

JS-ARP30-2

Multi-constellation Dual Band Positioning Module

DATA SHEET

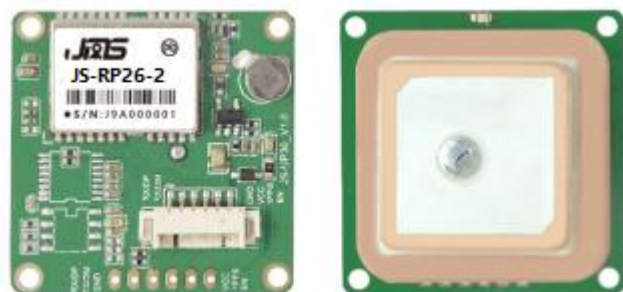


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Revision History

[illegible]

1 Functional Description

1.1 Overview

The JS-ARP30-2 is a multi-constellation dual-band (GPS, BDS, GLONASS, Galileo, QZSS) positioning module based on a multi-mode solution with low power consumption and cost. It is developed to meet the requirements of a wide range of applications and end products. Leveraging a high-performance SOC position engine, this receiver offers excellent sensitivity and acquisition times, featuring interference suppression measures for reliable positioning even under challenging signal conditions.

1.2 Product Features

- Based on a high-performance GNSS SOC series.
- 200 tracking channels with dedicated search engine
- High sensitivity: -148dBm (cold start acquisition), -165dBm (tracking)
- Up to 10Hz navigation update rate
- Supports Multi-constellation: GPS, BDS, GLONASS, Galileo, QZSS ,NavIC
- Supports A-GNSS
- Indoor/outdoor multipath detection and compensation
- Multiple hardware interfaces for flexible configuration
- Integrated TCXO, LNA, SAW, and RTC
- Compact design (30.0×30.0×12.5mm, ±0.3mm), ideal for space-constrained applications
- Standard NMEA 0183 protocol
- Supports 1PPS output

1.3 Performance Metrics

Parameters	Description
Constellation & Frequencies	■GPS L1 L5 ■BDS B1I B1C B2a B2B B2I ■Galileo E1 E5 ■GLONASS G1 ■QZSS L1 L5 ■NavIC
Sensitivity	Tracking & Navigation: -165dBm Cold Start: -148dBm
Time To First Fix ¹	Cold Start 28s AGNSS 2s Hot Start 1s
GNSS Positioning Accuracy ²	Horizontal: 1.0m Vertical: 2.5m
Velocity Accuracy ³	GNSS 0.1m/s
Operational Limits ⁴	Acceleration: 4g Altitude: 20000m Velocity: 500m/s
Baud Rate	9600-921600 bps (default 115200 bps) ⁵
Max Navigation Update Rate	10Hz (default 1Hz)

¹ All satellites at -130 dBm.

² Open sky, stationary for 24 hours, -130 dBm, >6 SVs, CEP 50%.

³ 50% @ 30 m/s dynamic operation.

⁴ Assumes onboard platform ≤ 4g.

⁵ Enabling debug log requires support for higher baud rates (≥921600 bps).

1.4 Protocol

Protocol	Type
NMEA 0183	Input/Output, ASCII

1.5 Antenna

Type	Specifications
Passive Antenna Type (Default)	25*25*4mm (L5) stacked on 18*18*4mm (L1)
Passive Antenna Type (Optional)	25*25*4mm (L5) stacked on 18*18*2mm (L1)

1.6 Product Applications

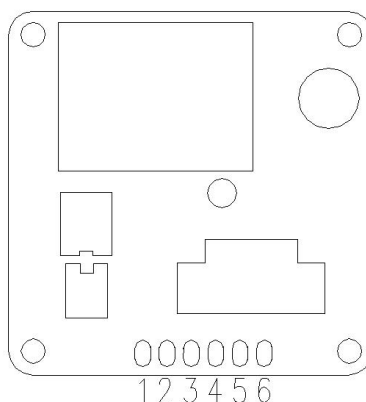
- Automotive Applications
- Intelligent Logistics Scheduling
- Intelligent Robots
- Maritime Navigation, Fleet Management
- Vehicle Tracking & Fleet Management
- Drone Swarm/Formation

•Personal &Workforce Safety IoT

•Emergency & Rescue

2 Pin Definitions

2.1 Pin Function Description



Pin#	Name	I/O	Description
1	RXD/DP	I	Data Input
2	TXD/DM	O	Data Output
3	GND	G	Ground
4	VCC	P	Main Power Supply
5	1PPS	O	pulse per second signal output
6	EN (reserved)	I	Module Power Control Switch (Default ON, '1' = ON,'0' = OFF)

*Solder pad definitions are consistent with connector pin outs.

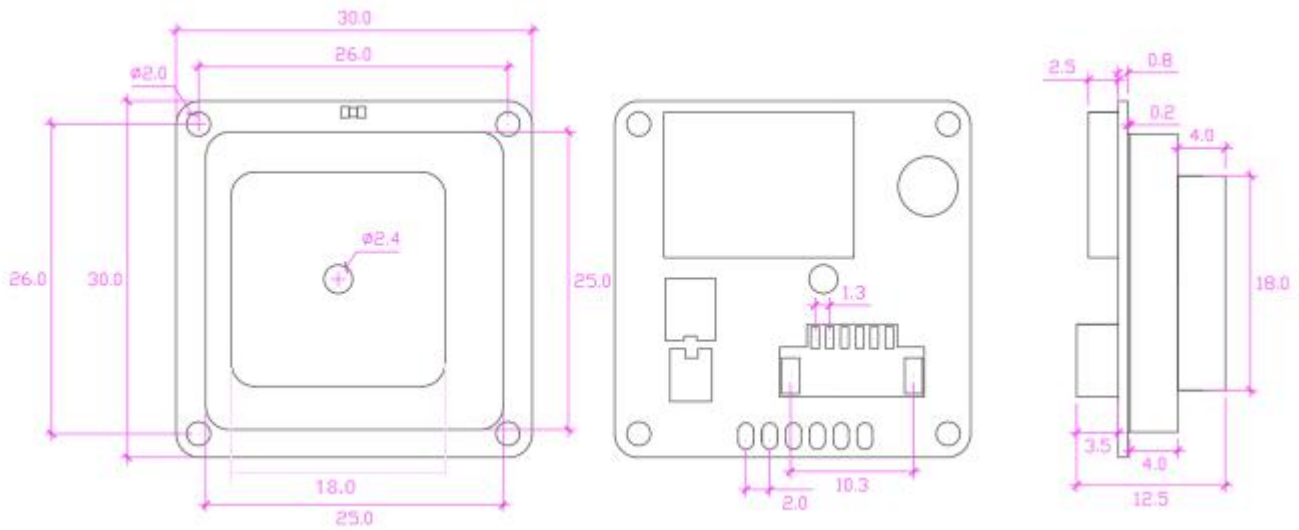
3 Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit
Power Supply Voltage	VCC	3.3	5.0	5.5	V
Average Supply Current	Acquisition	18@3.3V	25@3.3V	30@3.3V	mA
	Tracking	18@3.3V	25@3.3V	28@3.3V	mA
Backup Battery			0.07		F
Backup Battery Current	I_BCKP		14@3.3V		uA
Digital I/O Voltage	Div	3.3		3.3	V
Storage Temperature	Tstg	-40		85	°C
Operating Temperature ¹	Topr	-40		85	°C
Farad Capacitor ²	Tstg	-25		60	°C
Humidity				95	%

¹ This is the operating temperature range when the module without a Farad Capacity.

- 2 This module cannot perform a hot start when the temperature is below -25°C or above 60°C.

4 Product Dimensions

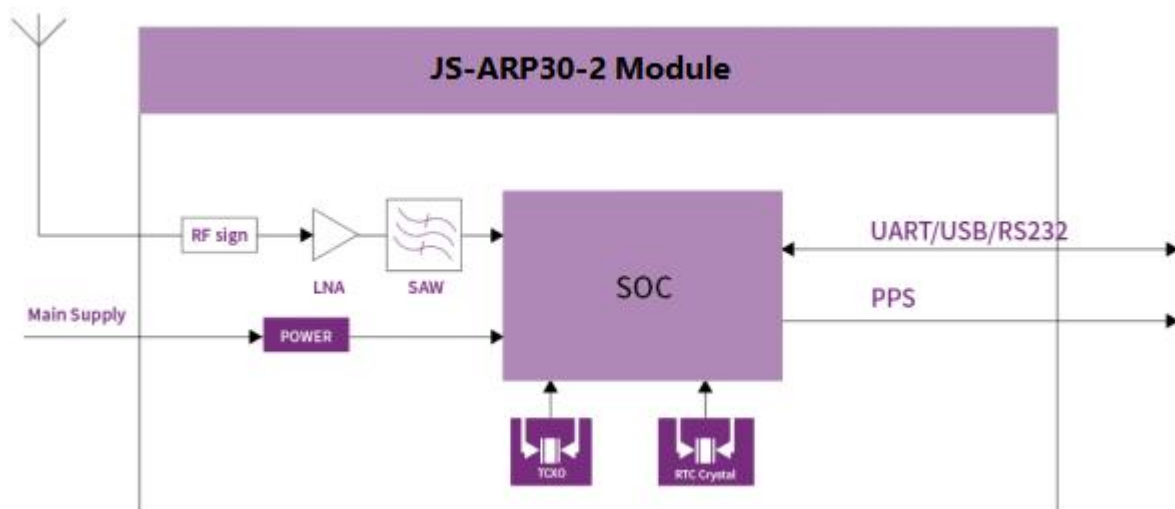


Unit: mm Tolerance: $\pm 0.3\text{mm}$

5 Interface Configuration Options

5.1 Interface Description

5.1.1 Block Diagram



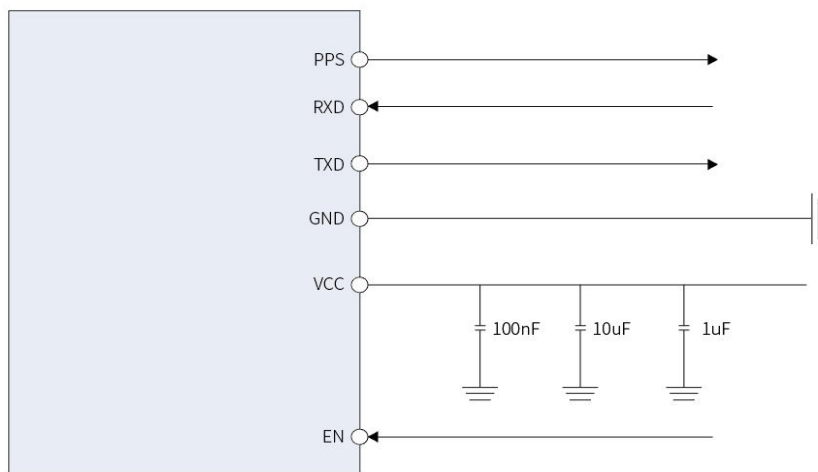
5.1.2 Interface Selection

The JS-ARP30-2 series offer different interface options as listed below.

Model No.	UART	USB	RS232
JS-ARP30-2 (Default)	√	NC	NC
JS-ARP30B-2	NC	√	NC
JS-ARP30R-2	NC	NC	√

5.1.3

Application Circuit



6. USB Driver Installation Guide

The PL2303 driver is required for using the USB interface of this product. It can be downloaded from the official website or obtained from our official website (Windows driver)

7. ROHS

This product is compliance with RoHS standard.