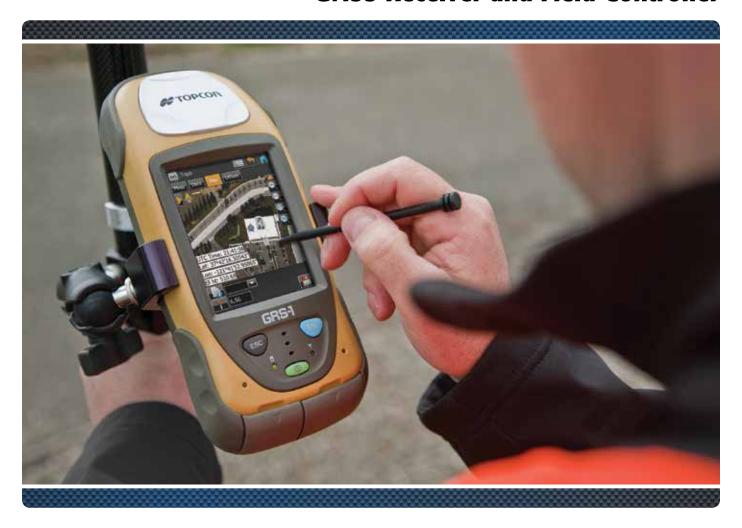# GRS-1 with Vanguard Technology™

TOPCON

GNSS Receiver and Field Controller

- 226 Channels with Universal Tracking Technology
- Internal GNSS Antenna
- Internal GSM or CDMA Cellular Modem
- Windows Mobile® Operating System
- 2.0 Megapixel Camera (optional)
- Built-in *Bluetooth*® and WiFi

GRS-1 GNSS Receiver and Field Controller

All-in-one handheld GNSS receiver and field controller

Topcon continues to enhance GNSS receivers by adding Vanguard Technology™ to the already successful GRS-1. The GRS-1 now featuring Vanguard Technology™ has 226 GNSS channels that use Universal Tracking Technology for unmatched GNSS signal flexibility and expandability. It is an all-in-one handheld GNSS receiver and field controller with high speed processor, bright sunlight readable screen, and optional internal camera. It is packed with communications as well. *Bluetooth*®, WiFi, and choice of CDMA or GSM modem.

An improved World's First

The GRS-1 (Geodetic Rover System) was designed as a world's first fully integrated dual constellation network ready RTK rover. Now with Vanguard Technology™, it can also receive Galileo signals. It still has DGPS capability with the internal single frequency antenna for use in GIS and navigation applications, add the external antenna and connect to your local GNSS network, or MAGNET Relay base for centimeter accuracy RTK performance.

Versatile for all applications

Use the GRS-1 in various configurations from handheld to network enabled RTK measurement, and grade management. The system can be configured to perform at various levels of accuracy that fit any budget. Choose from centimeter level, sub-decimeter, sub-meter, or DGPS. All of these accuracy configurations can be upgraded by a simple options file purchase. The computer processor and screen are powerful and ready to run all of Topcon's field applications, MAGNET Field, MAGNET Field Site, Pocket-3D, eGIS, and other partner software.

Integrated Digital Camera (Optional)
- 2.0 megapixel
- Auto focus function
- Internal memory
- SD card slot for expanded memory

Ergonomic Design
- One hand carrying design
- Elastic hand strap
- Light weight
- Antenna positioned above hand

I/O Connections
- Mini USB
- Power and charging
- Mini serial port
- SD card slot for expanded memory

Internal Precision Antenna
- Single Frequency Antenna
- GPS and GLONASS tracking
- Positioned for optimal reception
- Upgrade with an external antenna

Packed with Communications

Built-in cellular of either a GSM or CDMA modem is included for connection to network RTK base broadcasts. In addition, the built-in *Bluetooth*® and Wireless LAN (WiFi) connectivity comes standard. Use in a typical hotspot to stay connected. Now with cloud computing and connectivity the GRS-1 is the perfect solution to connect to Topcon's SiteLink3D and MAGNET Enterprise. Manage jobsites and project teams by staying connected and collaborating on the same data sets.

PRIMARY FEATURES

Integrated Digital Camera (Optional)

VANGUARD
TECHNOLOGY™

Hand Strap

Internal Dual Frequency
GPS + GLONASS

Ultra Sharp Color
TFT Touch Screen

L1, L2 Dual Frequency
Antenna Port

Bluetooth®

Internal *Bluetooth®*
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

Construction Grade Checker

With Pocket-3D and MAGNET Field Site, connect to both the RTK message and the jobsite connected cloud for data exchange and communication. Simple grade checking and layout are easy with both Pocket-3D and MAGNET Field Site.

KIT COMPONENTS

Network Rover System Components

- GRS-1 Controller
- Batteries, Charger, Power Cable
- Pole Mount
- External Precision Antenna
- USB and Antenna Cable
- Carrying Case

SPECIFICATIONS

GNSS

Number of Channels	226 Channels with Universal Tracking Technology
Internal Antennna	
GPS/GLONASS	L1
DGPS Accuracy	<1m
External Antennna	
GPS	L1 CA, L1/L2 P-code, L2C
GLONASS	L1/L2 CA, L1/L2 P-code
Galileo	E1
SBAS	WASS EGNOS, MSAS, QZSS, QLL
DGPS Accuracy	<0.5m
L1,L2 Static	H: 3mm + 0.8ppm
	V: 4mm + 1.0ppm
RTK Accuracy	H: 10mm + 1.0ppm
	V: 15mm + 1.0ppm
Data update rate	Up to 100Hz

Communication

USB	Mini Port
Card Slot	Secure Digital (SD)
Cellular Capability	Internal GSM or CDMA
Input/Output	*Bluetooth*®, USB, Serial, Antenna
Expansion Connector	Weatherproof Comm. Port
WLAN Connectivity	Standard (Internal, 802.11b)

Hardware

Processor	806 MHz, XScale PXA320
Operating System	Windows Mobile® 6.1
Memory	256MB SDRAM / 1GB Flash
Data Update Rate	Up to 100Hz
Display	3.7" VGA LCD
Camera	2.0 Megapixel (optional) (No camera with GRS-1N)
Compass	Internal 4 degree accuracy
Operating Time	5 hours (GPS Static Mode)
Dimensions	8.46" x 3.54" x 2.08" (215 x 90 x 53mm)
Weight	1.5 lbs (0.7kg)
Environmental	IP66, 1 meter drop
Operating Temperature	-20°C to 50°C
With Camera	-10°C to 50°C
Storage	-30°C to 60°C

For more specification information:
topconpositioning.com/grs1

SOFTWARE

MAGNET™ - Pocket-3D - eGIS

Choose the software that best fits your application. The GRS-1 featuring Vanguard Technology™ is ready for any application.

MAGNET™

A family of software solutions that streamlines the workflow for surveyors, contractors, engineers, and mapping professionals.

Pocket-3D

Puts the power of GNSS based site management in the hands of site foremen and grade checkers, making it easy to verify machine control activities.

eGIS

Designed to be easy and intuitive, eGIS is the best software solution for location based information recording for mobile GIS solutions. Configurable to user needs, and compatible with ESRI's ArcPad and PDF maps.

TOPCON
topconpositioning.com

7400 National Drive ▪ Livermore ▪ CA 94550
(925) 245-8300

Your local Authorized Topcon dealer is: