Specifications

Trimble MPS865
GNSS Heading Receiver

Receiver Name	**MPS865 GNSS Heading Receiver**
Configuration Option	
Type	Modular, dual antenna capable
Base and rover interchangeability	Yes
Base operation	Yes, optional
Rover operation	Yes, optional
Heading and Moving Base operation	All models[5]
Rover position update rate	20Hz upgradeable to 50Hz
Rover maximum range from base	Unlimited
Constellations	GNSS (GPS, QZSS and GLONASS standard). Galileo, BeiDou
Rover operation within a VRS™ network	Yes
Factory options	See Receiver Upgrades below
General	
Keyboard and display	OLED dimmable display. LED status light
	On/Off key for one-button startup. Audible beeper
	4 arrow keys (up, down, left, right) and OK key
Dimensions (L × W × D)	16.5 cm (6.5 in) × 20.6 cm (8.1 in) × 6.5 cm (2.6 in) including connectors
Weight	1.66 kg (3.66 lb) receiver only 1.70 kg (3.75 lb) with UHF radio
Antenna Options	
GA830	Triple Frequency GNSS (GPS, QZSS, Glonass, Galileo, BeiDou), MSS (RTX, OmniSTAR), MSK Beacon
Zephyr™ Model 3 Series	Triple Frequency GNSS (GPS, QZSS, Glonass, Galileo, BeiDou), MSS
Temperature	
Operating	–40 °C to +65 °C (–40 °F to +149 °F)[1]
Storage	–40 °C to +95 °C (–40 °F to +203 °F)
Humidity	Damp Heat 100% humidity, +40 °C (104 °F) IEC 60945:2002
Waterproof	IP67 waterproof and dustproof IEC 60529
Shock and Vibration	
Pole Drop	Designed to survive a 1 m (3.3 ft) pole drop onto a hard surface
Shock	MIL-STD 810F (Fig 516.5-10) (01/2000). Sawtooth (40g/11ms)
Vibration	MIL-STD 810F (Fig 514.5C-17) (01/2000)
Measurements	480 GNSS tracking channels (see Receiver Upgrades):
	GPS L1, L1P(Y), L2P(Y), L2C, L5, L1C
	GLONASS L1, L1P, L2, L2P, L3, L1/L2 CDMA
	Upgradeable to Galileo E1, E5a, E5b

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	Upgradeable to BeiDou B1, B2, B3. Able to track 3rd generation BeiDou signals
	QZSS L1, L1 SAIF, L1C, L2C, L5
	SBAS L1, L5
	DGNSS corrections via MSK Beacon reception
	Patented method to track encrypted GPS P(Y)
	StrobeTM Correlator for reduced GNSS multi-path
	2-channel SBAS (WAAS/EGNOS/MSAS/GAGAN)
	GNSS-centric fully independent signal tracking including GPS only, GLONASS only,or BeiDou only
SBAS (WAAS/EGNOS/MSAS) Positioning[3]	
Horizontal accuracy	± 0.50m (1.6ft)
Vertical accuracy	± 0.85m (2.8 ft)
Code Differential including Beacon Positioning[2]	
Correction source	DGNSS Base via radio, Internet or MSK Beacon IALA compliant
Horizontal accuracy	±(0.25m + 1 ppm) RMS ±(0.8 ft + 1 ppm)
Vertical accuracy	±(0.50m + 1 ppm) RMS ±(1.6 ft + 1 ppm)
CenterPoint® RTX Positioning[7]	
Accuracy	Horizontal 2cm (0.06 ft) RMS, Vertical 5cm (0.16 ft) RMS
Convergence time for specified precisions	5 minutes in select regions, and typcially 30 minutes worldwide
RTK Positioning[2]	
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)
Trimble VRS[8]	
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)
Precise Heading[2]	
Heading accuracy 2m baseline	0.09° RMS
Heading accuracy 10m baseline	0.03° RMS
Pitch or Roll	Typically twice the baseline accuracy
Post-processing accuracy	
Static	3 mm + 0.5 ppm HRMS / 5 mm + 0.5 ppm VRMS
High precision static	3 mm + 0.1 ppm HRMS / 3.5 mm + 0.4 ppm VRMS
Power	
Internal	Removable internal battery 7.4V 3.7 Ah Li-Ion battery
	Integrated charging circuitry - Battery will charge from external power source

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External	9-36 V DC external power input (EN2282, ISO7637-2). Over-voltage protection Receiver automatically turns on when connected to external power
Power consumption	5.9 W in rover mode with internal receive radio
	12.9 W in base station mode with internal transmit radio
Operation Time on Internal Battery	
Rover	6 hours
Base station with UHF transmitting	4 hours
Regulatory Approvals	
	FCC: Part 15
	RED 2014/53/EU
	Canadian ICES-003.
	RoHS - 2
	WEEE
	Galvanic Insulation 500V (Except USB)
Communications	
Lemo (Serial 1) - Port A	RS232, external power input. Use for UHF radio configuration
Serial 2 - Port B	9 pin Male. RS232. Switchable to RS422
Serial 3 - Port F	9 pin Male. RS232, 1PPS, NMEA2000 (CAN)
1PPS (1 pulse-per-second)	Available on Port F. User settings for period, offset, active edge
USB	1 mini USB OTG
Ethernet	RJ45 connector. DHCP Server, Static IP, Server mode
WiFi	802.11 b/g/n. SMA connector for WiFi/Bluetooth external antenna
Bluetooth wireless technology	Bluetooth v4.0+EDR/LE, Bluetooth v2.1+EDR SMA connector for WiFi/Bluetooth external antenna
Cellular[9]	LTE(4G) Modem GSM/GPRS/EDGE Quad Band 800/900/1800/1900 MHz for 2G
	LTE Cat 1 Twelve bands 1,2,3,4,5,7,8,12,18,19,20,28 for 4G
Network Protocols	
HTTP (web browser GUI)	Yes, via Wi-Fi, Ethernet, or cellular
NTP Server	Yes
TCP/IP or UDP	Yes
NTRIP	NTRIP v1 and v2, Client mode. FTP server. Caster is optional upgrade
RTK Networks	VRS, FKP, MAC

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mDNS/uPnP Service discovery	Yes
Dynamic DNS	Yes
eMail alerts	Yes
Network link to Google Earth	Yes
Supported data formats	
Correction Inputs	CMR™, CMR+™, CMRx, RTCM 2.x, RTCM 3, ATOM
Correction Outputs	CMR™, CMR+™, CMRx, RTCM 2.x, RTCM 3, ATOM
Data Outputs	NMEA0183, NMEA2000, 1PPS Time Tags, ATOM
External GSM/GPRS, cell phone support	Supported for Trimble IBSS and VRS services
Integrated radios (optional)	Internal MSK Beacon6 and 450 MHz (UHF) or Internal MSK Beacon only
Channel spacing (450 MHz)	12.5 kHz or 25 kHz spacing available
Sensitivity (450 MHz)	-114 dBm (12 dB SINAD)
Emission designator	7K90F1D (403-430 MHz) 8K34F1D (430-473 MHz)
Internal MSK Beacon receiver	Frequency range 283.5–325.0 kHz
	Channel spacing 500 Hz
	MSK bit rate 50, 100, and 200 bps
	Demodulation minimum shift key (MSK)
Receiver Upgrades	
Constellation	Galileo, BeiDou
Frequency	Triple Frequency
Precision	Precision 7/2 Rover, Precise GNSS
Function	Precise Base, Precise Rover, Data logging, 50 Hz, Data logging, NTRIP Caster
Data Logging	
Memory limit	6.6 Gb internal memory (option). Expandable through external USB sticks

Notes

1 Receiver will operate normally to –40 °C.

2 Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry, interference and atmospheric conditions. Always follow recommended practices.
3 Depends on SBAS system performance.

4 Bluetooth type approvals are country specific. For more information, contact your local Trimble office or representative.
5 Two antennas (See Antenna Options) must be connected for heading.

6 One of the antennas must be a MSK Beacon capable one such as GA830 for beacon signal reception.
7 Marine use is controlled - Contact Trimble Marine for details. Receiver accuracy and convergence time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as trees and buildings.

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8 Networked RTK PPM values are referenced to the closest physical base station
9 Check your cellular provider offers 4G subscriptions in your area of work. Trimble offers alternative cellular modems such as the SNM941

Specifications subject to change without notice.

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