TOPCON

GRS-1
Any Accuracy, One Device

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	<1m² 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 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	MiniPort
Card Slot	SD, SDHC
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

[1] Requires external PG-A1 antenna, cellular service and a Network RTK connection [2] <50cm with external PG-A5 antenna [3] Requires external PG-A5 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.

Your local Authorized Topcon dealer is:

TOPCON
topconpositioning.com

7400 National Drive • Livermore • CA 94550

(925) 245-8300

- 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

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

Integrated Digital Camera and Magnetic Compass

L1 GLONASS and GPS Antenna

Internal Dual Frequency GPS + GLONASS Receiver

Stylus Holder

Rugged L1, L2 Dual Frequency Antenna Port

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

Ultra Sharp Color TFT Touch Screen

Bluetooth®
Internal *Bluetooth®* Wireless Technology Connectivity

Internal Wireless LAN Connectivity

Removable Rechargeable Li-ion Battery

SD Memory Slot
USB Port
Serial Port
Power Port

Internal GSM Sim Card Enabled Modem

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.

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 optionally 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.

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

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 has an option for a 2.0 megapixel internal 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.
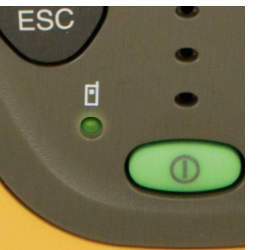
Bluetooth® and Wireless LAN
Built-in *Bluetooth®* wireless technology and Wireless LAN connectivity come standard. Connect to a GIS server and download maps or upload field data for timely GIS integration. Use your device in a typical Hotspot to surf the web or check weather. When not in use, Topcon also provides a way to turn *Bluetooth®* and Wireless LAN off to conserve battery power.

External Anntena 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.

TOPCON