SPEC SHEET

Trimble MPS566 Model 2

Modular GNSS heading receiver

Precise positioning and heading, anywhere

Advanced

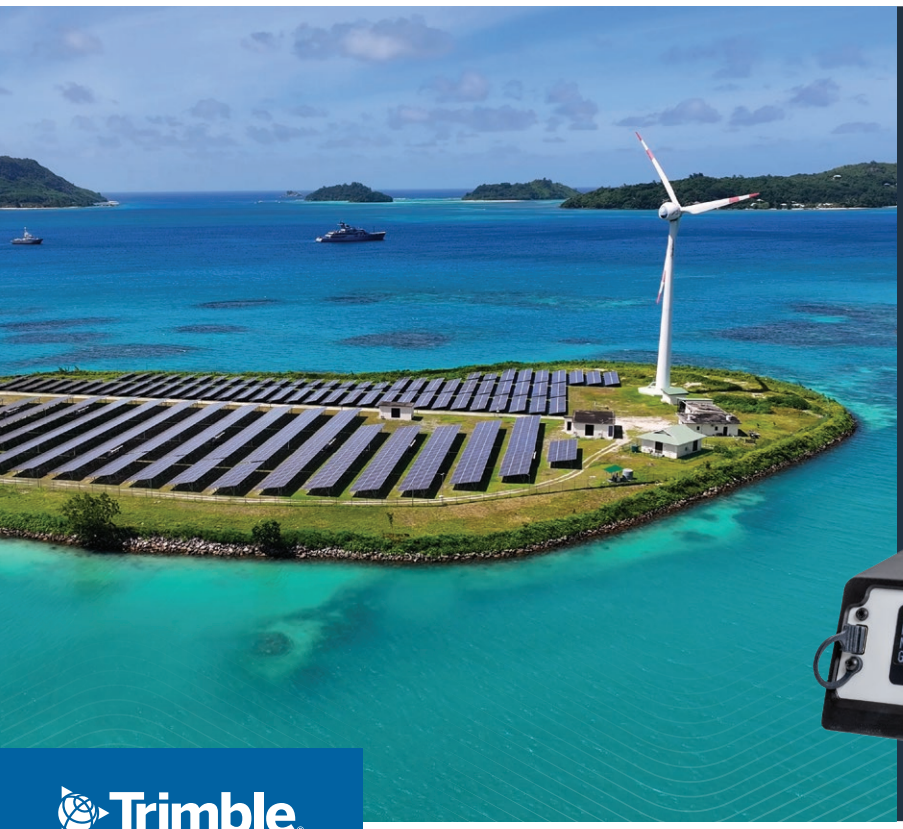
- Trimble® ProPoint® GNSS positioning engine. Engineered for improved accuracy and productivity in challenging GNSS conditions.
- Trimble Maxwell™ 7 GNSS ASIC dual chipset tracks the latest signals from all GNSS constellations with improved Trimble EVEREST™ Plus multipath mitigation, interference detection and protection against GNSS spoofing.
- Trimble IonoGuard™ technology mitigates ionospheric GNSS signal disruptions.
- Data logging internally and to external drive. USB-C PD charging. Convenient 4-line front panel display and configuration.

Connected

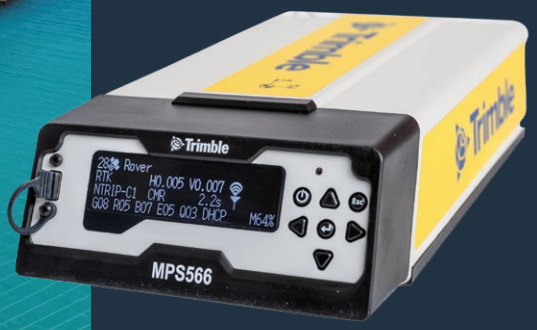
- Multiple real-time corrections options: Trimble CenterPoint® RTX, Fugro Marinestar, Trimble VRS Now™, Internet Base Station Service (IBSS) or MSK Beacon GNSS correction services.
- Wi-Fi®, Bluetooth®, MSK Beacon and 4G LTE communications
- Integrated worldwide 4G LTE modem.
- Ethernet, serial and USB support.
- Trimble CenterPoint RTX correction service delivers global RTK-level precision without a base station or real-time network.
- Trimble xFill® correction outage technology.
- Stream RTK corrections over the internet with the Trimble Internet Base Station Service (IBSS).

Flexible

- All-in-one unit saving space and power requirements.
- Weatherproof, high-impact resistant marine alloy housing for protection from extreme conditions.
- Precise GNSS heading with optional INS.
- Modular form factor for flexible use on machines, vessels or vehicles.



High accuracy, dual-antenna with advanced connectivity.



Trimble

civilconstruction.trimble.com

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Configuration option

MODULAR			
Base and rover interchangeability	Yes	**Rover operation within a VRS network**	Yes
Rover position update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz, 20Hz, 50Hz	**Heading and Moving Base operation**	Yes
Rover maximum range from base	Unrestricted	**Internal Memory**	9.25 GB logging

General

KEYBOARD AND DISPLAY	
	OLED Display (256 x 64), 32 characters by 4 rows
	On/Off key for one-button startup
	Escape and Enter keys for menu navigation
	4 arrow keys (up, down, left, right) for option scrolls and data entry
Dimensions (L × W × D)	269 mm (10.6 in) L x 141 mm (5.5 in) W x 61 mm (2.4 in) H
Weight	1.85 kg (4.08 lb)
GNSS ANTENNA (RECOMMENDED)	
Zephyr™ 3 or Zephyr Model 2 series [Base, Rover, Rugged, Geodetic]	Triple-frequency GNSS (GPS, GLONASS, Galileo, BeiDou, QZSS, NavIC) MSS, SBAS
GA830	Triple-frequency GNSS (GLONASS, Galileo, BeiDou, QZSS), MSS, SBAS, MSK Beacon
LNA Filters	Japanese LTE filtering below 1510 MHz allows useage >100m from LTE cell tower Iridium filtering above 1616 MHz allows usage >20m from Iridium transmitter
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	IP67 for submersion to depth of 1 m (3.3 ft), dustproof
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, Random 6.2 g RMS operating, 9.8g RMS 24-2000 Hz for 1 hrs each axis survival

GNSS technology

Advanced Trimble Maxwell 7 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

Trimble EVEREST multipath signal rejection

Trimble IonoGuard technology for mitigation of ionospheric GNSS signal disruptions

Spectrum Analyser to troubleshoot GNSS jamming

Anti-spoofing capabilities

Japanese LTE filtering below 1510 MHz allows useage >100m from LTE cell tower

Iridium filtering above 1616 MHz allows usage >20m from Iridium transmitter

Trimble xFill technology for short gaps in correction messages

Advanced Trimble dual Maxwell 7 GNSS chipset provide 672 channels for simultaneous satellite tracking and anti-spoofing capabilities

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

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

NavIC (IRNSS): L5-C/A

Galileo: E1, E5-A, E5-B, E5-AltBOC, E6

BeiDou: B1, B2, B3, B1C. B2A, B2B [Tracks 3rd generation BeiDou signals]

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

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

Dual MSS Band: Trimble CenterPoint RTX, OmniSTAR® and Fugro Marinestar correction services by subscription

Dual Channel MSK

Positioning

REGIONAL SBAS POSITIONING[2]	**WAAS, MSAS, EGNOS, QZSS, GAGAN, SDCM, SouthPAN**
Accuracy	Horizontal ± 0.50m (1.6 ft), Vertical ± 0.85m (2.8 ft)
PRECISE POINT POSITIONING (PPP) - UPGRADE REQUIRED	
Galileo HAS, SL1 [global]	Horizontal ± 0.20m (0.7 ft), Vertical ± 0.40m (1.3 ft), Convergnce 300s
QZSS CLAS [Japan only]	Horizontal 0.07m (0.2 ft) RMS, Vertical ± 0.12m (0.4ft) RMS

CODE DIFFERENTIAL GPS POSITIONING[3]			
Horizontal accuracy	±(0.25m + 1 ppm) RMS ±(0.8 ft + 1 ppm),	±(250+1xDx10^{-6}) mm [D = distance from base in Km]	
Vertical accuracy	±(0.50m + 1 ppm) RMS ±(1.6 ft + 1 ppm),	±(500+1xDx10^{-6}) mm [D = distance from base in Km]	
OMNISTAR/MARINESTAR POSITIONING			
VBS service accuracy	Horizontal <1 m (3.3 ft)	**HP service accuracy**	Horizontal 0.1 m (0.33 ft), Vertical 0.15 m (0.5 ft)
XP service accuracy	Horizontal 0.2 m (0.66 ft), Vertical 0.3 m (1.0 ft)	**Marinestar G2+ service accuracy**	Horizontal 0.02 m (0.06 ft), Vertical 0.06 m (0.20 ft), 95%
CENTERPOINT RTX POSITIONING[4]			
Convergence time for specified precisions	<1 min [RTX Fast regions], <3 min [Worldwide]		
CenterPoint RTX accuracy (with valid subscription)	Horizontal 0.02m (0.06 ft) RMS, Vertical 0.03m (0.1 ft) RMS		
xFill mode (limited to 5 minutes)	RTK Horizontal + 10 mm(0.03 ft)/min RMS. RTK Vertical + 20 mm(0.06 ft)/min RMS		
xFill-RTX mode (with valid CenterPoint RTX subscription)	Horizontal 0.03m (0.01 ft) RMS, Vertical 0.07m (0.2 ft) RMS		
REAL-TIME KINEMATIC POSITIONING[3] PRECISE ROVER			
Horizontal accuracy	8 mm + 1 ppm RMS (0.026 ft + 1 ppm RMS),	±(8+1xDx10^{-6}) mm [D = distance from base in Km]	
Vertical accuracy	15 mm + 1 ppm RMS (0.05 ft +1 ppm RMS),	±(15+1xDx10^{-6}) mm [D = distance from base in Km]	
NETWORKED RTK[5] PRECISE ROVER			
Horizontal accuracy	8 mm + 0.5 ppm RMS,	±(8+0.5xDx10^{-6}) mm [D = distance from base in Km]	
Vertical accuracy	15 mm + 0.5 ppm RMS,	±(15+0.5xDx10^{-6}) mm [D = distance from base in Km]	
FAST STATIC PRECISE ROVER			
Horizontal accuracy	3 mm + 0.5 ppm RMS,	±(3+0.5xDx10^{-6}) mm [D = distance from base in Km]	
Vertical accuracy	5 mm + 0.5 ppm RMS,	±(5+0.5xDx10^{-6}) mm [D = distance from base in Km]	
HIGH PRECISION STATIC PRECISE ROVER			
Horizontal accuracy	3 mm + 0.1 ppm RMS (0.01 ft +0.1 ppm),	±(3+0.1xDx10^{-6}) mm [D = distance from base in Km]	
Vertical accuracy	3.5 mm + 0.4 ppm RMS (0.011 ft +0.4 ppm),	±(3.5+0.4xDx10^{-6}) mm [D = distance from base in Km]	
PRECISE ATTITUDE[3] INTERNAL OR WITH INCOMING MOVING BASE CMRx CORRECTIONS			
Heading precision, 2m baseline	0.09° RMS	**Pitch / Roll precision (INS enabled)**	0.05° RMS (INS option) or 1° RMS (Attitude option)
Heading precision, 10m baseline	0.05° RMS		
VELOCITY			
Doppler	H 0.008 m/s RMS, V 0.025 m/s RMS		
INITIALIZATION TIME			
Regular RTK operation with base station	Single/Multi-base	**Initialization**	2-8 seconds
		Initialization reliability[6]	>99.9%

Power

POWER	
External	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 VDC
	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
	USB-PD input from device capable of 15 V @ 2 A
	DC external power input with over-voltage protection
	Receiver automatically turns on when connected to external power
Power consumption	7.7 W in rover mode, dual GNSS active
	8.0 W in rover mode with internal receive radio, dual GNSS active

Communications

REGULATORY APPROVALS			
	Country 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 RS232, using adaptor cable
Serial 3 (COM3)/CAN	26-pin D-sub, Serial 3, 3-wire RS232, using adaptor 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

Communications (continued)

USB	USB v2 (Supports USB-PD)	**Ethernet**	Through a multi-port adaptor (PN 57168)
Wi-Fi	Fully-integrated, fully-sealed 2.4 GHz Wi-Fi module Simultaneous Access Point (AP) and Client modes	**Bluetooth wireless technology**	Fully-integrated, fully-sealed 2.4 GHz Bluetooth module[7]
Internal LTE Modem	Fully-integrated, fully-sealed LTE compliant module, FDD-LTE: bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 18, 19, 20, 26, 28, 66 UMTS (WCDMA/FDD): bands 1, 3, 2, 4, 5, 6, 8, 19	Nano-SIM card TD-LTE: bands 38, 40, 41 Quad Band GSM: 850, 900, 1800, 1900 MHz	
NETWORK PROTOCOLS			
HTTP (web browser GUI)	HTTP, HTTPS	**mDNS/uPnP Service discovery**	Yes
NTP Server	Yes	**Dynamic DNS**	Yes
TCP/IP or UDP	Yes	**Email alerts**	Supports SSL/TLS secure email servers
NTRIP	NTRIP v1 and v2, Client, Server and Caster modes		
INTEGRATED UHF RADIO			
	Fully-integrated internal 403-473 MHz or dual band 403-473 MHz / 902-928 MHz; Rx/Tx		
450 MHz	12.5 kHz or 25 kHz spacing available	**900 MHz**	Fully-integrated, internal 900 MHz; Tx/Rx [1.0 W]
Sensitivity	-114 dBm (12 dB SINAD)		
Transmit power (450 MHz)	0.5 W, 1.0 W [Configured by Trimble Dealer]		
Frequency approvals (403-473 MHz)	Worldwide and depending on the local required licensing	**Frequency approvals (902-928 MHz)**	USA/Canada/Australia
INTERNAL MSS DEMODULATOR (L-BAND)			
Channels	2	**Correction Services**	Trimble CenterPoint RTX, OmniSTAR and Fugro Marinestar
Frequency range	1525-1559 MHz		
INTERNAL MSK BEACON RECEIVER			
Channels	2	**MSK bit rate**	50, 100, and 200 bps
Frequency range	283.5–325.0 kHz	**Demodulation**	Minimum shift key (MSK)
Channel spacing	500 Hz	**Antenna**	Trimble GA830
CELLULAR SUPPORT			
Internet-based correction streams: (IBSS, VRS, NTRIP)	Internal LTE modem Connected smartphone Connected Trimble Controller [Trimble SiteWorks, Trimble Access™]		
Remote Access	Using DynDNS and appropriate service		
INPUT/OUTPUT			
Correction inputs	CMR, CMR+™, CMRx, RTCM 2.x, RTCM 3, RTCM 3.3(MSM); MSS [Marinestar, Trimble CenterPoint RTX]	**Data outputs**	NMEA 0183, NMEA 2000, GSOF, 1PPS Time Tags, RT17, RT27
Maximum data rate	100Hz (depending on data type)	**Data inputs**	Event
FEATURES AND UPGRADES			
Standard features	RTX Rover, GPS, GLN, BDS, GAL, QZSS, SBAS, 3F, xFill, Wi-Fi (AP, Client), LTE, Logging	**Signal / Constellation upgrades**	All constellations and signals are included as standard
Raw data logging (*.T02, *.T04)	9.25 GB internal, expandable using USB-C flash drive (e.g. 32 GB)	**Feature upgrades**	Inertial (INS) heading, pitch and roll Attitude, 1° pitch and roll Programmatic interface Binary ouputs
Precision upgrades	Precise Heading Rover with Base as backup 10/02 Heading Rover 10/10 Heading Rover		

1. *Operating up to +65 °C ambient when the device is powered by external DC supply Operating up to +48 °C ambient when the device is powered by a USB-PD battery or charger.*
2. *Depends on SBAS system performance.*
3. *Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry, interference and atmospheric conditions. Always follow recommended survey practices.*
4. *Receiver accuracy and convergence time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.*
5. *Networked RTK PPM values are referenced to the closest physical base station.*
6. *May be affected by atmospheric conditions, signal multipath, and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.*
7. *Bluetooth type approvals are country specific. For more information, contact your local Trimble office or representative.*

SURVEY SOLUTIONS GROUP

www.surveysolutionsgroup.co.uk

Survey Solutions Group

Pyramid Building, 14 Dryden Road,

Loanhead, Midlothian, EH20 9LZ

United Kingdom

+44 (0)131 4404688

info@surveysolutionssgroup.co.uk

Trimble Civil Construction

10368 Westmoor Drive

Westminster, CO 80021

USA

Trimble Authorised Dealer