

Specifications

Trimble SPS351 Modular GPS Receiver



Receiver Name	SPS351 DGPS/Beacon Receiver
Configuration Option	
Type	Modular
Base and rover interchangeability	Yes
Base operation	SPS351 with DGPS RS option
Rover operation	Yes
Heading and Moving Base 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
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
Dimensions (L × W × D)	24 cm (9.4 in) × 12 cm (4.7 in) × 5 cm (1.9 in) including connectors
Weight	1.31 kg (2.9 lb) receiver only
Antenna Options	
GA510	L1 GPS, SBAS
GA530	L1 GPS, MSK Beacon, SBAS (included in SPS351 kit)
GA810	L1 GPS, SBAS
L1/Beacon, DSM 232	Not supported
Zephyr™ Model 2	
Zephyr Geodetic™ Model 2	
Zephyr Model 2 Rugged	
Temperature	
Operating	–40 °C to +65 °C (–40 °F to +149 °F) ¹
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
Shock and Vibration	
Pole 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; ² 350 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 Positioning²

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) Positioning³

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

OmniSTAR Positioning

VBS service accuracy	N/A
XP service accuracy	N/A
HP service accuracy	N/A

Location RTK Positioning²

Horizontal accuracy	N/A
Vertical accuracy	N/A

Precise Heading²

Heading accuracy	N/A
2 m antenna separation	
10 m antenna separation	

Power

Internal	N/A
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External

Power input on 7-pin 0-shell Lemo connector is optimized for lead acid batteries with a cut-off threshold of 11 V DC

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 10.5 V
11 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)	N/A
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Power consumption	4.5 W at 18 V, in rover mode
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Operation Time on Internal Battery

Rover	N/A
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Base station

N/A

450 MHz systems

900 MHz system

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 05 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 module⁴

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 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

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

CMR™, CMR+™, CMRx, CMRx, RTCM 2.x

Correction Outputs

DGPS RTCM 2.x (requires DGPS RS option)

Data Outputs

NMEA, GSOFF, 1PPS Time Tags

Receiver Upgrades

DGPS Reference Station

Notes

¹ Receiver will operate normally to –40 °C.

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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.

Specifications subject to change without notice.

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Trimble Heavy and Highway Business Area

5475 Kellenburger Road
Dayton, Ohio 45424
USA
800-538-7800 (Toll Free)
+1-937-245-5154 Phone
+1-937-233-9441 Fax
www.trimble.com

Trimble Authorized Distribution Partner

ПФ «ГЕОКОМ»
61001 м. Харків, вул. Молочна 3, 3 пов.
(057) 732-53-12 факс. (057) 732-53-12
geocom.trimble@gmail.com
kh@geocom.com.ua
geocom.in.ua
trimble.org.ua