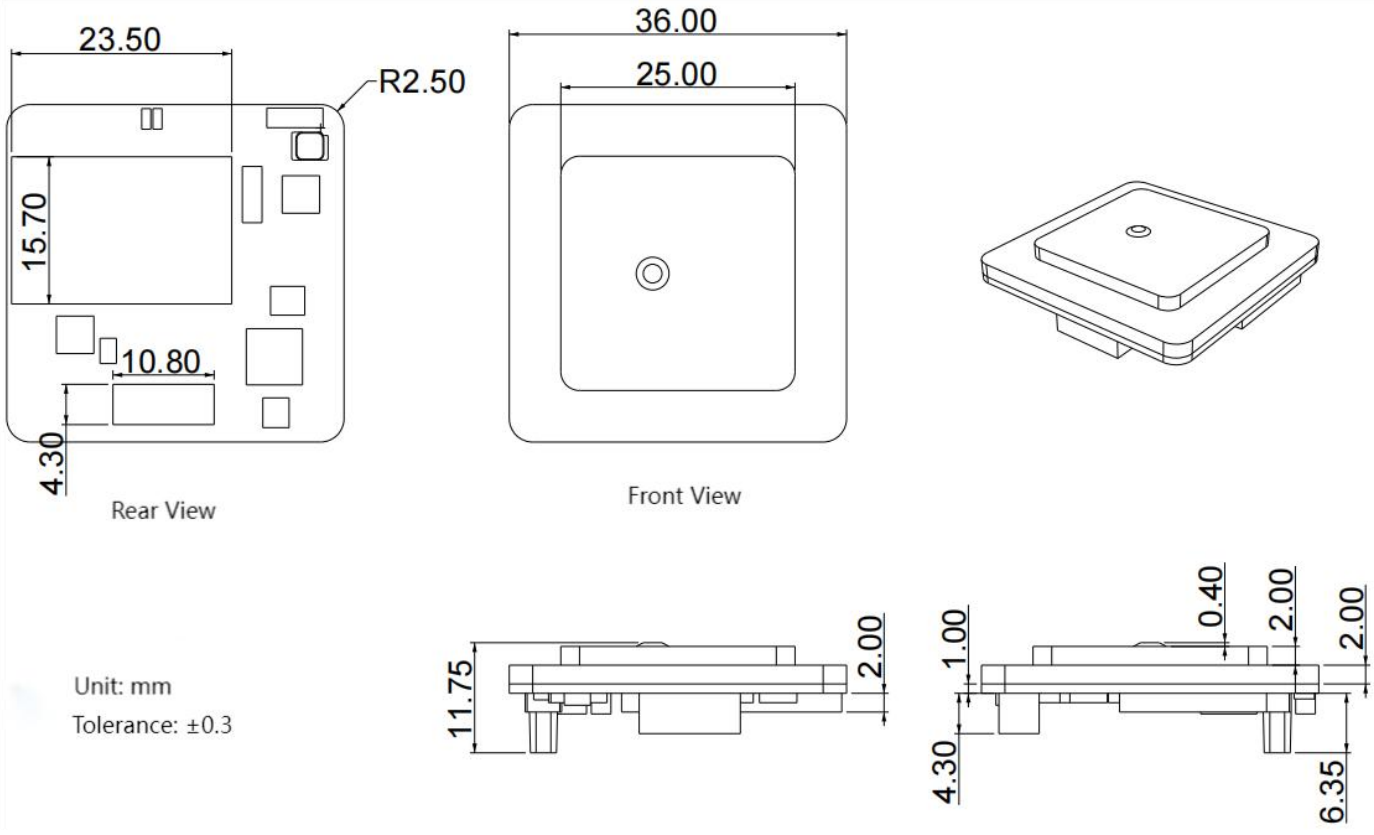
Parameter	Symbol	Min	Typical	Max	Unit
Power Supply Voltage Range	VCC	3.5	5	12	V
Operating Current*	Lopr	42@5V	45@5V	53@5V	mA
Operating Temperature[1]	Tstg	-40	-	85	°C
Farad Capacitor[2]	T_{stg}	-25		60	°C
Storage Temperature	Tstg	-40	-	85	°C
Humidity	RH	-	Non-condensing	95	%rh

*Current increases by approximately 8mA when using CAN protocol.

1 This temperature range is the operating temperature range without the Farad capacitor.

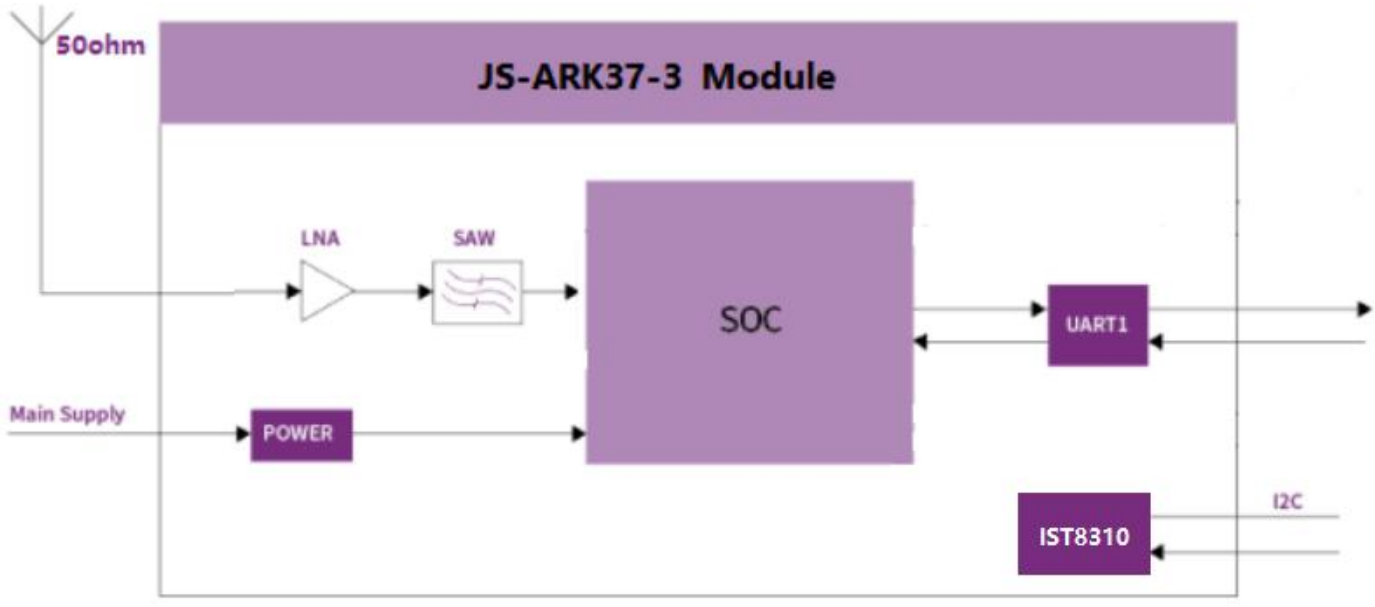
2 When the operating environment temperature is below -25°C or above 60°C, the hot start function will not be available.

4 Mechanical Dimensions



5 Interface Configuration Options

5.1 Block Diagram



5.2 Optional Configurations List

The default communication method for this product, JS-ARK37-3, is TTL. For requirements of RS232 or CAN, please contact us for customization. As follows:

NAME	TTL	RS232	CAN (MCU)	IST8310
JS-ARK37-3	√	-	-	-
JS-ARK37G-3	√	-	-	√
JS-ARK37R-3	-	√	-	-
JS-ARK37RG-3	-	√	-	√
JS-ARK37C-3	-	-	√	-
JS-ARK37CG-3	-	-	√	√