TOPCON

Topcon GRS-1 with Vanguard (Previously Available)

Topcon, the company that brought you the first integrated GPS receiver now brings you the first fully integrated handheld GNSS receiver and field controller!

Topcon continues to enhance GNSS receivers by adding Vanguard Technology™ to the already successfull 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 all-in-one handheld GNSS receiver and field controller with high speed processor, bright sunlight readable screen, and optional camera. It is packed with communications as well. *Bluetooth*®, Wifi, and optional internal CDMA or GSM modem.

Features & Benefits:

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

[View Promotional Video]

Topcon's new GRS-1 (Geodetic Rover System) is the world's first fully integrated dual constellation network enabled RTK rover system. It is an all-in-one handheld GNSS receiver and field controller featuring high-speed processor, increased memory, built-in camera and digital compass. Also integrated are an SD memory card slot, optional internal GSM or CDMA modem, and wireless connectivity via Wireless LAN and Bluetooth® wireless technology.

The GRS-1 achieves three primary and evolutionary goals for a GNSS receiver: small size, minimal weight, and affordability. It provides DGPS capability via an internal L1 antenna, perfect for the GIS and navigation space. Instantly move to centimeter RTK accurate dual frequency / dual constellation GNSS by simply adding a carbon-fiber pole with Topcon's PG-S1 external antenna then connect to your local GNSS network via the internal modem. As an added benefit, the GRS-1 can also be used as a static post processed receiver system.

Built-in 2.0 Megapixel Camera (Optional)

That's right, the GRS-1 comes with a 2.0 megapixel camera with autofocus for taking pictures. Store photos on-board with the 1GB of Flash memory or use the external SD card slot for additional memory.

Internal Magnetic Compass

Utilizing compass bearing with GNSS positioning, the magnetic compass allows for additional measurements to be taken from a single location.


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 Client. This functionality allows for expanded memory and easy file transfer through USB flash drives or SD memory cards.

Bluetooth® and Wireless LAN

Built-in Bluetooth wireless technology and Wireless LAN connectivity come standard. No need for expensive upgrades or CF cards. Use your device in a typical Hotspot to surf the web, check weather or e-mail files back to the office. When not in use, Topcon also provides a way to turn Bluetooth and Wireless LAN off to conserve battery power.

Available Application Software: Topcon's MAGNET™ Software!

A family of software solutions that streamlines the worklow for surveyors, contractors, engineers, and mapping professionals. MAGNET is a suite of productivity software products that increase productivity through collaboration of office and field data. From the intuitive user interface running on a field controller, to the cloud-linked office CAD
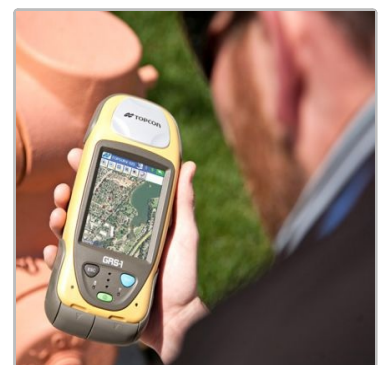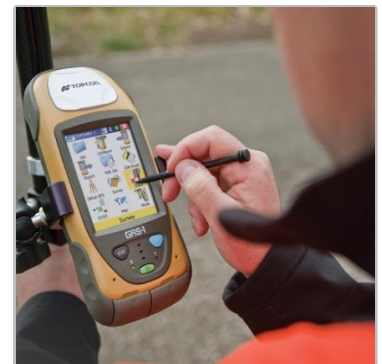
General Details	
Dimensions	Width 3.54" (90 mm) x Height 8.46" (215 mm) x Depth 2.08" (53 mm)
Weight	1.7 lbs (0.77 kg) with battery
Antenna Internal	Single Frequency, L1 (GPS and GLONASS)
With External Antenna	Dual Frequency, L1 / L1 (GPS and GLONASS)

Controller	Windows Mobile 6.1 Classic operating system

Tracking Specifications	
Signals	GPS L1, L2, L2C GLONASS L1, L2, L2C SBAS QZSS L1, L2
WAAS / EGNOS / MSAS	Yes
Standard Channels	226-channel Vanguard Technology with Universal Tracking Channels

Environment	
Operating Temperature Range With Batteries	-4 F° to 122 F° (-20 C° to +50 C°)
Operating Temperature Range Using Camera	14 F° to 122 F° (-10 C° to +50 C°)
Storage Temperature Range With Batteries	-22 F° to 140 F° (-30 C° to +60 C°)
Waterproof Rating	IP66 (with all connector caps closed), IPX4 (Weatherproof) at external antenna cable connection

Power	
Internal Battery	Li-ion, 2500 mAh 7.4V; replaceable (BT-66Q)
Operating Time	3.5 hours at full use
Operating Time	4 hours without cell phone use
Operating Time	9 hours without internal GNSS and cell phone usage
On-board Backup Battery	CR2032 for timekeeping; replaceable button-type battery; 8–10 years
External Power	1 port
Input Voltage	8 to 15 V DC (for work), 10 to 15 V DC (for charge battery)
Output Voltage	12 V - 3 A
Consumption	5.3 W (with Windows Mobile and GPS and GSM)
Battery Charger	Connect the AC adaptor to charge the power port
Charging Time	within 5 hours for full charge

Communication	
Cellular Communications	GSM / CDMA
Frequency	Quad Band 850,900,1800,1900MHz, CDMA800,1900MHz, WCDMA,2100MHz
USB Port	Version 1.1 (mini B)
Bluetooth® Modem	Bluetooth standard 1.2; Class 2; Profile: SPP,
Wireless LAN Transmission Specifications	IEEE802.11b/g
Access Method	Infrastructure mode, Ad hoc mode
Security	Wired Equivalent Privacy (WEP) 128/64bit, Temporal Key Integrity Protocol (TKIP)
Frequency	2.4GHz (2,412~2,462MHz) (1~11ch)
Transmission Method	Direct sequence spread spectrum (DS-SS) communication
Transmission Output	30mW
Transmission Distance	32.8 feet (10m) in good visibility

Connectors and Slots	
Processor Speed	806MHz

Processor Type	Marvel PXA320
Internal Hard Drive	1 GB (NAND Flash Memory)
Internal RAM	256 MB (DDR2 SD RAM)
Operating System	Microsoft Windows® Mobile 6.1 Classic
Digital Camera	2 megapixel resolution (1600 × 1200 pixels)
SD Card	1 slot for memory storage and I/O
Serial Port	1 port for communication with the GMS+ board (port A); small connector
USB Port	1 port for Windows Mobile; type B mini ver 1.1; connect to PC using ActiveSync
External Power	1 port; DC Jack type A; for connecting the AC adaptor or external battery
External Antenna Connector	Lemo connector (EPS.01.250.DLN); 5 VDC output to external antenna
Digital Compass	Axis = Three (X,Y,Z)
Azimuth Angle Accuracy	+/- 8° (after calibration)
Inclinometer	Axis Two (X,Y)
Angle Range	+/- 30°
Tilt Angle Accuracy	+/- 2° (with reference to optical axis of distance meter)

LCD Display

Size	640 x 480 VGA (portrait / landscape) 3.7 inch color TFT
Backlight	LED (Light Emitting Diode)

Survey Accuracy

Static Surveying For L1 Only	Horizontal = 3mm + 0.8ppm (x baseline length); Vertical = 4mm + 1.0ppm (x baseline length)
For L1 +L2	Horizontal = 3mm + 0.5ppm (x baseline length); Vertical = 5mm + 0.5ppm (x baseline length)
RTK	For L1/L1 +L2: Horizontal = 10mm + 1.0ppm (x baseline length); Vertical = 15mm + 1.0ppm (x baseline length)
Differential GPS Post processing/RTCM	Typically less than 0.5m (RMS)
Real Time Data Output Format	RTCM 2.3, 3.0; CMR, CMR+; TPS NMEA NMEA 2.2, 2.3, 3.0