Specifications

Trimble SPS985L GNSS Smart Antenna

Receiver Name	**SPS985L GNSS Smart Antenna**
Configuration Option	
Base and Rover interchangeability	Rover only
Rover position update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz
Rover maximum range from base radio	Unrestricted, typical range 2–5 km (1.2–3 miles) without radio repeater
Rover operation within a VRS™ network	Yes
Heading and Moving Base operation	N/A
Factory options	See Receiver Upgrades below
General	
Keyboard and display	LED indicators for satellite tracking, radio link status, WiFi and power monitoring
	On/Off key for one-button startup
	N/A
	N/A
Dimensions (L × W × D)	13.9 cm (5.5 in) Diameter × 13 cm (5.1 in) including connectors
Weight	1.55 kg (3.42 lb) receiver only including radio and battery
	Complete system (rover including controller and pole) 3.9 kg (8.6 lbs)
Antenna Options	
GA510	NA, inbuilt
GA530	N/A
GA810	N/A
L1/Beacon, DSM 232	N/A
Zephyr™ Model 2	N/A
Zephyr Geodetic™ Model 2	N/A
Zephyr Model 2 Rugged	N/A
Zephyr, Zephyr Geodetic, Z-Plus, Micro-Centered™	N/A
Temperature	
Operating[1]	–40 °C to +65 °C (–40 °F to +149 °F)
Storage	–40 °C to +75 °C (–40 °F to +167 °F)
Humidity	100%, condensing
Waterproof	IP67 for submersion to depth of 1 m (3.3 ft), dustproof
Shock and Vibration	
Pole drop	Designed to survive a 2 m (6.6 ft) pole drop onto concrete
Shock – Non-operating	To 115 G, 6msec
Shock – Operating	To 60 g, 10msec, half-sine
Vibration	Mil-Std-810G, FIG 514.6D-I, Mil-Std-202G, FIG 214-I, Condition D

Trimble

Specifications

Trimble SPS985L GNSS Smart Antenna

Measurements	
	Advanced Trimble Maxwell™ 6 Custom GNSS chips
	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 in a 1 Hz bandwidth
	Trimble EVEREST™ multipath signal rejection
	L-Band: OmniSTAR VBS, HP, XP, G2 by subscription
	GPS L1 C/A, L2C, L2E (Trimble method for tracking unencrypted L2P). 440 channels
	GLONASS L1/L2C/A, L1/L2P Full Cycle Carrier
	4-channel SBAS L1 C/A, L5 (WAAS/EGNOS/MSAS)
	QZSS: L1 C/A, L1C, L1 SAIF, L2C, L5
SBAS (WAAS/EGNOS/MSAS) Positioning[3]	
Accuracy	Better than 5 m 3DRMS (16 ft)
Code Differential GPS Positioning[2]	
Horizontal accuracy	0.25 m + 1 ppm RMS (0.8 ft + 1 ppm RMS)
Vertical accuracy	0.50 m + 1 ppm RMS (1.6 ft + 1 ppm RMS)
OmniSTAR 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)
HP service accuracy	Horizontal 0.1 m (0.33 ft), Vertical 0.15 m (0.5 ft)
xFill Positioning	
xFill accuracy	RTK[11] + 10mm(0.03 ft)/min Horiz. + 20mm(0.06 ft)/min Vert. RMS
Location RTK Positioning	
Horizontal accuracy	N/A
Vertical accuracy	N/A
Real-Time Kinematic (RTK up to 30 km) Positioning[2]	
Horizontal accuracy	12mm up to 10mm+1 ppm RMS (0.03ft+1 ppm RMS) after 10 secs static
Vertical accuracy	22mm up to 15mm+1ppm RMS (0.05ft+1ppm RMS) after 10 secs static
Trimble VRS[9]	
Horizontal accuracy	12mm up to 10mm+0.5ppm RMS (0.03ft+0.5 ppm RMS) after 10s static
Vertical accuracy	22mm up to 15mm+0.5ppm RMS (0.05ft+0.5ppm RMS) after 10s static
Precise Heading	
Heading accuracy	N/A
2 m antenna separation	
10 m antenna separation	
Initialization Time	
Regular RTK operation with base station	Single/Multi-base
	typically less than 8 seconds
Initialization reliability[4]	>99.9%
Power	
Internal	Rechargeable, removable 7.4 V, 2.6 Ah Lithium-ion battery in internal battery compartment
	Internal battery operates as a UPS during an ext power source failure
	Internal battery will charge from external power source as long as source can support the power drain
	Integrated charging circuitry

Trimble

Specifications

Trimble SPS985L GNSS Smart Antenna

Power	
External	External power input with over-voltage protection on Port 1 (7-pin Lemo 2-key). Minimum 10.8 V, shutdown optmized for 12V lead acid battery operation
	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 on Port 1 (Lemo)
	Receiver automatically turns on when connected to external power
Power over Ethernet (PoE)	N/A
Power consumption	3.7 W in rover mode with internal receive radio
Operation Time on Internal Battery	
Rover	4.6 hours; varies with temperature
Base station	
450 MHz systems	N/A
900 MHz systems	N/A
Regulatory Approvals	
	FCC Part 15 Subpart B (Class B Device), Part 15.247, 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.
	CE mark compliance
	C-tick mark compliance
	Japan MIC
	RoHS compliant
	WEEE compliant
Communications	
Lemo (Serial)	7-pin Lemo 2-key, Power Input, USB
Modem 1 (Serial)	N/A
Modem 2 (Serial)	N/A
1PPS (1 Pulse-per-second)	N/A
Ethernet	N/A
WiFi	Client or Access Point. Receive corrections
Bluetooth wireless technology	Fully-integrated, fully-sealed 2.4 GHz Bluetooth module[6]
Integrated radios (optional)	Fully-integrated, fully-sealed internal 410-470 MHz Rx; Internal 900 MHz Rx
Channel spacing (450 MHz)	12.5 kHz or 25 kHz spacing available
Sensitivity (450 MHz)	-114 dBm (12 dB SINAD)
450 MHz output power	N/A
900 MHz output power	N/A
Frequency approvals (902-928 MHz)	USA/Canada
External GSM/GPRS, cell phone support	Supported for direct-dial and Internet-based correction streams using the SCS900 software
	Cell phone or GSM/GPRS modem inside controller

Trimble

Specifications

Trimble SPS985L GNSS Smart Antenna

Internal MSK Beacon receiver	N/A
Receiver position update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz positioning
Correction data input	CMR™, CMR+™, CMRx™, RTCM 2.x, RTCM 3 (require Rover upgrade)
Correction data output	N/A
Data outputs	N/A

Receiver Upgrades

	xFill

Notes

1 Receiver will operate normally to those temperature limits. Internal batteries will operate from –20 °C to +48 °C

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

3 Depends on SBAS system performance.

4 May be affected by atmospheric conditions, signal multipath, and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.

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

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

11 RTK refers to the last reported precision before the correction source was lost and xFill started

Specifications subject to change without notice.

Trimble

Specifications

Trimble SPS985L GNSS Smart Antenna

Trimble Heavy Civil Construction Division
10368 Westmoor Drive
Westminster, Colorado 80021
USA
800-361-1249 (Toll Free)
+1-937-245-5154 Phone
+1-937-233-9441 Fax
www.trimble.com

Trimble Authorized Distribution Partner