

GRS-1

Field Mapping & GIS Solution



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



- SUBMETER, SUBFOOT OR RTK 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 post-processed results or a small L1/L2 external antenna for RTK 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, download GIS maps or send emails to and from the office while in the field. 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 RTK level positioning. This product grows with your needs. Internal cellular capability makes network solutions and mobile GIS applications a cinch.



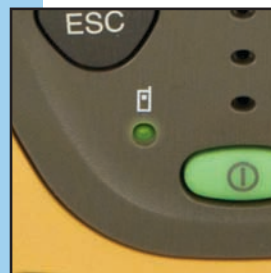
Built-in 2.0 Megapixel Camera

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 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 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: the 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

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.



For high accuracy requirements in an office familiar with ESRI GIS software, utilize Field Tools for ArcPad. This extension for ESRI's ArcPad software offers a familiar data collection environment which 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 a 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.

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.



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Specifications subject to change without notice

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GRS-1 Specifications

Number of Channels	72 GPS + Glonass L1/L2 tracking	
Real-time DGPS	<1m* HRMS	
PP DGPS	Subfoot (<30cm**)	
RTK	H: 10mm + 1.0ppm, V: 15mm + 1.0ppm	
WAAS/EGNOS	Yes	
CORS Beacon	Yes with BR-1	
Onboard Software	Field Tools for ArcPad® or TopSURV-GIS or 3rd 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 Card Slot	Mini Port SD
GNSS Receiver	GPS + GLONASS	
Cellular Capability	Internal GSM or CDMA	
Input/Output	Bluetooth®, USB, Serial, ANT, and Power	
Wireless LAN Connectivity	Standard (Internal, 802.11.b)	
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	

* <50cm with external PG-A5 antenna

** Requires external PG-A5 and post-processing

*** Requires external PG-A1 antenna

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