

NEXT Generation High Precision Multi-Frequency Multi-GNSS Receiver for QZSS









Product Summary

MSJ's next generation high precision multi-frequency multi-GNSS receiver provides precise and robust position to any solutions of many industries. Our new receiver can support L6 signal from QZS and deliver centimeter-class position using single GNSS receiver. As further advantage its cost would be less than 1/10 compared with conventional high precision receiver.

Thus, the market of autonomous drive car, agriculture machine, construction machinery, industrial machinery, drone would be rapidly expanded.

About Multi-frequency

- Multi-frequency receiver can stably maintain high accuracy even with carrier wave positioning at long Base Length (<50 km). It can also support to VRS (Virtual Reference Station).
- It is an indispensable system method for centimeter-class positioning using quasi-zenith satellites.

Advantage and Market needs of Multi-frequency receiver

Advantage of Multi-frequency receiver

- The sub-meter level position accuracy will be able to also realize in every country because the error by the ionospheric delay can be canceled by using several different frequencies.
- Convergence time that is a disadvantage of PPP(Precise Point Positioning) method can be shortened.
- The shortening of convergence time must be necessary for autonomous car driving.

Market of Multi-frequency receiver

- Application to automatic operation of moving bodies, such as automatic operation of agricultural robot machines, construction machinery, drone, and marine
- Application to ADAS for vehicles, ITS, V2X, and road pricing, etc.



Core Technology

- High precision positioning algorithm by using multi-fre quency of GPS, QZSS and GLONASS.
- Algorithm to output measuring data of carrier phase positioning using GPS and QZSS L1 C/A, L1S, L2C, L5, L6 LEX.
- Technology of PPP-RTK by using QZSS L6 LEX signal.



Next generation multi-frequency multi-GNSS receiver board

• The element technology regarding PPP-AR(PPP ambiguity resolution).Position accuracy is improved to 2-3cm compared to conventional PPP with 10cm accuracy.

Characteristic Key point

- Provide high precision position calculation that receives and decodes signals from all satellite systems.
- Autonomous high precision positioning by using L6 signal from QZSS.
- Work as the high precision multi-frequency GNSS RTK receiver at places in overseas regions which cannot obtain QZSS signal.
- Provide the best solution for autonomous driving by the tight coupling technology with IMU.

Specification

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Supported Satellite Systems and Signals	GPS		L1 C/A, L2C, L2P, L5
	GLONASS		L1, L2
	Galileo		E1, E5, E5a, E5b
	QZSS		L1 C/A, L1S, L2C, L5, L6 LEX
	SBAS		L1, L5
Position Accuracy (RMS)	Autonomous		1.5 m (typical)
	RTK		1cm + 1ppm (Base length <50Km)
	PPP(MADOCA)		< 10 cm *1
	PPP-RTK (CLAS) * <mark>2</mark>	Dynamic	< 6.94 cm
		Static	< 3.47 cm
TTFF (Autonomous)	Cold Start		90 sec (typical)
	Warm Start		35 sec (typical)
	Hot Start		12 sec (typical)
	Re-acquisition		2 sec (typical)
Output Rate	up to 100Hz *3		
Interface	USB, UART, CAN, Ethernet		
Message Format	NMEA 0183 V3.0 (output) RTCM SC104 2.x, 3.0, 3.1, 3.2 (input/output)		

*1 From MADOCA specification *2 From CLAS specification

*3 Please contact us for other requirement and details

*Specifications are subject to change without notice.

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l	MSJ Authorized Dealer

Magellan Systems Japan, Inc.

Amagasaki Research Incubation Center, #315 7-1-3, Doicho, Amagasaki, Hyogo, 660-0083, JAPAN TEL. +81-6-4950-5520 FAX. +81-6-4950-5521 E-Mail: sales@magellan.jp