

Have you ever been lost and wished there was an easy way you needed to go ? Ever find that perfect fishing or hunting spot and not been able to remember how to get back to it easily ? How about finding yourself out hiking and not knowing which direction you should go to get back to your camp or car ? Ever been flying along and needed to locate the nearest airspace you were in ?

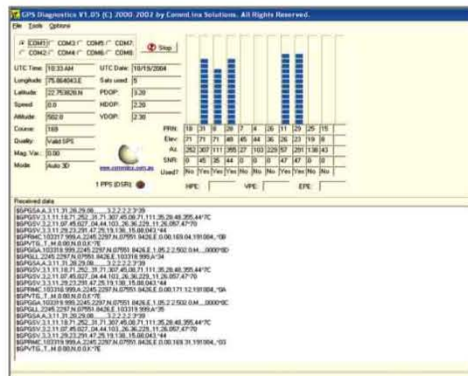
Global Positioning System technology is rapidly changing how people find their way around the earth. Whether it is for fun, saving lives, getting there faster, or whatever uses you can dream up, GPS navigation is becoming more common everyday. GPS Trainer will provide a basic understanding of the GPS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



Technical Specifications

- Channel:** 12
- Frequency:** L1 C/A
- Position Accuracy:** 25 meters CEP without SA
- Velocity Accuracy:** 0.1meters/second, without SA
- Time Accuracy:** Synchronized to GPS time
- Update rate:** 1/sec
- Receiver Sensitivity:** -175 dB
- Current (Avg.):** 180 mA
- Serial Communication:** 4800 Baud (default)
- Protocol Messenger:** NMEA0183 V 2.2, SiRf binary & RTCM SC-104 V2.0 type 1,2,9
- Maximum Speed:** 515 meters /sec. (max.)
- Acceleration:** 4g. maximum
- Jerk:** 20 meters / sec-3 max.
- Maximum Altitude:** 18000 meters
- Time to First Fix:** 45/38/8 sec
- Operating Temperature:** -40° to +85°C
- Power Supply:** 220 V ±10% , 50/60 Hz on request
- Power Consumption:** 2 VA (approx.)
- Dimensions (mm.):** W 340 × D 241 × H 105

- ▣ 12 channel GPS & carrier
- ▣ Fast Cold/Warm/Hot start TTFB time of 45/38/8 sec
- ▣ Fast requisition time of 0.1 second
- ▣ NMEA 0183 Ver 2.2 GGA, GLL, GSA, GSV, RMC and VTG sentences output
- ▣ SiRf binary protocol output
- ▣ On board real time RTCM SC-104 differential
- ▣ 1PPS (one pulse per second) signal
- ▣ Serial port for PC interface
- ▣ GPS Software for analysis



Experiments that can be performed

- Understanding Concept of GPS
- Establishing Link between GPS Satellite & GPS Trainer
- Measurement of Latitude & Longitude
- To Study Effect of DOP
- Study of HDOP & VDOP
- Analysis of NMEA 0183 Protocols
- Analysis of Elevation; Azimuth, SNR
- Study of PRN code
- Study of Common NMEA Sentence Protocol like, GPGGA, GPGLL, GPGSA, GPGSV, GPRMC, GPVTG
- Study of other GPS NMEA Sentences like, GPALM, GPGRS, GPGST, GPMSS, GPZDA
- Study of UTC Date & Time
- Study of useful conversion formulas

