



Global Positioning System technology is rapidly changing how people find their way around the earth. Whether it is for fun, saving lives, getting there faster, or whatever uses you can dream up, GPS navigation becoming more common everyday. NVIS GPS Trainer will provide a basic understanding of the GPS fundamental, Satellite and design aspects of GPS Receiver by actually connecting to the satellite by GPS antenna.

### TECHNICAL SPECIFICATIONS:

**Channels:** 12  
**Frequency:** L1 C/A  
**Position Accuracy:** 25 meters CEP without SA  
**Velocity Accuracy:** 0.1 meters/second, without SA  
**Time Accuracy:** Synchronization to GPS time  
**Maximum Speed:** 515 meters/Sec. maximum  
**Acceleration:** 4 g. maximum  
**Jerk:** 20 meters/Sec<sup>3</sup> maximum  
**Maximum altitude:** 18000 meters  
**Time to First Fix:** 45/38/8 sec  
**Update rate:** 1/sec  
**Receiver Sensitivity:** -175 dbW  
**Input voltage:** +5 VDC  
**Current (Avg.):** 180 mA  
**Serial communication:** 4800 Baud (default)  
**Protocol messenger:** NMEA0183V2.2, SiRf binary & RTCMSC- 104V2.0 type 1, 2, 9  
**Operating Temperature:** - 40 to + 85  
**Power Consumption:** 2VA approx.  
**Power Supply:** 220V  $\pm$  10%, 50Hz/60Hz  
**Included Accessories:** GPS Antenna, Software CD-ROM, Theory & Operating manual, serial interface cable.

- ◆ 12 Channel GPS & Carrier
- ◆ Fast requisition time of 0.1 second
- ◆ NMEA 0183 Ver 2.2 GGA, GLL, GSA, GSV, RMC & VTG
- ◆ On board real time RTCM SC – 104 differentials
- ◆ 1PPS (one pulse per second)
- ◆ GPS software for analysis
- ◆ Serial Port for Interface
- ◆ SiRF Binary Protocol Output
- ◆ Fast Cold/Warm/Hot Start TTFF time of 45/38/8 sec

### Scope of Learning:

- Ø Understanding the concept of GPS
- Ø Establishing link between GPS Satellite & GPS Trainer
- Ø Measurement of Latitude & Longitude
- Ø To study effect of DOP, HDOP & VDOP
- Ø Study of PRN Code
- Ø Analysis of Elevation, Azimuth, SNR
- Ø Analysis of NMEA 0183 Protocols
- Ø Study of common NMEA sentence Protocol like GPGGA, GPGLL, GPGSA, GPGSV
- Ø Study of useful conversion formulas

**Manufactured By:**  
**NVIS Technologies**

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