



Accurate
positioning

22°39'48.37"N 114°02'10.91"E



JS-169UPR-1

PRODUCT SPECIFICATION

Data Sheet



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Contents

Revision History	3
1 Functional description	4
1.1 Overview	4
1.2 Product Features	4
1.3 Performance	5
1.4 Block Diagram	6
1.5 Protocols	6
1.6 Antenna	6
1.7 Product Application	6
2 Pin definitions	7
2.1 Pin assignment	7
3 Electrical specifications	8
4 Mechanical specifications	8
5 Application Circuit	9
6 RoHS	9

Revision History

Revision	Date	Contents of Revision Change	Remark
V1.0	2022-12-20	First release	Wang wei

1 Functional description

1.1 Overview

The JS-169UPR-1 uses multi mode solution, low power consumption, low cost, the 169UPR-1 are multi-GNSS (BDS , GPS, GLONASS, Galileo ,QZSS and SBAS) positioning module developed to meet the requirements of an extensive range of applications and end-products. Based on the high performance SOC position engine ,these receivers provide exceptional sensitivity and acquisition times and interference suppression measures enable reliable positioning even in difficult signal conditions.

1.2 Product Features

- Build on high-performance GNSS AUP30-1
- Over 2 million effective correlators
- 72 acquisition-channel / 32 tracking
- Cold start acquisition sensitivity of -148dBm and -166dBm tracking sensitivity
- Up to 10 Hz navigation update rate
- Supports BDS,GPS, QZSS, SBAS,GLONASS ,Galileo
- Supports A-GNSS
- Integrated TCXO, LNA, SAW, RTC
- Compact size ($\varnothing 78.0\text{mm} \times 96.0\text{mm} \pm 0.3\text{mm}$)
- Support standard NMEA 0183, version 4.0 and 4.1, UBX

1.3 Performance

Parameter	Specification
Receiver type*	■GPS/QZSS L1C/A ■SBAS EGNOS, GAGAN, MSAS and WAAS ■GLONASS L1OF ■BDS B1I, B1C ■Galileo E1 B/C
Sensitivity	Tracking & Navigation -166dBm Reacquisition -160dBm Cold Start -148dBm
Time-To-First-Fix ¹	Cold Start 29 s Hot Start 1 s
Horizontal Position accuracy ²	Autonomous 2.0 m CEP
Accuracy of time pulse signal	RMS 30 ns 99% 60 ns
Velocity accuracy ³	0.05m/s
Operational limits ⁴	Dynamics ≤ 4 g Altitude 80000 m Velocity 500 m/s
Frequency of time pulse signal	1Hz
Baud Rate	9,600 -- 460800 bps (Default 19200 bps)
Max navigation update rate	10Hz (default 1Hz)

Default GPS+Galileo+QZSS+SBAS, BeiDou B1I cannot be enabled simultaneously with BeiDou B1C or GLONASS L1OF

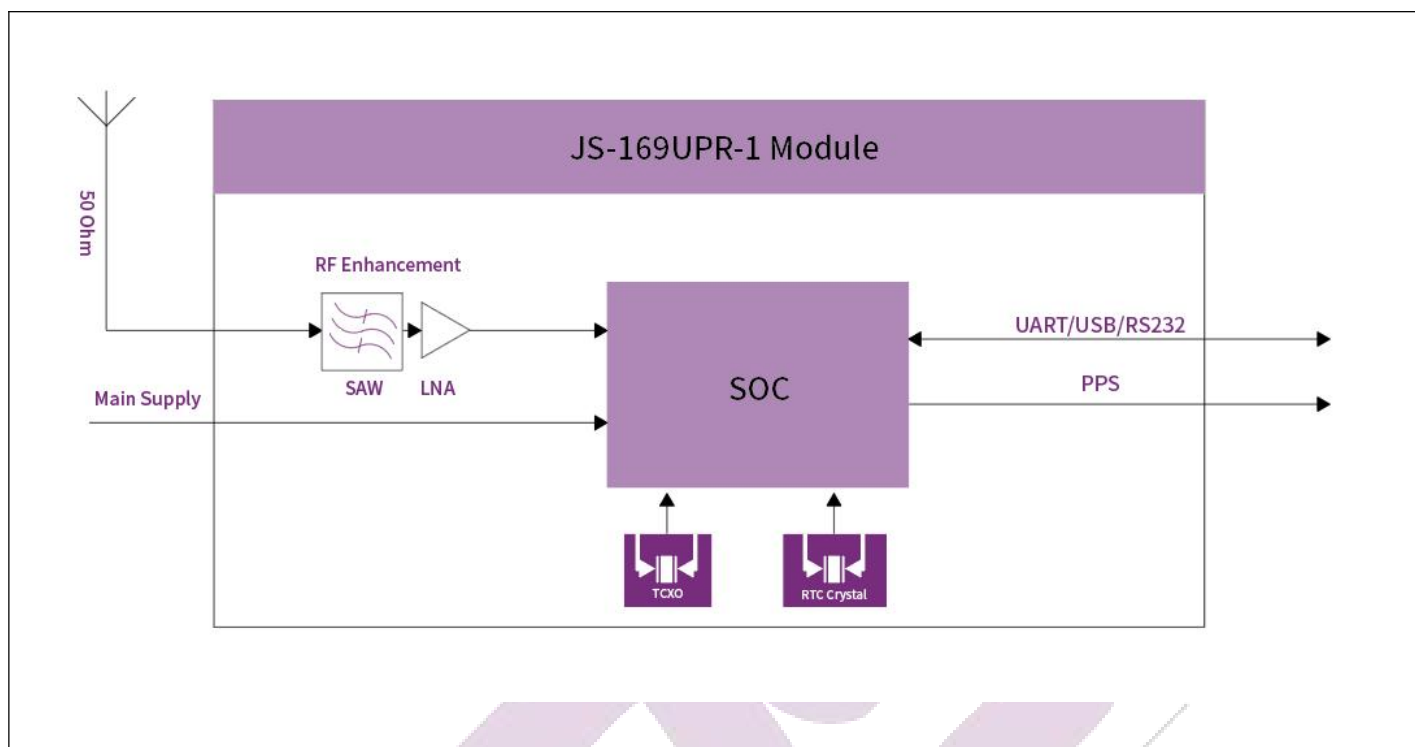
¹ All satellites at $\geq -130\text{dBm}$

² CEP 50%, 24 hours static, $\geq -130\text{dBm}$, > 6SVs

³ 50%@30m/s dynamic operation

⁴ Assuming Airborne < 4 g platform

1.4 Block Diagram



1.5 Protocols

Protocol	Type
NMEA 0183 v3.01/v4.10	Input/output, ASCII
NMEA	Output GGA,VTG,RMC

1.6 Antenna

The JS-169UPR-1 module was designed for use with passive antennas.

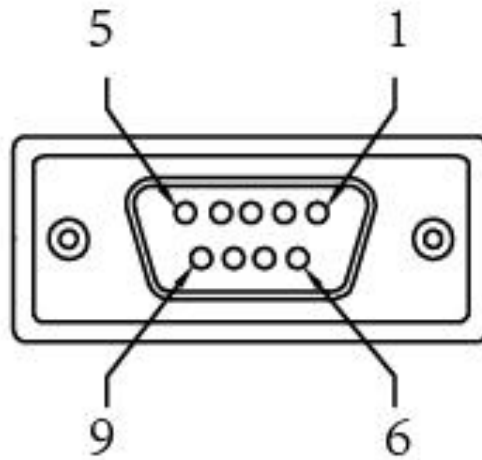
Parameter	Specification
Passive Antenna Type	25*25*4mm

1.7 Product Application

- Automotive application
- AVL and location-based services
- Marine navigation, fleet management
- Handheld GPS receiver application
- Intelligent logistics scheduling
- Personnel protective
- Car navigation and tracking
- Intelligent robot

2 Pin definitions

2.1 Pin assignment



No.	Name	I/O	Description
1	NC	-	--
2	TXD	I	RS232 Input (keep open if not used)
3	RXD	O	RS232 Output (keep open if not used)
4	NC	-	--
5	GND	G	Ground
6	NC	-	--
7	NC	-	--
8	NC	-	--
9	VCC	P	Main supply

***The interface type can be customized**

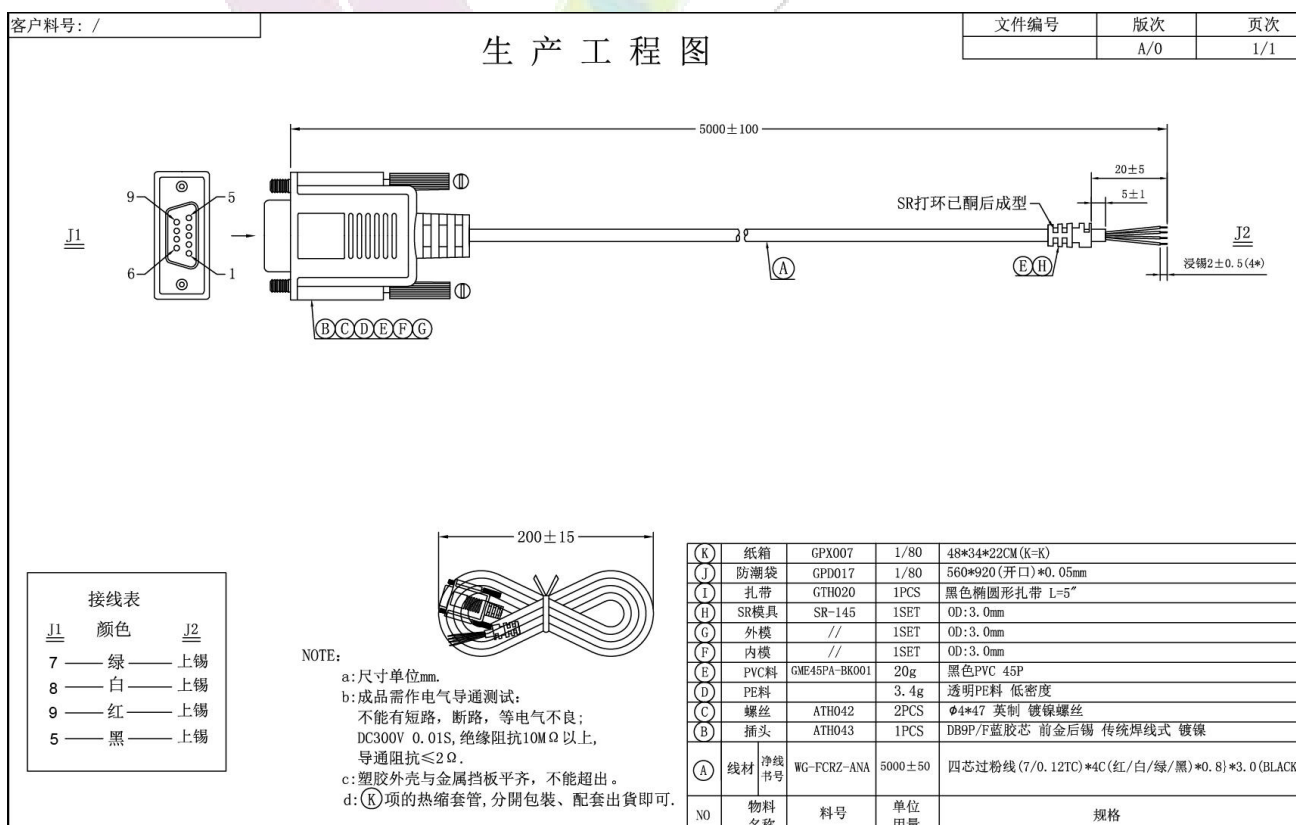
3 Electrical specifications

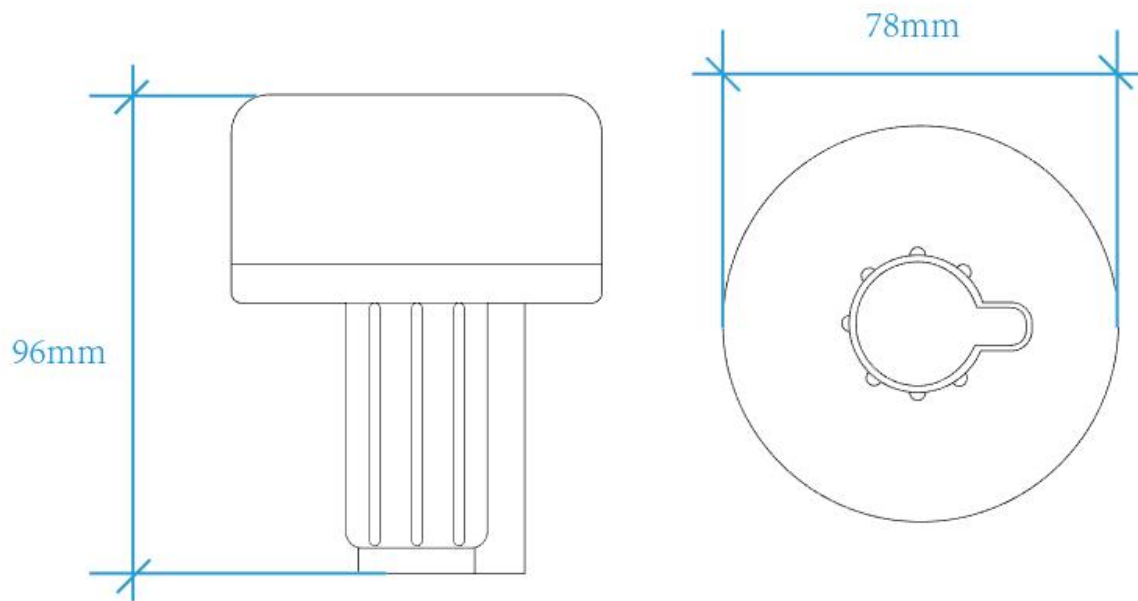
Parameter	Symbol	Min	Type	Max	Units
Power supply voltage	VCC	3.6	5.0	24.0	V
Average supply current	Acquisition	27@5.0V	35@5.0V	41@5.0V	mA
	Tracking	27@5.0V	32@5.0V	40@5.0V	mA
Backup battery			0.07		F
Backup battery current	I_BCKP		28@3.3V		uA
Digital IO voltage	Div	3.3		3.3	V
Storage temperature	Tstg	-40		85	°C
Operating temperature ¹	Topr	-40		85	°C
Farah capacitance ²	Tstg	-25		60	°C
Humidity				95	%

¹ The temperature range is the operating temperature range without the Farad capacitor

² Hot start cannot be carried out when the temperature is below -20°C or above 60°C

4 Mechanical specifications

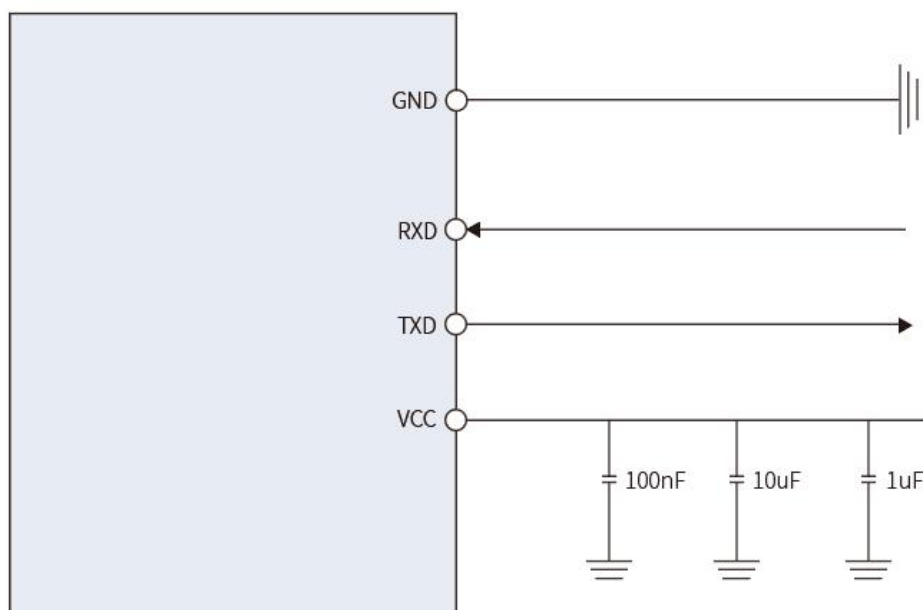




units: mm dimension error: $\pm 0.3\text{mm}$

The interface type and cable length can be customized

5 Application Circuit



6 RoHS

This product is RoHS compliance