Specifications

Trimble Marine Inertial Navigation system

Receiver Name	**MPS500 Marine Positioning Sensor**
Configuration Option	Modular
Rover position update rate	Up to 50 Hz (up to 200 Hz with Applanix Ethernet data option)
Rover operation within a VRS™ network	Yes
Available Options	Applanix proprietary Ethernet output data also allows TrueHeave, Data logging. MarineSTAR satellite corrections
General	
Status Lights	3 - Power, Status, Logging
Dimensions (L × W × D)	145mmL x 160mmW x 66mmH for MPS500 Sensor only
Weight	1.3 kg (2.9 lb) for MPS500 Sensor only
Antenna Options	
GA830	Triple Frequency GNSS (GPS, QZSS, Glonass, Galileo, BeiDou), MSS (MarineSTAR), L1 SBAS. For more details refer to the GA830 Spec Sheet
Temperature	
Operating	–20°C (-4°F) to +60°C (140°F)
Storage	–40°C (-40°F) to +70°C (158°F)
Humidity	5-95% RH, non condensing
Waterproof	IP66
Shock and Vibration	
Vibration	RTCA/DO-160F section 8, CatU2 Zone2, Curves F and F1, Random 3.3 G RMS performance, Random 4.7 G RMS endurance
Shock	RTCA/DO-160F section 7, Cat B operation shock and acceleration, ± 6 G operating, ± 20 G survival
Measurements	
	Advanced Trimble Maxwell™ 6 Custom GPS Chips
	High-precision multiple correlator for GNSS pseudorange measurements
	Unfiltered, unsmoothed pseudo-range measurements data for low noise, low multipath error, low-time domain correlation, and high-dynamic response
	Very low noise carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
	Trimble EVEREST™ multipath signal rejection
	MSS Band: MarineSTAR by subscription
	GPS L1 C/A, L2C, L2E (Trimble method for tracking unencrypted L2P). 220 channels
	GLONASS L1/L2C/A, L2P Full Cycle Carrier
	Galileo: L1 CBOC, E5A, E5B & E5AltBOC[3]
	BeiDou: B1, B2
	QZSS: L1 C/A, L1C, L1 SAIF, L2C, L5
	4-channel SBAS L1 C/A, L5 (WAAS/EGNOS/MSAS/GAGAN)
SBAS (WAAS/EGNOS/MSAS) Positioning[2]	
Accuracy	Horizontal ± 0.50m (1.6 ft), Vertical ± 0.85m (2.8 ft)
Code Differential GPS Positioning[1]	
Horizontal accuracy	0.50 m + 1 ppm RMS (1.6 ft + 1 ppm RMS)
Vertical accuracy	0.50m + 1 ppm RMS (1.6 ft + 1 ppm RMS)
OmniSTAR Positioning	
MarineSTAR service accuracy	Horizontal 0.1 m (0.3 ft), Vertical 0.15 m (0.5 ft)
Real-Time Kinematic (RTK up to 30 km) Positioning[1]	
Horizontal accuracy	8 mm + 1 ppm RMS (0.026 ft + 1 ppm RMS)
Vertical accuracy	15 mm + 1 ppm RMS (0.05 ft +1 ppm RMS)

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Trimble VRS[4]	
Horizontal accuracy	8 mm + 0.5 ppm RMS (0.026 ft +0.5 ppm)
Vertical accuracy	15 mm + 0.5 ppm RMS (0.05 ft +0.5 ppm)
Accuracy during GNSS outage	
Horizontal accuracy	6m (20 ft) for 60 second total outage (RTK)
Precise Heading	
Heading accuracy	
2 m antenna separation	0.08°
4 m antenna separation	0.06°
Heave	
Accuracy	5cm (0.16 ft) or 5%
TrueHeave (Optional upgrade)	2cm (0.07 ft) or 2%
Roll and Pitch	
Accuracy	0.03° with RTK or MarineSTAR. 0.04° with DGPS
During GNSS Outage	0.05°
Post Processed (Option)	<0.03°
Power	
External DC	9-34 VDC
Current	2.5A Maximum
Regulatory Approvals	FCC Part 15 Subpart B (Class B Device), Canadian ICES-003 VCCI V-3/2015.04, AS/NZC CISPR 22, EN55022, EN55024, EN60950-1 CE mark compliant, RoHS Compliant, WEEE Compliant
Communications	
Serial	5 Ports. NMEA or Binary up to 50Hz. GNSS corrections input
1PPS (1 Pulse-per-second)	
Standard Ethernet	NMEA and Auxilliary data. Output to POSview software
Optional Ethernet Output	TrueHeave, Data Logging, Position, attitude, raw IMU, raw GNSS. Up to 200 Hz protocol output
External GSM/GPRS	External SNM940. GNSS Radio on external Computer with corrections sent to MPS500
Receiver position update rate	Up to 50 Hz positioning. 200Hz with Applanix Ethernet prorietory option
Correction data input	CMR™, CMR+™, RTCM 2.x, RTCM 3.x
Data outputs	NMEA, 1PPS, Standard marine messages TSS1, $PASHR, SIMRAD1000 etc

Notes

1 Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry, interference and atmospheric conditions. Always follow recommended survey practices.

2 Depends on SBAS system performance.

4 Galileo Commercial Authorization
Developed under a Licence of the European Union and the European Space Agency.

4 Networked RTK PPM values are referenced to the closest physical base station

Specifications subject to change without notice.

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