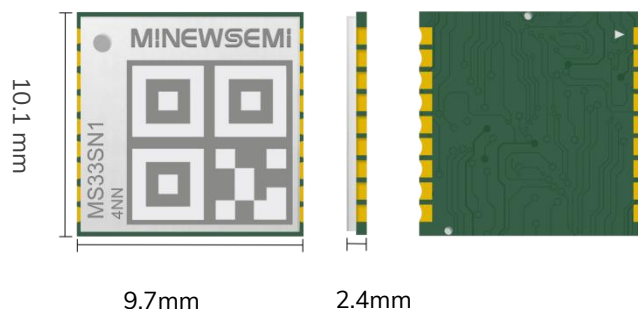


# MS33SN1

## Tiny Full-Constellation GNSS Module



MS33SN1 is a concurrent receiving module with built-in multi-positioning system, which supports simultaneous reception of GPS, BDS, GLONASS, GALILEO and QZSS L1 C/A, L1S bands. Compared with a single GPS system, MS33SN1's full-constellation satellite positioning system greatly increases the number of visible and usable satellites, and at the same time save time for first positioning, and can achieve higher positioning accuracy even when driving in a complex urban environment. The L1S supported by MS33SN1 can directly receive disaster warning information such as earthquakes and tsunamis officially issued by Japan through the satellite signal channel.

Through the advanced AGPS (EASY™) orbit prediction technology and power saving mode (Always Locate™ technology), the MS33SN1 module can realize fast positioning without network assistance, and fully meet industry standards. At the same time, it has its own logging function, that is the LOCUS technology. The technology enables MS33SN1 to record location information to the internal memory at a default interval of 15 seconds (without external Flash), and provides a log capacity of more than 16 hours without increasing the cost. MS33SN1 provides an ideal solution for related applications such as automotive, industrial PDA, driving recorder and wearable products. Its low power consumption meets the requirements of portable devices, facilitates the integration of such applications.

## Advantages

- Support multi-constellation: GPS, BDS, GLONASS, GALILEO and QZSS
- AGPS (EASY™) Orbit Prediction Technology
- Inside built-in low noise amplifier and Improved reception sensitivity
- Low power consumption: 18mA @tracking mode
- Power saving mode (AlwaysLocate™ technology)
- Support DGPS and SBAS (WAAS/EGNOS/MSAS/GAGAN)
- Strong anti-interference
- Integrated logging LOCUS™ technology
- Support receiving L1S Japan earthquake, tsunami and other disaster warning information



Full-  
constellation



Low-power



Anti-interference



Rapid location



Industrial-grade  
Temperature



L1S  
Broadcast

Parameter		Specification	
1	Constellation	GPS:	L1 C/A
		BDS:	B1I
		GLONASS:	L1
		QZSS:	L1 C/A
		SBAS:	WAAS, EGNOS, MSAS, GAGAN, SDCM
2	Operating frequency	GPS L1:	1575.42MHz
		QZSS L1:	1575.42MHz
		SBAS L1:	1575.42MHz
		BDS: B1I:	1561.098MHz
		GLONASS G1:	1601.71875MHz±3.91175MHz
3	Sensitivity	Cold Start:	-148dBm
		Re-capturing:	-160dBm
		Hot Start:	-163dBm
		Tracking:	-165dBm
4	First Positioning Time	Cold Start:	≤24s(Avg)
		Warm Start:	≤24s(Avg)
		Hot Start:	1s;
5	Position Precision	Single point location	2m CEP (Typical Open Sky)
6	Speed Precision	0.1m/s CEP	
7	Time Precision	20 ns	
8	Input Voltage	Main Power:	2.8-3.6V
		Backup Power	1.8-3.6V
9	Power Consumption	Capturing:	25mA @3.3v avg
		Tracking:	18mA @3.3v avg
		Sleeping:	12uA @3.3v avg
10	Storage Temp	-40℃ - +85℃	
11	Work Temp	-40℃ - +85℃	
12	Refresh Frequency	GNSS:1-10Hz;	
13	Packaging Dimension	10.1*9.7*2.4mm, LCC 24 pin	

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