

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 and sCMRx (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

Post Processing Accuracy (RMS) ^{1,2}

Static & Fast Static

Horizontal: 3mm + 0.5 ppm

Vertical: 5mm + 0.5 ppm

High-Precision Static³

Horizontal: 3mm + 0.1 ppm

Vertical: 3.5mm + 0.4 ppm

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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

Operation

-Over a month of 15 sec. raw GNSS data from 14 satellites

-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, UHF Rx off)

8 hrs (GNSS on, UHF 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)

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

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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.

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