

# Specifications

# Trimble SPS361 Modular GPS Heading Receiver



## Receiver Name

**SPS361 GPS Heading Receiver**

## Configuration Option

**DGPS**

Type  
 Base and rover interchangeability  
 Base operation  
 Rover operation  
 Heading and Moving Base operation  
 Rover position update rate  
 Rover maximum range from base  
 Rover operation within a VRS™ network  
 Factory options

Modular  
 No, rover only  
 N/A  
 All models  
 All models<sup>5</sup>  
 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20Hz  
 Unlimited  
 DGPS only  
 N/A

## General

Keyboard and display

VFD display 16 characters by 2 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  
 24 cm (9.4 in) x 12 cm (4.7 in) x 5 cm (1.9 in) including connectors  
 1.22 kg (2.70 lb) receiver only  
 1.34 kg (2.95 lb) receiver with internal beacon radio

Dimensions (L x W x D)

Weight

## Antenna Options

GA510  
 GA530  
 GA810  
 L1/Beacon, DSM 232  
 Zephyr™ Model 2  
 Zephyr Geodetic™ Model 2  
 Zephyr Model 2 Rugged

L1/L2 GPS, SBAS, and OmniSTAR (optimized for OmniSTAR)  
 L1/L2 GPS, MSK Beacon, SBAS, and OmniSTAR  
 L1/L2/L2C GPS, Glonass, SBAS and OmniSTAR (optimised for OmniSTAR)  
 not supported  
 L1/L2 GPS, SBAS, and OmniSTAR  
 L1/L2 GPS, SBAS, and OmniSTAR  
 L1/L2 GPS, SBAS, and OmniSTAR

## Temperature

Operating  
 Storage  
 Humidity  
 Waterproof

-40 °C to +65 °C (-40 °F to +149 °F)<sup>1</sup>  
 -40 °C to +80 °C (-40 °F to +176 °F)  
 MIL-STD 810F, Method 507.4  
 IP67 for submersion to depth of 1 m (3.3 ft), dustproof

## Shock and Vibration

Pole Drop  
 Shock – Non-operating  
 Shock – Operating  
 Vibration

Designed to survive a 1 m (3.3 ft) pole drop onto a hard surface  
 To 75 g, 6 ms  
 To 40 g, 10 ms, saw-tooth  
 Tested to Trimble ATV profile (4.5 g RMS): 10 Hz to 300 Hz: 0.04 g/Hz;<sup>2</sup>  
 300 Hz to 1,000 Hz; -6 dB/octave

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## Measurements

Advanced Trimble Maxwell™ 5 Custom GPS chip  
High-precision multiple correlator for L1/L2 pseudo-range 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

L1/L2 signal-to-noise ratios reported in dB-Hz  
Proven Trimble low elevation tracking technology  
72-channel L1 C/A code, L1/L2 Full Cycle Carrier

Trimble EVEREST™ multipath signal rejection  
2-channel MSK Beacon (Optional)  
4-channel SBAS (WAAS/EGNOS/MSAS)

## Code Differential GPS Positioning<sup>2</sup>

Correction type	DGPS RTCM 2.x
Correction source	DGPS Base via radio or Internet
Horizontal accuracy	$\pm(0.25\text{m} + 1 \text{ ppm})$ RMS $\pm(0.8 \text{ ft} + 1 \text{ ppm})$
Vertical accuracy	$\pm(0.50\text{m} + 1 \text{ ppm})$ RMS $\pm(1.6 \text{ ft} + 1 \text{ ppm})$

## SBAS (WAAS/EGNOS/MSAS) Positioning<sup>3</sup>

Horizontal accuracy	Typically <1 m (3.3 ft)
Vertical accuracy	Typically <5 m (16.4 ft)

## OmniSTAR Positioning

VBS service accuracy	Horizontal <1 m (3.3 ft)
XP service accuracy	N/A
HP service accuracy	N/A

## Location RTK Positioning<sup>2</sup>

Horizontal accuracy	N/A
Vertical accuracy	N/A

## Precise Heading<sup>2</sup>

Heading accuracy	
2 m antenna separation	0.09° RMS
10 m antenna separation	0.05° RMS

## Power

Internal	N/A
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External

Power input on the 26-pin D-sub connector is optimized for lead acid batteries  
with a cut-off threshold of 11 V DC  
11 V DC to 28 V DC external power input with over-voltage protection

Receiver automatically turns on when connected to external power

Power over Ethernet (PoE)

44 V DC to 57 V DC, IEEE802.3af compliant device

Power consumption

6.0 W in rover mode with internal MSK Beacon receiver

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## Operation Time on Internal Battery

Rover	N/A
Base station	N/A
450 MHz systems	
900 MHz system	

## Regulatory Approvals

FCC: Part 15 Subpart B (Class B Device) and Subpart C, Part 90  
Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.  
Canadian RSS-310, RSS-210, and RSS-119.  
Cet appareil est conforme à la norme CNR-310, CNR-210, et CNR-119 du Canada.

R&TTE Directive: EN 301 489-1/-5/-17, EN 300 440, EN 300 328, EN 300 113, EN 60950, EN 50371  
ACMA: AS/NZS 4295 approval  
CE mark compliance  
C-tick mark compliance  
RoHS compliant  
WEEE compliant

## Communications

Lemo (Serial)	N/A
Modem 1 (Serial)	26-pin D-sub, Serial 2, Full 9-wire RS232, using adaptor cable
Modem 2 (Serial)	26-pin D-sub, Serial 3, 3 wire RS-232, using adaptor cable
1PPS (1 pulse-per-second)	Available
Ethernet	Through a multi-port adaptor
Bluetooth wireless technology	Fully-integrated, fully-sealed 2.4 GHz Bluetooth module <sup>4</sup>
Integrated radios (optional)	Fully-integrated, fully-sealed internal MSK Beacon radio
Channel spacing (450 MHz)	N/A
Sensitivity (450 MHz)	
450 MHz output power	N/A
900 MHz output power	N/A
Frequency approvals (900 MHz)	N/A

External GSM/GPRS, cell phone support

Supported for Trimble IBSS and VRS services – directly using the clip on SNM910 or using the SCS900 software on device with an internet connection

Internal MSK Beacon receiver

If internal MSK Beacon Radio is installed<sup>6</sup>  
Frequency range 283.5–325.0 kHz  
Channel spacing 500 Hz  
MSK bit rate 50, 100, and 200 bps  
Demodulation minimum shift key (MSK)

Supported data formats

Correction Inputs  
Correction Outputs

CMR™, CMR+™, CMRx, RTCM 2.x, RTCM 3<sup>7</sup>  
Repeat RTCM from MSK Beacon or OmniSTAR VBS source

Data Outputs

NMEA, GSOF, 1PPS Time Tags

## Receiver Upgrades

Not Upgradable

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## Notes

1 Receiver will operate normally to  $-40^{\circ}\text{C}$ .

2 Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry, 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 of the supported antennas (See Antenna Options) must be connected for heading.

6 One of the antennas must be a GA530 for MSK Beacon signal reception.

7 CMR input for DGPS positioning only available on receivers shipped with v4.10 f/w or later.

Specifications subject to change without notice.

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