

# Specifications

# Trimble SPS351 Modular GPS Receiver



<b>Receiver Name</b>	<b>SPS351 DGPS/Beacon Receiver</b>
<b>Configuration Option</b>	
Type	Modular
Base and rover interchangeability	Yes
Base operation	SPS351 with DGPS RS option
Rover operation	SPS351
Heading operation	N/A
Rover position update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz
Rover maximum range from base	Unlimited
Rover operation within a VRS™ network	RTCM DGPS only
Factory options	DGPS Reference Station
<b>General</b>	
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
Dimensions (L x W x D)	24 cm (9.4 in) x 12 cm (4.7 in) x 5 cm (1.9 in) including connectors
Weight	1.31 kg (2.9 lb) receiver only
<b>Antenna Options</b>	
GA510	L1 GPS, SBAS
GA530	L1 GPS, MSK Beacon, SBAS (included in SPS351 kit)
L1/Beacon, DSM 232	Not supported
Zephyr™ Model 2	
Zephyr Geodetic™ Model 2	
Zephyr Model 2 Rugged	
Zephyr, Zephyr Geodetic, Z-Plus, Micro-Centered™	
<b>Temperature</b>	
Operating	-40 °C to +65 °C (-40 °F to +149 °F)
Storage	-40 °C to +80 °C (-40 °F to +176 °F)
Humidity	MIL-STD 810F, Method 507.4
Waterproof	IP67 for submersion to depth of 1 m (3.3 ft), dustproof
<b>Shock and Vibration</b>	
Drop	Designed to survive a 1 m (3.3 ft) drop onto a hard surface
Shock – Non-operating	To 75 g, 6 ms, saw-tooth
Shock – Operating	To 40 g, 10 ms, saw-tooth
Vibration	Tested to Trimble Survey profile (2.6 g RMS): 5 Hz–350 Hz: 0.15 g/Hz; <sup>2</sup> 350 Hz to 500 Hz; -6 dB/octave

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## Measurements

Advanced Trimble Maxwell™ 5 Custom GPS chip  
L1 signal-to-noise ratios reported in dB-Hz

Proven Trimble low elevation tracking technology

12-channel L1 C/A code

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

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

Correction type DGPS RTCM 2.x  
Correction source Internal MSK Beacon, DGPS Base via external 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 NA  
XP service accuracy NA  
HP service accuracy NA

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

Horizontal accuracy NA  
Vertical accuracy NA

## Precise Heading

Heading accuracy NA  
2 m antenna separation  
10 m antenna separation

## Power

Internal NA

External

Power input on 7-pin 0-shell Lemo connector is optimized for lead acid batteries with a cut-off threshold of 10.5 V

Power input on the 26-pin D-sub connector is optimized for Trimble lithium-ion battery input (P/N 49400) with a cut-off threshold of 9.5 V  
10.5 V DC to 28 V DC external power input with over-voltage protection

Receiver will automatically turn on when connected to external power

Power over Ethernet (PoE) NA

Power consumption 4.5 W at 18 V, in rover mode

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## Operation Time on Internal Battery

Rover	NA
Base station	NA
450 MHz systems	

## Regulatory Approvals

FCC: Part 15 Subpart B (Class B Device) and Subpart C  
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 301 489-3/-17, EN 300 440, EN 300 328, EN 60950, EN 300 330,

ACMA: AS/NZS 4771 approval  
CE mark compliance  
C-tick mark compliance  
Japanese MIC type certification  
RoHS compliant  
WEEE compliant

## Communications

Lemo (Serial)	7-pin OS Lemo, Serial 1, 3-wire RS-232
Modem 1 (Serial)	26 pin D-sub, Serial 2, Full 9-wire RS-232
Modem 2 (Serial)	26 pin D-sub, Serial 3, 3-wire RS-232
1PPS (1 pulse-per-second)	Available using cable (60789-00)
Ethernet	Using multi-port adaptor
Bluetooth wireless technology	Fully-integrated, fully-sealed 2.4 GHz Bluetooth module <sup>6</sup>
Integrated radios (optional)	
Channel spacing (450 MHz)	
450 MHz output power	
900 MHz output power	
Frequency approvals (900 MHz)	

External GSM/GPRS, cell phone support Supported for direct-dial and Internet-based correction streams

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)

Correction data input RTCM 2.x  
Correction data output DGPS RTCM 2.x (requires DGPS RS option)  
Data outputs NMEA, GSOFF, 1PPS Time Tags

## Receiver Upgrades

DGPS Reference Station

### Notes

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.

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

Specifications subject to change without notice.

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