

MPS566 Specifications

Configuration option	Modular
Base and rover interchangeability	Yes, if the Base upgrade is installed.
Rover position update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz, 50 Hz
Rover maximum range from base	Unrestricted
Heading and moving base operation	Yes
Rover operation within a VRS network	Yes
Factory options	BeiDou, Galileo, GPS, GLONASS, triple-frequency GNSS, NavIC, Wi-Fi (AP, Client), LTE, Logging, Dual MSS (RTX, Marinestar)
Internal memory	9.25 GB. Raw data logging (.T02 and T04 files). See Data Logging menu .

General

Keyboard and display	OLED display (256 × 64), 32 characters by 4 rows On/Off key for one-button startup Escape and Enter keys for menu navigation Four arrow keys (up, down, left, right) for option scrolls and data entry
Dimensions (L × W × H)	269 mm (L) × 141 mm (W) × 61 mm (H) 10.6 in (L) × 5.5 in (W) × 2.4 in (H)
Weight	1.85 kg 4.08 lb

GNSS antenna (recommended)

Also see GNSS Antenna Chart

Zephyr™ 3 series (rover, rugged)	Triple-frequency GNSS (GPS, GLONASS, Galileo, BeiDou, QZSS, NavIC), MSS, SBAS NOTE – The Zephyr 3 Rugged antenna is recommended for use with the Groundworks system.
GA830	Triple-frequency GNSS (GLONASS, Galileo, BeiDou, QZSS, NavIC), MSS, SBAS, MSK NOTE – The GA830 antenna is recommended for the MPS566 receiver for use in marine applications.

Temperature

Operating 1	-40 °C to +65 °C (-40 °F to +149 °F)
Storage	-40 °C to +80 °C (-40 °F to +176 °F)
Humidity	93 % humidity at 40 °C for a duration of 3 hours (IEC-60945 Method 8.3)
Water Ingress Protection (IP)	IP67 for submersion to depth of 1 m (3.3 ft), dustproof

1 Operating up to +65 °C ambient when the receiver is powered by external DC supply. Operating up to +48 °C ambient when the receiver is powered by a USB-PD batter or charger.

Shock and vibration

Pole drop	Designed to survive a 1.1 m (3.6 ft) pole drop onto a hard surface
Shock – non-operating	To 75 g, 6 ms
Shock	Operating to 40 g, 10 ms, saw-tooth
Vibration	IEC 60945 Method 8.7

Measurements

Advanced Maxwell™ 7 technology custom GNSS chip

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

Trimble EVEREST™ multipath signal rejection

Dual MSS band: Trimble CenterPoint RTX correction service, OmniSTAR and Fugro MarineStar correction services by subscription

Trimble xFill® technology for short gaps in RTK correction messages

Multi-channel GNSS:

BeiDou: B1, B1C, B2, B2A, B2B, B3

Galileo 2: E1, E5a, E5b, E5AltBOC, E6

GPS: L1-C/A, L1C, L2E (Trimble method for tracking unencrypted L2P), L2C, L5

GLONASS: L1-C/A, L2-C/A, L1P, L2P, L3 Full Cycle Carrier

NavIC: L5-C/A

QZSS: L1 C/A, L1C, L1SAIF, L2C, L5, L6

4-channel SBAS: L1-C/A, L5 (WAAS / EGNOS / MSAS / GAGAN)

Dual-channel MSK (beacon)

2 Galileo Commercial Authorization.

Accuracies

SBAS (WAAS/EGNOS/MSAS) positioning 3

Horizontal accuracy	Horizontal ± 0.50 m (1.6 ft)
Vertical accuracy	Vertical ± 0.85 m (2.8 ft)

Code Differential GPS positioning 4

Correction type	DGPS RTCM 2.x
Correction source	DGPS base via radio, Internet, or MSK
Horizontal accuracy	$\pm(0.25 \text{ m} + 1 \text{ ppm})$ RMS $\pm(0.8 \text{ ft} + 1 \text{ ppm})$ $\pm(250+1 \times D \times 10^{-6})$ mm (D = distance from base in km)
Vertical accuracy	$\pm(0.50 \text{ m} + 1 \text{ ppm})$ RMS $\pm(1.6 \text{ ft} + 1 \text{ ppm})$ $\pm(500+1 \times D \times 10^{-6})$ mm (D = distance from base in km)

OmniSTAR/MarineSTAR positioning

VBS service accuracy	Horizontal <1 m (3.3 ft)
XP service accuracy	Horizontal 0.2 m (0.66 ft), vertical 0.3 m (1.0 ft)

Accuracies

HP service accuracy Horizontal 0.1 m (0.33 ft), vertical 0.15 m (0.5 ft)

Marinestar G2 + service accuracy Horizontal 0.02 m (0.06 ft), Vertical 0.06 m (0.20 ft), 95%

CenterPoint RTX positioning 5

Horizontal accuracy Horizontal 2 cm (0.06 ft) RMS

Vertical accuracy Vertical 5 cm (0.16 ft) RMS

Convergence time for specified precisions Five minutes in select regions, and within 15 minutes worldwide

xFill positioning

Horizontal accuracy RTK + 10 mm (0.03 ft)/min RMS

Vertical accuracy RTK + 20 mm (0.06 ft)/min RMS

RTK positioning 4, Single Baseline <30 km, Network RTK

Horizontal accuracy Precise Rover 8 mm + 1 ppm RMS (0.026 ft + 1 ppm RMS)
 $\pm(8+1 \times D \times 10^{-6})$ mm (D = distance from base in km)

Vertical accuracy Precise Rover 15 mm + 1 ppm RMS (0.05 ft + 1 ppm RMS)
 $\pm(15+1 \times D \times 10^{-6})$ mm (D = distance from base in km)

Fast Static

Horizontal accuracy 3 mm + 0.5 ppm RMS
 $\pm(3+0.5 \times D \times 10^{-6})$ mm (D = distance from base in km)

Vertical accuracy 5 mm + 0.5 ppm RMS
 $\pm(5+0.5 \times D \times 10^{-6})$ mm (D = distance from base in km)

High-Precision Static

Horizontal accuracy 3 mm + 0.1 ppm RMS (0.01 ft + 0.1 ppm)
 $\pm(3+0.1 \times D \times 10^{-6})$ mm (D = distance from base in km)

Vertical accuracy 3.5 mm + 0.4 ppm RMS (0.011 ft + 0.4 ppm)
 $\pm(3.5+0.4 \times D \times 10^{-6})$ mm (D = distance from base in km)

Precise Heading 4

Heading accuracy:

2 m antenna separation 0.09° RMS

10 m antenna separation 0.05° RMS

Velocity

Doppler horizontal accuracy 0.008 m/s RMS

Doppler vertical accuracy 0.025 m/s RMS

3 Depends on SBAS system performance.

Accuracies

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

5 Receiver accuracy and convergence time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.

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

Power

Internal	N/A
External (also see External Power)	Power input on 7-pin 0-shell LEMO connector is optimized for lead acid batteries with a cut-off threshold of 11.5 V, maximum 28 V DC Power input on the 26-pin D-sub connector is optimized for Trimble Lithium-ion battery input with a cut-off threshold of 10.5 V Power source supply (internal/external) is hot-swap capable in the event of power source removal or cut off DC external power input with over-voltage protection Receiver automatically turns on when connected to external power
Power over Ethernet (PoE)	N/A
Power consumption	7.7 W in rover mode, dual-GNSS active 8.0 W in rover mode with internal receive radio, dual-GNSS active

Regulatory approvals

Marine Equipment: IEC 60945:2002 Section 8, Protected

Also see Compliance Notices.

Communications

Serial 1 (COM1)	7-pin 0S LEMO, serial 1, 3-wire RS-232
Serial 2 (COM2)	26-pin D-sub, serial 2, 5-wire RS-232, using adapter cable
Serial 3 (COM3)/CAN	26-pin D-sub, serial 3, 3-wire RS-232, using adapter cable (selectable), 2-wire CAN output (NMEA 2000) (selectable)
1PPS (1 pulse-per-second)	Supported on both LEMO and 26-pin D-sub
Event In	Supported on LEMO
USB	USB v2 (supports USB-PD)
Ethernet	Through a multi-port adapter (P/N 57168)
Wi-Fi	Fully-integrated, fully-sealed 2.4 GHz Wi-Fi module Simultaneous Access Point (AP) and Client modes
Bluetooth wireless technology 8	Fully-integrated, fully-sealed 2.4 GHz Bluetooth module
Cellular	Fully-integrated, fully-sealed LTE compliant module Bands 1:2:3:4:5:7:8:12:18:19:20:28 (Verizon not supported)

8 Bluetooth type approvals are country specific. For more information, contact your local Trimble office or representative.

Network protocols

HTTP (web browser interface)	HTTP, HTTPS
NTP Server	Yes
TCP/IP or UDP	Yes
NTRIP	NTRIP v1 and v2, Client, Server, and Caster modes
mDNS/uPnP Service discovery	Yes
Dynamic DNS	Yes
eMail alerts	Supports SSL/TLS secure email servers

Integrated UHF radio (Receive only)

Also see Internal UHF Radio

450 MHz	Fully-integrated, internal 403 to 473 MHz Rx only, 12.5 or 25 kHz spacing configurable by Trimble dealer
Sensitivity	-114 dBm (12 dB SINAD)
Transmit power	N/A
900 MHz	Fully-integrated, internal 900 MHz; Rx only
Frequency approvals (902 to 928 MHz)	Canada, USA

Cellular support

Internet-based correction streams: (Trimble IBSS, Trimble VRS Now™, NTRIP)	Internal LTE modem Connected smartphone Connected Trimble controller (Siteworks) NOTE - Siteworks v1.60 and later supports the MPS566 receiver as a single antenna rover (no precise GNSS Heading).
Carriers	Bands 1:2:3:4:5:7:8:12:18:19:20:28 (Verizon not supported)
Remote access	Using DynDNS and appropriate service

Internal MSK Beacon receiver

Channels	Two
Frequency range	283.5 to 325.0 kHz
Channel spacing	500 Hz
MSK bit rate	50, 100, and 200 bps
Demodulation	Minimum shift key (MSK)
Antenna	Trimble GA830

Internal MSS Demodulator (L-Band)

Channels	Two
Frequency range	1525 to 1559 MHz
Correction services	Trimble CenterPoint RTX, OmniSTAR, and Fugro MarineStar

Input/Output

Correction inputs	CMR+™, CMRx, RTCM 2.x, RTCM 3, RTCM 3.3 (MSM), MSS (MarineStar, Trimble RTX)
Data outputs	NMEA 0183, NMEA 2000, GSOF, 1PPS time tags
Data inputs	Event
Maximum data rate	100 Hz (depending on data type)

Upgrades

Precision upgrades	See Available Upgrades
Feature upgrades	See Available Upgrades