Specifications

Trimble SPS785 GNSS Smart Antenna

Receiver Name	**SPS785 GNSS Smart Antenna**
GNSS Characteristics	
-240 GNSS Channels	GPS L1C/A, L2P(Y), L2C GLONASS L1C/A, L2C/A, L3 BeiDou B1 (phase 2), B2 Galileo E1, E5b QZSS L1C/A, L2C, L1 SAIF SBAS L1C/A L-band
-Patented Z-Blade technology for optimal GNSS performance	-Full utilization of signals from all 6 GNSS systems -Enhanced GNSS-centric algorithm: fully independent GNSS signal tracking and optimal data processing, including GPS-only, GLONASS only or BeiDou only solution (autonomous to full RTK) -Fast search engine for quick acquisition and re-acquisition of GNSS signals
-Patented SBAS ranging for using SBAS code & carrier observations and orbits in RTK processing	
-Patented Strobe Correlator for reduced GNSS multi-path	
-Up to 10Hz real-time raw data (code &carrier and position output)	
-Supported data formats	ATOM,CMR, CMR+ RTCM 2.1, 2.3, 3.0, 3.1, and 3.2 (including MSM) CMRx (rover only)
-NMEA 0183 message output	
Real-Time Accuracy (RMS) [1,2]	
SBAS (WAAS/EGNOS/MSAS/GAGAN)	Horizontal: < 50cm Vertical: <85cm
Real-Time DGPS Position	Horizontal: 25cm + 1 ppm Vertical: 50cm + 1 ppm
Real-Time Kinematic Position (RTK)	Horizontal: 8mm + 1 ppm Vertical: 15mm + 1 ppm
Real-Time Performance	RTK initialization range: over 40 km Instant RTK initialization -Typically 2 sec for baselines < 20km -Up to 99.9% reliability
CenterPoint RTX [8]	Horizontal: <4cm Vertical: <9cm Initialization: <30 mins, <5 mins GNSS: L1 + L2
Post Processing Accuracy (RMS) [1,2]	

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Static & Fast Static	Horizontal: 3mm + 0.5 ppm
	Vertical: 5mm + 0.5 ppm
High-Precision Static[3]	Horizontal: 3mm + 0.1 ppm
	Vertical: 3.5mm + 0.4 ppm
Post-Processed Kinematic (PPK)	Horizontal: 8mm + 1 ppm
	Vertical: 15mm + 1 ppm

Data Logging Characteristics

Recording Interval	0.1 - 999 seconds

Physical Characteristics

Size	21 x 21 x 7 cm (8.3 x 8.3 x 2.3 in)
Weight	930 g (2.08 lb)
User Interface	Five LEDs for power, tracking, Bluetooth, recording, and radio
I/O Interface	-RS232 serial link
	-USB 2.0/UART and USB OTG
	-Bluetooth 2.1 + EDR, Long range: class 1 (19dbm)
Memory	-256 MB internal memory NAND flash
	-Over a month of 15 sec. raw GNSS data from 14 satellites
Operation	-RTK rover and base
	-RTK network rover: VRS, FKP, MAC
	-NTRIP, Direct IP
	-Post processing
Environmental characteristics	Operating temperature: -40°C to +65°C (-40°F to +149°F)[4]
	Storage temperature: -40°C to +85°C (-40°F to +185°F)[5]
	Humidity: 100% condensing
	IP67 waterproof, sealed against sand and dust
	Drop: 2m pole drop on concrete
	Shock: MIL STD (fig 516.5-10) (01/2000)
	Vibration: MIL STD-810F (fig 514.5C-17) (01/2000)
Power characteristics	External DC power: 9-28 V
	Li-ion battery, 7.4 V, 2600 mAh
	Battery Life
	10 hrs (GNSS on, 400MHz Rx off)
	8 hrs (GNSS on, 400MHz Rx on)
	5 hrs (GNSS on, 900MHz Rx on)

System

Standard system components	-SPS785 receiver
	-Li-ion battery
	-Dual battery charger, power supply and power cord kit
	-Tape measure (3.6 m / 12 ft)
	-7cm pole extension
	-USB to mini-USB cable
	SPS785 Office power kit
	-1 year warranty
Optional system components	SPS785 UHF Kit (410-470 MHz 2W TRx)

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SPS785 900MHz Kit (Receive Only) [7]
SPS785 Field power kit
Data Collectors
-TSC7
-Site Tablet 10
-T10
Field Software
Trimble Siteworks

1. Accuracy and TTFF specifications may be affected by atmospheric conditions, signal multipath, satellite geometry and corrections availability and quality.

2. Performance values assume minimum of five satellites, following the procedures recommended in the product manual. High multipath areas, high PDOP values and periods of severe atmospheric conditions may degrade performance.

3. Long baselines, long occupations, precise ephemeris used.

4. At very high temperatures UHF module should not be used in the transmitter mode. With UHF transmitter on radiating 2W of RF power, the operating temperature is limited to +55°C (+131°F).

5. Without batteries. Batteries can be stored up to +70°C (+158°F)

6. Receiver initialization time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.

7. 900MHz radio is only avalible in the US and Canada.

8. *68% (RMS) horizontal performance based on repeatable in field measurements. Achievable accuracy and initialization time may vary based on type and capability of receiver and antenna, user's geographic location and atmospheric activity, scintillation levels, GNSS constellation health and availability and level of multipath including obstructions such as large trees and buildings.

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