



Accurate
positioning

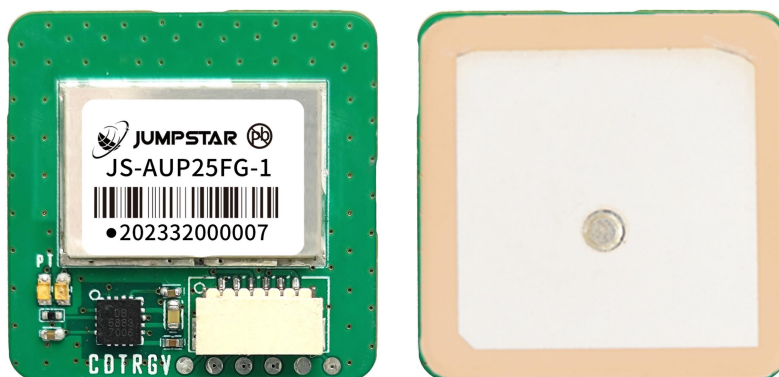
22°39'48.37"N 114°02'10.91"E



JS-AUP25FG-1

PRODUCT SPECIFICATION

Data Sheet



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Change History of Revision

[illegible]

1 Functional description

1.1 Overview

JS-AUP25FG-1 is a low-power, low-cost multi-mode solution antenna integration module with exceptional sensitivity and acquisition time for all L1 GNSS systems. It supports simultaneous reception of 4 GNSS (GPS, GLONASS, Galileo, Beidou). The number of visible satellites is large and the receiver selects the best signal. This maximizes location availability, especially in challenging conditions such as deep urban canyons. Super-s(Super Signal) technology provides tremendous RF sensitivity and can improve dynamic position accuracy by up to 25% in small antenna or NLOS scenarios. JS-AUP25FG-1 is able to detect jamming and spoofing events and report them to the host, enabling the system to react to such events. Advanced filtering algorithms mitigate the effects of RFI and jamming, thus enabling the product to work as intended.

1.2 Product Features

- Build on high-performance GNSS Chips
- Over 2 million effective correlators
- 72 acquisition-channel / 32 tracking
- Cold start acquisition sensitivity of -148dBm and -167dBm tracking sensitivity
- Up to 10 Hz navigation update rate
- Supports BDS,GPS, QZSS, SBAS,GLONASS ,Galileo
- Supports AGPS
- Integrated TCXO, LNA, SAW, RTC
- Compact size (25.0mm x 25.0mm x 8.3mm±0.3mm) suitable for space-sensitive application

1.3 Performance

Parameter	Specification	
Receiver type*	■GPS/QZSS L1C/A	■SBAS EGNOS, GAGAN, MSAS and WAAS
	■GLONASS L1OF	■BDS B1I,B1C ■Galileo E1B/C
Sensitivity	Tracking & Navigation	-167dBm
	Reacquisition	-160dBm
	Cold Start	-148dBm
Time-To-First-Fix ¹	Cold Start	27s
	Hot Start	1s
Horizontal Position accuracy ²	Autonomous	1.5m CEP
Accuracy of time pulse signal	RMS	30ns
	99%	60ns
Velocity accuracy ³		0.05m/s
Operational limits ⁴	Dynamics	≤ 4g
	Altitude	80000m
	Velocity	500m/s
Frequency of time pulse signal	1Hz	
Baud Rate	4800 -- 921600 bps (Default 38400 bps)	
Max navigation update rate	10 Hz (Default 1Hz, configurable)	

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

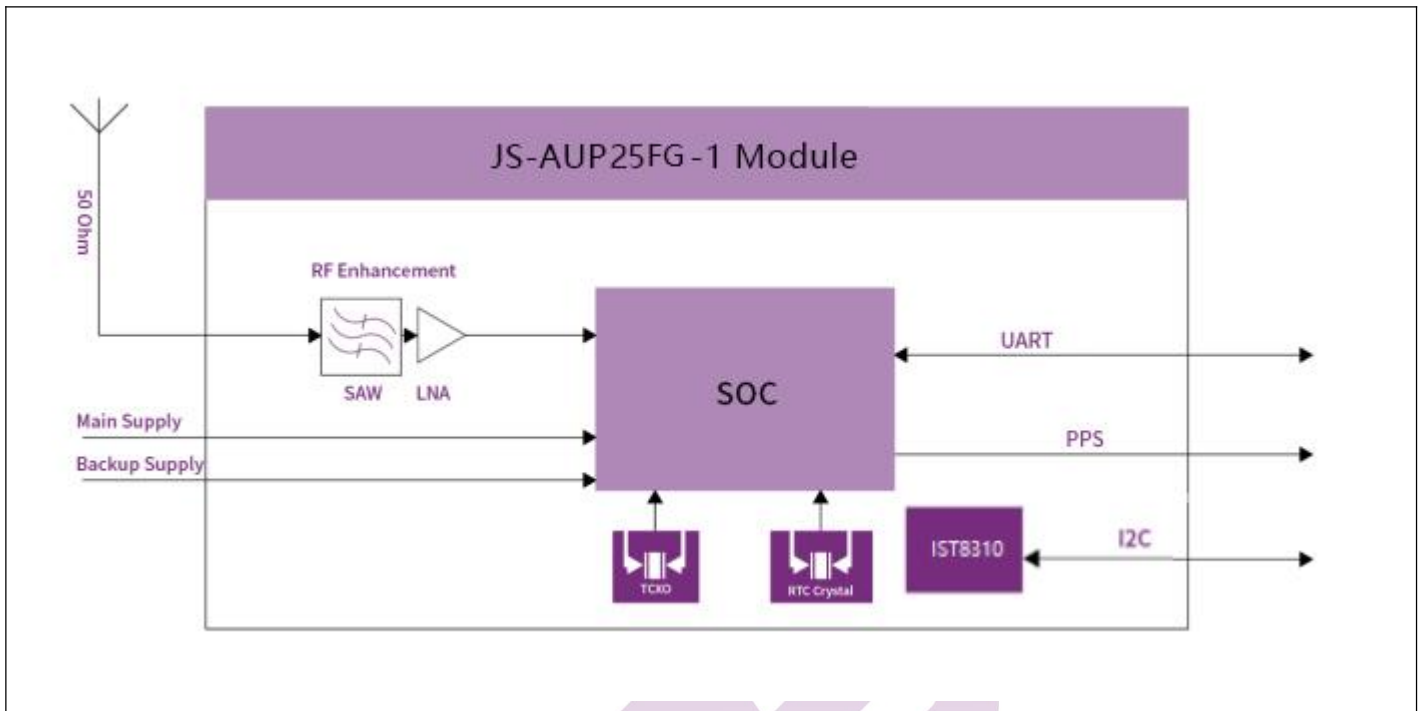
¹ All satellites at -130dBm

² CEP 50%, 24 hours static, -130dBm, > 6SVs

³ 50% at 30 m/s for dynamic operation

⁴ Assuming Airborne < 4g platform

1.4 Block Diagram



1.5 Protocols

Protocol	Type
NMEA v2.1, 2.3, 4.0, 4.10 and 4.11 (default)	Input/output, ASCII
UBX	Input/output, binary, u-blox proprietary

1.6 Antenna

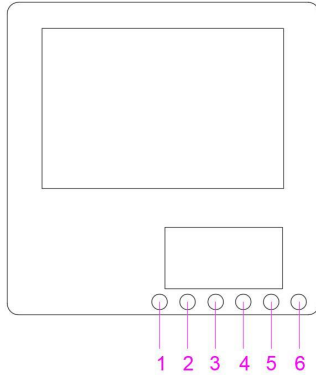
Parameter	Specification
Passive Antenna Type	25.0*25.0*4.0mm (default) 25.0*25.0*6.0mm

1.7 Product Application

- Automotive applications
- Marine navigation, Fleet management
- Intelligent logistics scheduling
- Ground vehicle tracking and urban intelligent traffic management
- Intelligent robots
- Formation drones
- Personal travel and wilderness adventure
- Emergency survival

2 Pin definitions

2.1 Definition of Pin Assignment



No.	Name	I/O	Description
1	SCL	I/O	I2C Clock (keep open if not used)
2	SDA	I/O	I2C Data (keep open if not used)
3	TXD	O	TTL Output
4	RXD	I	TTL Input
5	GND	G	Ground
6	VCC	P	Main Supply

3 Electrical Specifications

Parameter	Symbol	Min	Type	Max	Units
Power supply voltage	VCC	2.8	5.0	5.5	V
Average supply current	Acquisition	17@5.0V	24@5.0V	35@5.0V	mA
	Tracking	17@5.0V	22@5.0V	33@5.0V	mA
Backup battery			0.07		F
Backup battery current	I_BCKP		28@3.3V		uA
Backup battery voltage	V_back	1.8	3.3	3.6	V
Digital IO voltage	Div	2.8	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	%

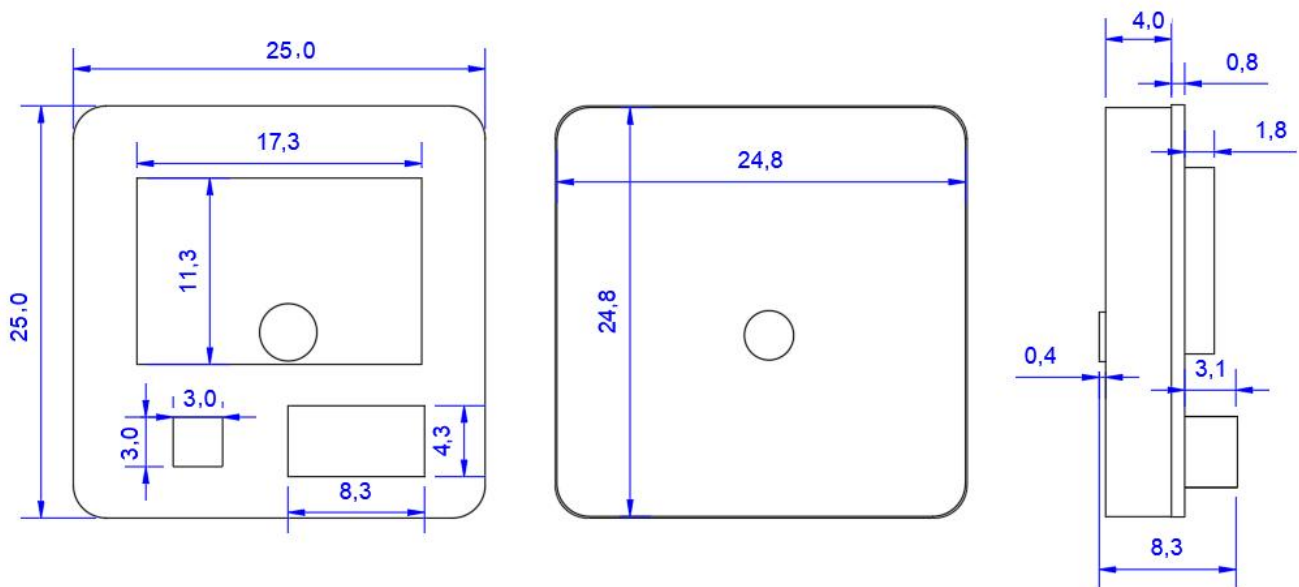
*These values are only provided to the customer information as a typical current demand example. They use cold start commands to characterize the samples. Actual power requirements depend on firmware version used, external circuitry, number of satellite tracks, signal strength, type and start time, duration, internal amplifier gain mode, and test conditions.

*The inrush current at startup can reach 100 mA. Ensure that the external power supply output power reaches 100ma.

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



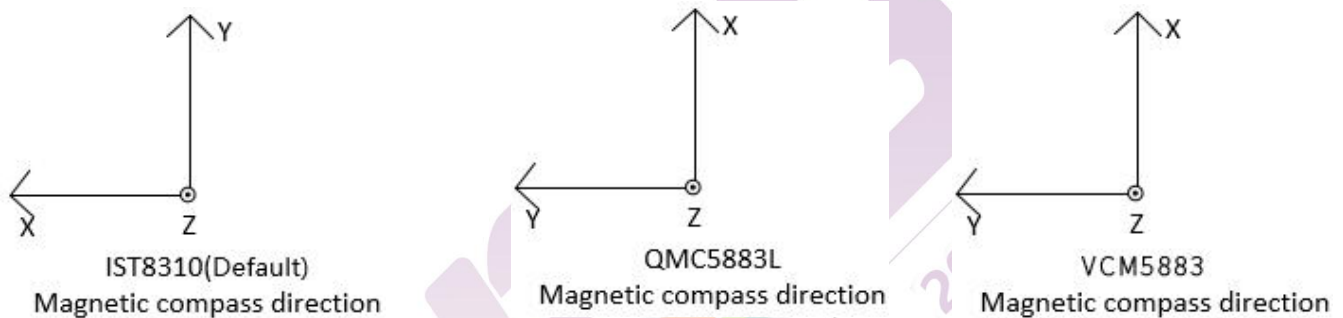
units: mm dimension error: ± 0.3 mm

5 Interface configuration selections

5.1 Interfaces description

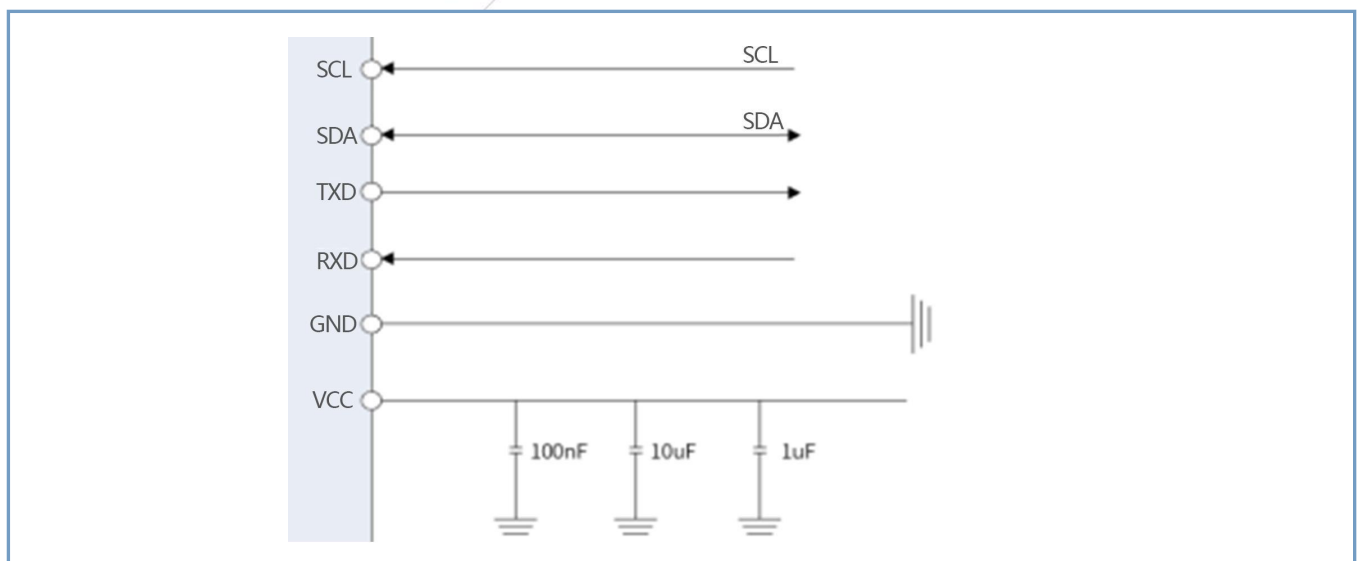
The JS-AUP25FG-1 GPS module can be selected according to the need for the corresponding additional sensor, the main options are as follows.

NAME	Flash	IST8310/QMC5883/VCM5883
JS-AUP25FG-1(Default)	√	√
JS-AUP25F-1	√	
JS-AUP25-1		



Note: Magnetic compass model: The geomagnetic model is VCM5883(Default) , VCM5883_MS_ADDRESS 0x0C. The geomagnetic model is IST8310(Default) , IST8310_MS_ADDRESS 0x0F .The geomagnetic model is QMC5883L ,QMC5883L_MS_ADDRESS 0x0D

5.2 Application Circuit



6 ROHS

This product is RoHS compliance

