

# Eclipse OEM Board

## Dual Frequency GPS Module



## ***Eclipse***

Develop precise applications with superior performance and versatility of Hemisphere GPS' Eclipse OEM board. Eclipse receiver technology delivers reliable dual-frequency GPS solutions through Hemisphere GPS' exclusive techniques for reducing code measurement noise and mitigating multipath signals. Eclipse fits a wide range of applications with support for a variety of differential GPS solutions including RTK, OmniSTAR® (HP and XP) and SBAS (WAAS, EGNOS, etc.). Integration is simplified with Eclipse multiple serial and USB ports and upgradeable firmware for establishing the desired configuration and quick access to new features.

### **Key Eclipse Advantages**

- Affordable L1/L2 GPS solution with update rates of up to 20Hz
- High-precision positioning in RTK, OmniSTAR HP/XP and SBAS/DGPS modes
- Integrated L-band tracking powers down when not in use
- OmniSTAR subscriber access permits remote activation via satellite uplink
- COAST™ stability during temporary differential signal outage
- Raw GPS data output available

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## GPS Sensor Specifications

Receiver Type: L1 (CA), L1 (P), L2 (P) with carrier phase  
 Channels: 24 channels L1, 12 channels L2  
 SBAS Tracking: 2-channel, parallel tracking  
 Update Rate: 20 Hz maximum

### Horizontal Accuracy:

	RMS (67%)	2DRMS (95%)
RTK <sup>1,2,3</sup>	1 cm + 1 ppm	2 cm + 1 ppm
OmniSTAR HP <sup>1,4</sup>	0.1 m	0.2 m
SBAS (WAAS) <sup>1</sup>	30 cm	60 cm
Autonomous, no SA <sup>1</sup>	1.2 m	2.5 m

Cold Start Time: <60 s  
 Warm Start Time 1: 30 s (valid ephemeris)  
 Warm Start Time 2: 30 s (almanac and RTC)  
 Hot Start Time: 10 s typical (valid ephemeris and RTC)  
 Reacquisition: <1 s  
 Maximum Speed: 1607 kph (999 MPH)  
 Maximum Altitude: 18,288 m (60,000 ft)

## Communications

Serial Ports: 3 full duplex 3.3V CMOS, 2 USB  
 Baud Rates: 4800 - 115200  
 Correction I/O  
 Protocol: RTCM SC-104  
 Proprietary format (L-Dif™ / RTK)  
 Data I/O Protocol: NMEA 0183, SLX binary  
 Timing Output: 1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)  
 Event Marker Input: HCMOS, active low, falling edge sync, 10k Ω

<sup>1</sup> Depends on multipath environment, antenna selection, number of satellites in view, satellite geometry, baseline length (for local services) and ionospheric activity

<sup>2</sup> Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity

<sup>3</sup> Depends also on baseline length

## Environmental

Operating Temperature: -30°C to +70°C (-25°F to +165°F)  
 Storage Temperature: -40°C to +85°C (-40°F to +185°F)  
 Humidity: 95% non-condensing  
 Shock and Vibration: EP 455

## Power

Input Voltage: 3.3 VDC +/- 3%  
 Power Consumption: <2.5 W nominal  
 Current Consumption: 750 mA nominal  
 Antenna Voltage Input: 15 VDC maximum  
 Antenna Short Circuit Protection: Yes  
 Antenna Gain Input Range: 10 to 40 dB  
 Antenna Input Impedance: 50 Ω

## Mechanical

Dimensions: 109.2 L x 71.1 W x 16.0 H mm  
 (4.3 L x 2.79 W x 0.63 H in)  
 Weight: <55 g (<1.9 oz)  
 Status Indication (LED): Power, GPS lock, differential lock, and DGPS position  
 Power/Data Connector: 70-pin male header, 0.05" pitch  
 Antenna Connector: MCX, female, straight

## Authorized Distributor: