

Trimble Virtual Reference Station (VRS™) System

Versatile RTK positioning infrastructure for local and regional applications

FEATURES

General

- High-accuracy real-time kinematic GPS positioning
- Fixed virtual reference station network available at any time without setting up a base station
- Common control network for large areas
- Real-time atmospheric error correction
- Built-in integrity monitoring by VRS server
- Seamless package of GPS hardware, modeling and networking software, and communications interface

5700 CORS Receiver

- Tough, lightweight magnesium alloy casing
- Compact flash data storage expandable up to 128 MB
- Low power consumption
- Up to 10 hours backup receiver operation on 2 internal miniature camcorder batteries
- Dual rate logging up to rates of 10 Hz

Zephyr™ Geodetic Antenna

- 4-point antenna feed for sub-mm phase centre repeatability
- Trimble Stealth™ ground plane for reduced multipath
- Superior phase center repeatability

GPSNet Software

- Communications control of remote receivers (no PC required at site)
- RINEX file creation and archiving
- Statistical analysis and integrity monitoring of reference stations
- Single base RTCM generation

DGPSNet Software

- Network modeled RTCM messages optimized for networks with reference station spacing of 70–300 km, and L1 C/A roving receivers

RTKNet Software

- Full network modeling of ionospheric, tropospheric and ephemeris errors
- VRProcessor provides network modeled RTK messages to roving receivers

SYSTEM COMPONENTS

5700 CORS Receiver

GPS measurements	Advanced Maxwell 4 custom survey GPS chip High precision multiple correlator L1 and L2 pseudorange measurements Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response Very low noise L1 and L2 carrier phase measurements with <1mm precision in a 1 Hz bandwidth L1 and L2 Signal-to-Noise ratios reported in dB-Hz Proven Trimble low elevation tracking technology 24 Channels L1 C/A code, L1/L2 full cycle carrier WAAS/EGNOS tracking
Casing	Tough, lightweight fully sealed magnesium alloy
Waterproof	IPX7 for submersion to depth of 1 m
Shock	Will survive a 1 m drop onto concrete; shock and vibration tested to 40 G random
Weight	With internal batteries, battery charger 2.9 lbs (1.3 kg)

Power	DC input 10.5 to 28 V with over voltage protection
Power consumption	2.5 Watts
Power output	10.5 V–20 V (Port 1), 10.0 V–27.5 V (Port 3)
Certification	Class B Part 15 FCC certification and CE Mark approved
Operating temperature	–40°C to +65°C (–40°F to +149°F)
Storage temperature	–40°C to +80°C (–40°F to +176°F)
Humidity	100%, condensing, passes testing per MIL-STD-810F, FIG. 514.5C-17
Communications and data storage	CompactFlash—advanced lightweight and compact removable data storage. Options of 64 MB and 128 MB from Trimble Dual position and data logging at rates of 1, 2, 5, and 10 Hz Continuous logging support Update firmware remotely over a modem line Support for modem initialization Logging and streaming of meteorological data

Zephyr Geodetic Antenna

Tracking characteristics	4-point antenna feed for sub-mm phase center repeatability Integral Low Noise Amplifier 50 dB antenna gain Superior low elevation tracking performance Trimble Stealth ground plane for reduced multipath Phase center repeatability <0.5 mm horizontal 34.3 cm (13.5") diameter x 7.6 cm (3") max depth 1.0 kg (2.2 lbs)
Dimensions	
Weight	
Operating temperature	–40°C to +70°C (–40°F to +158°F)
Humidity	100% humidity proof, fully sealed
Shock	MIL-810-F Figure 514 5c-17 vibration levels on each axis Shock tested to MIL-810-F Table 516.5-I to survive a 2 m (6.56 ft) drop Shock tested for a drop of 2 m (6.56 ft) onto concrete

GPSNet Software

Sensor compatibility	Interfaces to Trimble's 5700, 4700, MS750, and 4000 receivers Interfaces to most third party receivers
Data integrity monitoring	Gross error detection Provides detection and correction of cycle slips RAIM monitoring Watchdog timer for reliable operation User definable alarms via e-mail / SMS
Logging capability	Capacity to log multiple RINEX files at different rates to local or LAN drives
FTP capability	FTP mirror functionality for ease of publishing data
IGS compatibility	Ability to use IGS Ultra Rapid Orbits
Single base positioning	Single point RTCM or CMR RTK messages from the nearest base station
Reporting capability	XML reports for easy web publishing

DGPSNet Software

Error modeling	Modelling of atmospheric and orbital biases, reduction of mutipath by network solution, optimized for differential positioning networks
Accuracy	Allows differential positioning with sub 0.5 m accuracy using single frequency receivers
Message types	RTCM 1,2,3, and 9

RTKNet Software

Error modeling	VRProcessor models systematic RTK errors (ionospheric, tropospheric, and ephemeris)
Accuracy	Network corrected RTCM generator for fast initalization and centimeter level accuracy anywhere in the network
Postprocessing data	RINEX files for postprocessing

MINIMUM SOFTWARE REQUIREMENTS

Reference station requirements

Geodetic quality dual frequency receiver
Terminal adapter or modem for ISDN or PTSN or terminal server for TCP/IP communications

Central server requirements

PC with 1.7 GHz or faster processor with 512 MB RAM, a 40 GB hard drive, and a parallel port
SVGA color monitor 800 x 600
Multiple serial interface or Ethernet router
Keyboard with mouse or trackball
CD-ROM drive
Microsoft Windows 2000, or Windows NT 4.0
Access server or modem bank

Mobile user requirements

GPS Receiver that accepts RTCM v2.1, 2.2, or CMR
Cellular or CDPD modem

ORDERING INFORMATION

Basic VRS Package

A complete VRS package that supports up to 50 mobile users, containing the following:

- GPSNet software
- RTKNet software
- 4 x 5700 CORS GPS recievers

DGPSNet software can be purchased as an option.

For further information please contact your nearest Trimble Authorized Distributor or Trimble Office.

You may also visit our web site at <http://www.trimble.com>

Specifications subject to change without notice.



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