5800 GPS Receiver

Fully integrated, extremely lightweight, cable-free GPS receiver

Key features and benefits

- **Purpose-built integrated GPS receiver for improved productivity**
- **Can be used as a rover or base for unrivaled versatility**
- **Extremely lightweight—to reduce fatigue on all day operations**
- **Cable-free rover for more flexibility and ease-of-use in the field**
- **Accurate and reliable for confidence in your results**

The revolutionary integrated 5800 GPS receiver combines a dual-frequency GPS receiver, antenna, UHF radio (receiver only) and power source into a single compact unit that fits in the palm of your hand and weighs in at just 1.21 kgs (2.67 lbs).

Designed to be used with the ACU controller as a rover, the 5800 makes cables a thing of the past—you can now control your surveys using the built in short-range Bluetooth* wireless technology. This truly cable free GPS system comprising the pole, color ACU controller, holder, 128 Mb of memory, and batteries for a full day's work weighs only 3.57 kilograms (7.87 pounds). Plus, 2 MB of internal memory makes collecting data for postprocessing more convenient than ever before, either for static or kinematic (stop and go) surveying. Versatility redefined—welcome to the next generation of GPS systems.

Integrated system

Trimble's highly-accurate 5800 GPS receiver is a rugged, integrated unit comprising of a high-performance GPS receiver, a GPS antenna, a radio, Bluetooth communications, and a miniature internal battery. This fully integrated system is housed in a very compact unit providing an extremely lightweight solution for all day, every day survey work. Because the 5800 can be used as a rover or base, this latest productivity enhancing technology is versatile to meet the changing needs of your demanding projects schedule.

Advanced technology

The GPS receiver is built on Trimble's many years of experience in the GPS industry—this 24-channel dual-frequency GPS/WAAS/EGNOS receiver has the built-in enhanced tracking technologies of the Trimble Maxwell™ 4 chip—providing robust tracking in difficult GPS environments yet still using less than 2.5 watts of power.

The dual-frequency antenna also enhances the tracking capabilities of the 5800—the patented four-point antenna feed provides sub-millimeter phase center stability for precise results. The position of the UHF radio antenna mounting further increases accuracy by being out of the GPS line-of-sight, reducing multipath and avoiding interference with the GPS antenna.

Trimble's advanced technology provides you with a lightweight field solution

For rover communications, the choice is yours, use the built-in 450 or 900 MHz radio, or use an external radio, cell phone or wireless packet data modem. For base communications, select a radio from Trimble's range of powerful communication products. Just the kind of flexibility you need!

For extended coverage and comprehensive error checking when roving, the 5800 works with signals from multiple base stations transmitting on the same radio channel. For even larger area coverage, at highest accuracies, the 5800 works with Trimble VRS networks.

Built-in Bluetooth capability gives you a completely cable-free solution at the pole.

Built-in WAAS and EGNOS capability provides real-time differential positioning without a base station.

Built for the field

The 5800 has exceptionally low power consumption—two miniature batteries, weighing just 100 grams (3.5 ounces) each, will power the receiver for up to 11 hours.

Environmentally rated to IPX7, and submersible to a depth of 1 meter, the 5800 is rugged enough for any job. The 5800 can withstand a drop of up to 2 meters on to a hard surface.

3 LED status indicators for satellite lock, power, and radio signal—it's easy to learn and quick to start when you're in the field.

Wide range of applications

The 5800 GPS system is ideal for a wide range of positioning applications, including:

- Survey
- Construction
- Asset management

Reliability, flexibility, and accuracy are the most important factors with any field solution—Trimble's field-proven equipment gives you superior reliability and accuracy, and the 5800 provides the added benefit of portability, making it the ideal rover solution for all your survey grade GPS applications.

* *Bluetooth type approvals are country specific. Contact your Trimble representative for more information.*

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PERFORMANCE SPECIFICATIONS

Code differential GPS positioning[1]	
Horizontal	±0.25 m + 1 ppm RMS
Vertical	±0.50 m + 1 ppm RMS
WAAS differential positioning accuracy[2]	Typically <5 m 3DRMS
Static and FastStatic GPS surveying[1]	
Horizontal	±5 mm + 0.5 ppm RMS
Vertical	±5 mm + 1 ppm RMS
Real Time Kinematic (RTK)[1]	
Horizontal	±10 mm + 1 ppm RMS
Vertical	±20 mm + 1 ppm RMS
Initialization reliability	Typically >99.9%1

RECEIVER SPECIFICATIONS

General	Fully integrated receiver, GPS antenna and internal radio in a single housing. Advanced Maxwell 4 Custom Survey GPS chip. High precision multiple correlator for L1 and L2 pseudorange measurements. Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response. Very low noise L1 and L2 carrier phase measurements with <1mm precision in a 1Hz bandwidth. L1 and L2 Signal-to-Noise ratios reported in dB-Hz. Proven Trimble low elevation tracking technology. 24 Channels L1 C/A Code, L1/L2 Full Cycle Carrier, WAAS/EGNOS support.
Power	11–28 VDC external power input with over-voltage protection on Port 1 (7-pin Lemo). Rechargeable, removable 7.4 V, 1.8 Ah Lithium-Ion battery in internal battery compartment. Power consumption is <2.5 W, in RTK mode with internal radio. Operating time approximately 5.5 hours on single battery.
Size	19 cm (7.5") wide × 10 cm (3.9") deep including connectors
Weight	1.21 Kg (2.67 lbs) with internal battery, internal radio, standard UHF antenna. 3.57 Kg (7.87 lbs) entire RTK rover including batteries, range pole, ACU controller and bracket.
Temperature[3]	
Operating	–40° to +65° C (–40° to +149° F)
Storage	–40° to +75° C (–40° to +167° F)
Humidity	100%, condensing
Waterproof	IPX7 for submersion to depth of 1 meter
Shock and vibration	Designed to survive a pole drop of up to 2 meters (6.6 feet) non-operating. Shock tested (operating) to 40 G, 10 mSec, sawtooth. Vibration tested to MIL-STD-810F, FIG.514.5C-1.
Certification	Class B Part 15 FCC certification, CE Mark approval, and C-tick approval. Bluetooth type approvals are country specific. Contact your Trimble representative for more information.
Communications	3-wire serial (7-pin Lemo) on Port 1. Full RS-232 serial on Port 2 (Dsub 9 pin). Fully integrated, fully sealed internal 450 MHz or 900 MHz UHF radio modem option. Fully integrated, fully sealed 2.4 GHz communications port (Bluetooth). GSM, Cell phone and CDPD modem support for RTK and VRS operations.
Data storage	Data storage on 2 Mb internal memory: 55 hours of raw observables based on recording data from 6 satellites at 15 second intervals. Data storage on controller with 128 Mb memory: Over 3400 hours of raw observables based on recording data from 6 satellites at 15 second intervals.
Positioning and inputs/outputs	1 Hz, 2 Hz, 5 Hz, and 10 Hz positioning. CMRII, CMR+, RTCM 2.1, RTCM 2.3, Input and Output. 14 NMEA outputs. GSOF and RT17 outputs.

1 Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry, and atmospheric conditions. Always follow recommended survey practices. Specifications subject to change without notice.

2 Depends on WAAS system performance.

3 Receiver will operate normally to –40° C, Bluetooth module and internal batteries are rated to –20° C. An Arctic solution is available. Please contact your Trimble representative for details.

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