

G1-r1™ PRECISION REAL-TIME GNSS SYSTEM

Complete hardware and software mobile survey solution for applications requiring *sub-foot accuracy* in real time

KEY FEATURES

- A flick of a switch to operate
- A few minutes to completely master *image actual size*
- Small, light-weight, and low-cost
- Automatic data acquisition on removable secure digital storage; no configuration to fiddle with
- Expandable through multiple communication peripherals
- Simple RTK software with lifetime upgrade²
- Uses widely available mobile-phone and camera accessories
- Replaces bulky, expensive, and complex GNSS equipment

APPLICATIONS

- Precision stake out
- Guidance, navigation, and tracking
- Precision geo-referencing
- Real-time control

The world's most affordable navigation, control, and guidance GNSS solution

◇ also available in OEM version (for application developers and integrators)

- overall weight ~ 50 g (overall size ~ 3.0"x2.0"x0.5")
- connector cable and pin-out diagram

* optional upgrade

2 upgrade through Geomatics.us website

3 one sigma error (67% probability)

4 for short baselines < 10 km

5 2.5 mm event marker (clicker) available

6 6-pin mini DIN to DB9 adapter cable available

7 RS232 for the enclosed version and TTL for the OEM version

8 1/4"-20 to/from 5/8"-11 adapters available

9 operate at CPU to communicate with the G1-r1™ system in real time

10 12.5 Wh ÷ 1.19 W ~ 10 hours of continuous operation per full charge

11 iG1™ v1.0: free of charge with lifetime upgrade

12 no previous knowledge of GNSS processing required

Specifications subject to change without notice

SPECIFICATIONS

GNSS SENSOR

Mechanical

- Dimensions: 3"x2"x1" (98x57x26 mm)
- Weight: 125g / 50g (enclosed/OEM)

Power

- Consumption: 0.36/0.45/1.19 W (GPS/GLO/+Radio)
- Input Voltage: 5 VDC (USB PDA Battery)
- Antenna LNA Out: 5 VDC (100 mA max.)

Signal and Data

- 14 channels: GPS + SBAS + GLONASS*
- L1 C/A code + carrier phase
- Time to First Fix: 35/65 s (hot/cold start)
- Update Rate: 1Hz to 10Hz
- Real-time DGPS: RTCM2*
- I/O Protocol: binary, NMEA 0183*

Accuracy³

- 1PPS/EVT: 20 ns / 10 µs
- iRTK⁴/fRTK: 0.05 to 0.30 m / < 0.5 m
- DGPS/SBAS/PPP: < 1.0 m
- SPP / Velocity: < 10.0 m / < 0.05 m/s

Communication

- 1x PPS TTL out-port: 0.65mm M receptacle
- 1x EVT⁵ TTL in-port: 2.5mm F receptacle
- 1x 6-pin mini-DIN⁶ aux-port: full duplex⁷
- 1x micro SD card drive (up to 16 GB)
- 1x 5-pin mini-USB data/power port
- 3x virtual COM ports
- 1x GNSS RF connector: SMA F jack
- 6x status LEDs
- 900 MHz built-in radio up to 1000' line-of-sight range

Environmental

- Temperature: -40°C to +85°C
- Humidity: 95% non-condensing

ACCESSORIES

G1-a1 antenna

- Dimensions: 3.75"x3.75"
- RF Frequency: L1 GPS/GLO (1575 MHz)
- RF Connector: SMA F Jack
- Base Connector: 1/4"-20 F Plug⁸

G1-mnt mount

- 1" steel spring receiver/battery holder

G1-pole pole

- 67" 1/4"-20 rover graduated pole

G1-stand support

- 67" tripod with central stand

G1-ext extension

- 2" 1/4"-20 base rod or extension

G1-clip clip

- Y-shaped rod-to-stand steel clip

G1-rad radio

- USB-powered and run 900 MHz radio⁹

G1-uSD adapter

- 2 GB micro Secure Digital (uSD) card
- uSD to USB card adapter

G1-EVT marker

- 2.5 mm M jack TTL

G1-batA battery

- Chemistry: Li-Po rechargeable
- Power Supply: 12.5 Wh¹⁰
- I/O: 5 VDC mini-USB-B/USB-A

G1-SMA & G1-USB Cables

- RF: 6" SMA M plug to SMA M Plug
- Power: 6" USB-A to mini-USB-B

SOFTWARE¹¹

- Windows one-stop RTK package
- Single point and baseline solutions
- Simple and intuitive GUI¹²
- Analysis and visualization tools

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