

# GRS-1

## Field Mapping & GIS Solution



**Mobile GIS Mapping System  
built for any accuracy required**



- SUBMETER, SUBFOOT OR GIS-RTK <5CM ACCURACY
- GNSS (GPS + GLONASS) SATELLITE RECEIVER
- GSM AND 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 subfoot and centimeter levels in fields such as utilities, underground electric and gas, water/wastewater and land records management when high accuracy is required for initial mapping efforts as well as to navigate back to existing locations for maintenance. 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. No extra cell phone modem is necessary! Add an L1 external antenna for subfoot or a small L1/L2 external antenna for "GIS-RTK" (<5cm) level data. The rugged modular GRS-1 allows for any GIS project accuracy demands.

### **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 and send emails to and from the office. It's all at your fingertips.

### **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 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.

The amount of detailed information that can be collected and stored with the GRS-1 is incredible. When combined with the lightweight small size of the system and the high accuracy capability, the result is unprecedented.

## **Small in size and weight, yet fully integrated with all the features you need.**



### **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 handheld submeter solution and add an external antenna for subfoot or "GIS-RTK" (<5cm) level positioning. This product grows with your needs. Internal cellular capability makes network solutions and mobile GIS applications a cinch.



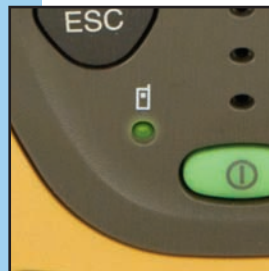
### **Built-in 2.0 Megapixel Camera**

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.



### **Cellular Modem**

An optional internal cellular modem (GSM or CDMA) allows for a connection to a local reference station network for real-time DGPS or "GIS-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.





# All-in-one handheld GIS solution with high-speed processor, increased memory, and built-in modem, camera and compass.



## External Antenna Kit

Utilize a GRS-1 High Accuracy Kit including external antenna, 2m pole, and bracket for instantaneous subfoot or "GIS-RTK" (<5cm) positions. Don't worry about buying an additional higher accuracy system as your requirements grow. There is one system that can do it all: the GRS-1.



## 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

## Field Software Solutions

No mapping solution is satisfactory unless the software is easy to use and learn. 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 TopSURV-GIS is an easy to use field mapping software which allows the user to take full advantage of the GRS-1's integrated camera, compass and dual constellation tracking capabilities.

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.

Other primary features include:

- Informative, graphical GPS Status screen displaying GPS and Glonass satellites
- Log raw data for post-processing
- Import and Export shapefile and other GIS and CAD formats

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 the US GPS and the 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.



### Topcon Positioning Systems, Inc.

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**Specifications subject to change without notice**

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## GRS-1 Specifications

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

\* <50cm with external PG-A5 antenna

\*\* Requires external PG-A5 antenna

\*\*\* Requires external PG-A1 antenna

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