

## 4600 LS

*Economical, fully integrated single-frequency GPS survey unit*

### Key features and benefits

- **High productivity at an affordable price**
- **Portable and simple to use**
- **Less than 1 watt power consumption**
- **RTK capable**
- **Integrated GPS receiver antenna**
- **12 Channels**
- **Dual ports**

The 4600 LS™ is a cost-effective GPS survey instrument for productive control, topographic, GIS and real-time GPS surveys. This unit does not require line-of-sight between points and can be operated day or night in virtually any weather. The 4600 LS can be used effectively for static, L1 FastStatic and real-time surveys over short to moderate baselines.

### Portable

The 4600 LS is extremely portable and very simple to use. The GPS receiver, antenna and C-cell batteries are integrated into a single unit weighing only 3.7 lbs. For post-processed surveys, no external batteries or cables are required. The unit features one-button operation and three LED indicators let you easily monitor your entire survey.

The 4600 LS is the world's first survey grade receiver to run on less than 1 watt power consumption and use standard C-size batteries. For postprocessed surveys, one set of C-cells lasts four days.

For control surveys, the 4600 LS mounts on a tripod and can be started with a single button press. To perform productive topographic and stakeout surveys, the 4600 LS mounts on a range pole and can be controlled using the optional TSC1™ data collector with Trimble Survey Controller™ software. The TSC1 can also be used to input point information and adjust receiver settings.



*Simple to use for productive control, topographic, GIS and real-time surveys.*

### Rugged

Designed for extreme field conditions, the 4600 LS operates from  $-40^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$  and is fully sealed. The unit even survives having its tripod or pole knocked over. Valuable survey data is logged either to internal memory or the optional handheld TSC1 with Trimble Survey Controller software.

### Postprocessing

The 4600 LS incorporates high quality L1 carrier phase and C/A-code measurements for reliable and productive static, L1 FastStatic, kinematic, and real-time kinematic surveys.

When used with Trimble's powerful Trimble Geomatics Office™ processing software, control surveys can be performed with short occupation times and generate sub-centimeter results. The 4600 LS can store over 64 hours of L1 FastStatic data, compatible with data collected by Trimble's other survey grade GPS receivers.

### Real-time

The 4600 LS real-time and postprocessing bundles include the TSC1 with Trimble Survey Controller and Trimble Geomatics Office software. With the real-time option, the 4600 LS can be used for reliable centimeter-accurate positions while occupying a point. Trimble Geomatics Office is used to process the data and export it to many popular survey design and CAD packages. Design data can then be transferred to the TSC1 with Trimble Survey Controller software and used for stakeout.

The 4600 LS from Trimble, the world's largest GPS manufacturer, is the first integrated GPS receiver and antenna for survey work. The system combines quality, performance and high-productivity, at a very affordable price.

# 4600 LS Surveyor

Economical, fully integrated single-frequency GPS survey unit

## STANDARD FEATURES

- RTCM Version 2 input
- NMEA-0183 output
- Internal memory

## TECHNICAL SPECIFICATIONS

### Physical

**Size:** 22.1 cm (8.7") Dia. x 11.8 cm (4.64") H  
**Receiver weight:** 1.4 kg (3.1 lbs)  
1.7 kg (3.7 lbs) with batteries for >32 hours

### Electrical

**Receiver power:** <1 Watt receiver only  
<3 Watts (using TRIMTALK 450 radio)  
5 VDC with C-size batteries. 9 to 20 VDC external supply

**Battery life (typical):** >32 hours continuous receiver operation on 4 standard C-size alkaline batteries

**Certification:** FCC & CE mark approved

### Environmental

**Operating temp:** -40°C to +65°C (-40°F to +149°F)  
**Storage temp:** -55°C to +75°C (-67°F to +167°F)  
**Humidity:** 100%, fully sealed. Buoyant  
**Shock:** 2 m (6ft) accidental pole drop

## PERFORMANCE SPECIFICATIONS

### Static Survey Performance

**Modes:** Quick-Start, L1 FastStatic

#### Accuracy:

**Horizontal:** ±5 mm + 1 ppm (≤10 km)  
**Vertical:** ±10 mm + 2 ppm (≤10 km)  
**Azimuth:** ±1 arc second + 5/baseline length in kilometers

### Kinematic Survey Performance (Postprocessed)

(Requires TSC1 data collector with Trimble Survey Controller at rover)

**Modes:** Continuous, Stop-&-go

#### Accuracy:

**Horizontal:** ±1 cm + 1 ppm  
**Vertical:** ±2 cm + 1 ppm

#### Occupation:

**Continuous:** 1 measurement  
**Stop & go:** 2 epochs (min) with 5 satellites

#### Fastest

**datalogging rate:** 1Hz

### Real-time Survey Performance

(Requires TSC1 data collector with Trimble Survey Controller at rover)

**Modes:** Real-time Kinematic (RTK), Real-time Differential (DGPS)

#### Real-time

**DGPS accuracy:** 0.2 m + 1 ppm RMS

#### RTK accuracy:

**Horizontal:** ±1 cm + 1 ppm  
**Vertical:** ±2 cm + 1 ppm

**Range:** Range varies depending on radios used, local terrain and operating conditions. Multiple radio repeaters may be used to extend range, depending on type used.

### Initialization:

**Mode:** New point, known point or RTK initializer bar

**Time:** Average time <15 min (new point);  
<10 sec (known point or RTK initialization)

**Reliability:** >99.9%

*Performance criteria are a function of the number of satellites visible, occupation time, observation conditions, obstructions, baseline length and environmental effects, and are based on favorable atmospheric conditions. Assumes five satellites (minimum) tracked continuously with the recommended antenna using the recommended static surveying procedures utilizing L1 signals at all sites; precise ephemerides and meteorological data may be required. Performance specifications are RMS and ppm values are times baseline length.*

## General Performance

**Start-up:** <30 seconds from power-on to start survey with recent ephemeris

**Measurements:** L1 C/A-code, L1 full-cycle carrier

**Number of channels:** 12

**Datalogging:** In internal memory; in optional TSC1 data collector; or on TSC1 optional removable PC card

**Receiver data storage:** 64 hours internal memory of L1 data, 5 satellites, 15 second interval (typical)  
4.5 hours internal memory of L1 data, 5 satellites, 1.0 seconds (minimum)  
Unlimited data storage using optional TSC1 and PC data card

## OPTIONS AND ACCESSORIES

**Survey options:** 2 m rangepole  
2 m adjustable height tripod  
Rugged transit cases

**Datalogging options:** TSC1 data collector with Trimble Survey Controller software  
4 or 10Mb PC cards for TSC1

#### Receiver firmware

**options:** RTK firmware option  
**Batteries:** Camcorder battery (24 hours of operation)  
6 Ah battery (72 hours of operation)  
10 Ah battery (120 hours of operation)

**Cables:** RTK Y-Cable (4600 to radio/power)

**Support:** Extended hardware warranty  
Firmware and software update agreement  
Training on-site or at factory

**Software:** Trimble Geomatics Office - *The total GPS and conventional survey data processing solution.*

## ORDERING INFORMATION

For further information please contact your nearest Trimble Authorized Distributor or Trimble Office. You may also visit our website at <http://www.trimble.com>.



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