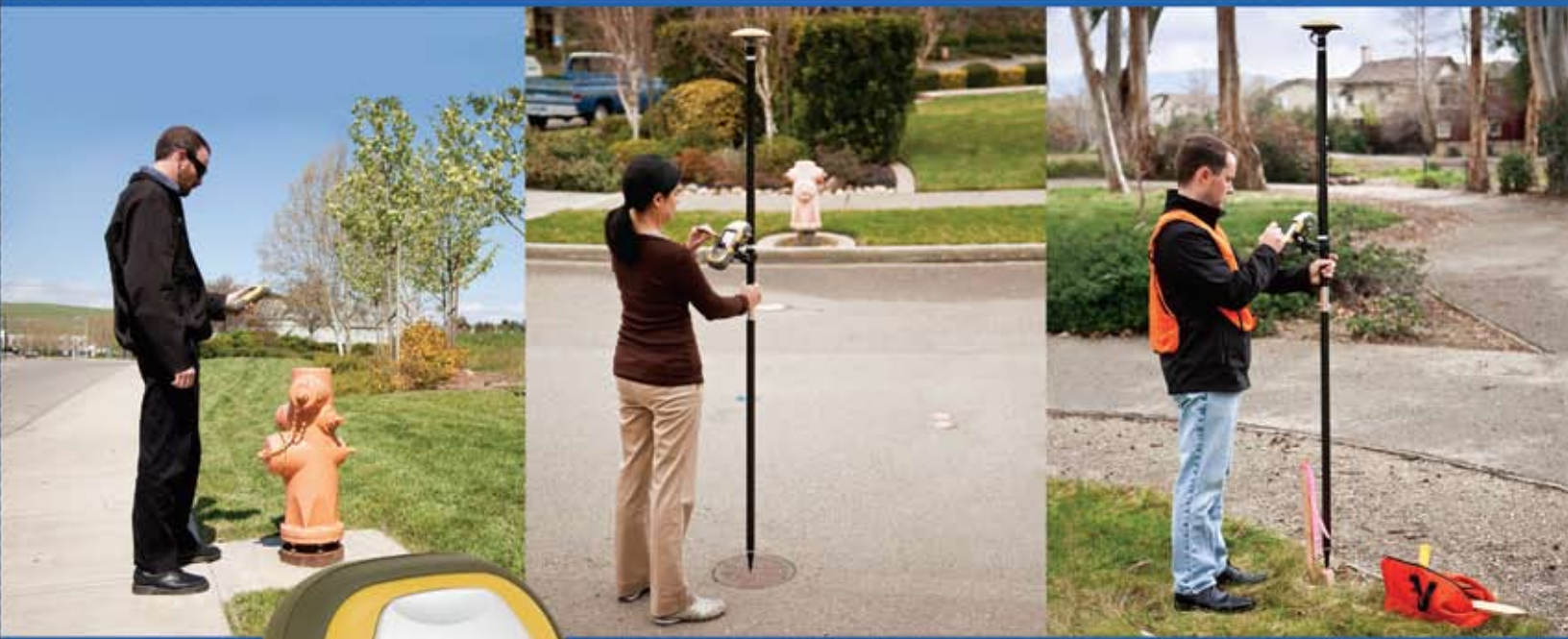


GRS-1

Any Accuracy, One Device



- Submeter, Decimeter or Centimeter Accuracy
- Mobile, Multi-use GIS Field Mapping Solution
- GNSS (GPS + GLONASS) Satellite Receiver
- Optional GSM or CDMA Internal Cellular
- 806Mhz XScale Processor
- Windows Mobile® 6.1 Operating System
- 2.0 Megapixel Camera
- 256MB SDRAM, 1GB Flash
- Built-in *Bluetooth*® Wireless Technology and Wireless LAN connectivity

Topcon's GRS-1 is the perfect solution to address a variety of accuracy requirements and GIS mobile applications.

Submeter Accuracy

In its basic form, the hand-held GRS-1 can be used for submeter work in applications such as asset management and natural resources. The GRS-1 tracks SBAS differential correction signals such as WAAS and EGNOS or use an add-on beacon receiver. In areas where these signals are insufficient, the internal cellular modem can be used to dial in to a local reference station network to receive submeter DGPS correction information.



High Accuracy

The GRS-1 addresses a growing need to locate points to decimeter and centimeter level in fields such as utilities, underground electric and gas, water/wastewater and land records management when high accuracy is required. Users don't need to give up the luxury of a small lightweight receiver with instantaneous positioning in order to get high accuracy results. Utilize the internal cellular modem of the GRS-1 to access a local reference station network. Add a PG-A1 L1/L2 external antenna for decimeter results or for centimeter RTK data. The rugged, modular GRS-1 allows for any GIS project accuracy demands.



Attribute Data

The GRS-1 makes attribute collection such as text entry and digital photography a breeze. Instead of carrying a separate digital camera to record details about GIS features, the GRS-1 integrates a 2.0 megapixel digital camera to snap associated photographs. These photographs are automatically linked to GIS features so that no photo file manipulation is needed after the field work is complete.



Unprecedented Results

The amount of detailed information that can be collected and stored with the GRS-1 is incredible. Combining the small lightweight size of the system with the high accuracy capabilities, the results are unprecedented.

All-in-one handheld GIS solution with increased memory, built-in n

Integrated Digital Camera and Magnetic Compass



Stylus Holder

Software Support:
Field Tools for ArcPad®,
TopSURV or 3rd party



Internal Bluetooth®
Wireless Technology
Connectivity

Internal
Wireless LAN
Connectivity

SD Memory Slot
USB Port
Serial Port
Power Port



GIS Mobile Applications

Use the integrated Wireless LAN capabilities of the GRS-1 to dial up to a GIS server while in the field. Update your database in real-time, download GIS maps or send emails to and from the office while in the field. It's all at your fingertips.



ion with high-speed processor, modem, camera and compass.



L1 GLONASS and
GPS Antenna

Internal Dual
Frequency GPS +
GLONASS Receiver

Rugged L1, L2
Dual Frequency
Antenna Port

Ultra Sharp Color
TFT Touch Screen



Removable
Rechargeable
Li-ion Battery

Internal GSM
Sim Card
Enabled Modem

All-in-one

If you are looking for one rugged handheld GNSS receiver that can satisfy any accuracy requirement, look no further than Topcon's GRS-1. With 256MB of SDRAM and 806MHz processor, the GRS-1 provides the fastest performance on the market. Start with a hand-held submeter solution and add a PG-A1 external antenna and firmware for decimeter or centimeter level positioning. This product grows with your needs. Internal cellular capability makes network solutions and mobile GIS applications a cinch.

Built-in 2.0 Megapixel Camera

The GRS-1 comes with a 2.0 megapixel camera with autofocus for taking photographs which are automatically linked to GIS features. Store photos on-board with the 1GB of Flash memory or use the external SD card slot for additional memory.



Extra Memory

With 1GB Flash standard, the GRS-1 is loaded with memory. But if you need more, the SD card slot and the mini USB Host functionality can provide additional memory. Use the USB mini port as both a Host and a Client. This allows for expanded memory and easy file transfer through USB flash drive or SD memory cards.

Integrated Cellular Modem

An optional internal cellular modem (GSM or Verizon CDMA) allows for a connection to a local reference station network for real-time DGPS or RTK correction data. Additionally, use the modem to make an internet connection for real time data transfer capabilities between field and office.

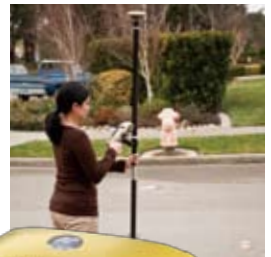


Bluetooth® and Wireless LAN

Built-in *Bluetooth*® wireless technology and Wireless LAN connectivity come standard. Connect to a GIS server and download maps or upload field data for timely GIS integration. Use your device in a typical Hotspot to surf the web or check weather. When not in use, Topcon also provides a way to turn *Bluetooth*® and Wireless LAN off to conserve battery power.

External Antenna Kit

Utilize a PG-A1 High Accuracy Kit including external antenna, 2m pole, and bracket for instantaneous decimeter or centimeter level RTK positions. Don't worry about buying an additional higher accuracy system as your requirements grow. There is one system that can do it all: Topcon's GRS-1.



* RTK solutions require an additional software module.

GRS-1 Standard Package Includes:

- GRS-1 Receiver
- User Replaceable Li-ion Battery
- Power Adaptor
- AC Cable
- USB Cable
- Stylus
- Strap
- Soft Case
- Manual
- AC Plug Adaptor for EU
- LCD Protector Sheet



GRS-1 SPECIFICATIONS

| | |
|--|--|
| Network RTK Centimeter | H: 10mm (x baseline length) + 1.0ppm V: 15mm + 1.0ppm (x baseline length) ¹ |
| Network RTK Decimeter | H: 5cm + 1.0ppm (x baseline length) V: 8cm + 1.0ppm (x baseline length) ¹ |
| Real-time DGPS | <1m ² HRMS |
| WAAS/EGNOS | Yes |
| CORS Beacon | Yes, with BR-1 |
| Network DGPS | Yes, with internal modem |
| DGPS Post Processing | Sub foot (<30 cm) ³ |
| Number of Channels | 72 GPS + GLONASS L1/L2 tracking |
| CORS Beacon | Yes with BR-1 |
| Onboard Software | Field Tools for ArcPad® or TopSURV or 3 rd party |
| Office Software (post-processing) | Topcon Tools-GIS |
| Microprocessor | XScale PXA320 |
| Processor Speed | 806MHz |
| Operating System | Windows Mobile® 6.1 |
| Memory | 256MB SDRAM 1GB Flash |
| Data Update Rate | Up to 100Hz |
| Interface | |
| USB | Mini Port |
| Card Slot | SD |
| GNSS Receiver | GPS + GLONASS |
| Cellular Capability | Internal GSM or CDMA (Verizon) |
| Input/Output | Bluetooth®, USB, Serial, ANT, and Power |
| Wireless LAN Connectivity | Standard (Internal, 802.11b) |
| Display | 3.7" VGA LCD |
| Built-in Camera | 2.0 Megapixel |
| Keyboard | 3 Key plus Virtual Keyboard |
| Magnetic Compass | Internal, 4 degree accuracy |
| Expansion Connector | Weatherproof Communication Port |
| Battery Life | 5 hrs while in GPS static mode |
| Battery Type | 2500mAh Removable, Li-Ion Rechargeable |
| Dimensions | 7.76" x 3.54" x 1.81" (197 x 90 x 46mm) |
| Weight | 1.5 lbs. (0.7kg) |
| Environmental | IP66, 1 meter drop -20° to 50°C Operating Temperature -10° to 50°C Operating with camera -30° to 60°C Storage Temperature |

¹Requires external PG-A1 antenna, cellular service and a Network RTK connection ²<30cm with external PG-A5 antenna ³Requires external PG-AS antenna and post processing using Topcon Tools (Advanced GIS module)

Field Software Solutions

Topcon offers a variety of software solutions for the GRS-1. Whether you have a few experienced users or a deployment of many novice users into the field, Topcon field software will suit.

Topcon's Field Tools for ArcPad software; an extension for ESRI's ArcPad software, offers a familiar data collection environment. Field Tools for ArcPad allows the user to take full advantage of the GRS-1's integrated GSM or CDMA modem, camera, compass and dual constellation tracking capabilities. Using a predefined Network RTK collection style, users can now easily get centimeter RTK level data without connecting any additional equipment to the GRS-1. With Field Tools for ArcPad and the GRS-1, high accuracy GIS data collection is a breeze.

Topcon's TopSURV-GIS is field software that makes data collection easy for anyone, regardless of their level of expertise. With preconfigured data collection styles, TopSURV-GIS walks users through GPS setup

and configuration such as connecting to a local reference station or a SBAS correction service. Any modifications a user makes to this configuration style can be saved and used thereafter for simplicity and speed the next time around.

Keeping a high accuracy GIS database up-to-date can be a challenge. GIS departments must figure out how to do more with less. With just one system, the Topcon GRS-1, high accuracy GIS data can be mapped in less time with less effort. Tracking both GPS and GLONASS satellite constellations means less down time in the field. An integrated cellular modem means connecting to a local reference station network for real-time corrections or to a GIS server for mobile GIS applications is at your fingertips. An integrated digital camera means field personnel will return to the office with more detailed information than ever before. The small, lightweight GRS-1 system is the simple solution to your biggest GIS mobile application challenges.



topconpositioning.com

7400 National Drive • Livermore • CA 94550