

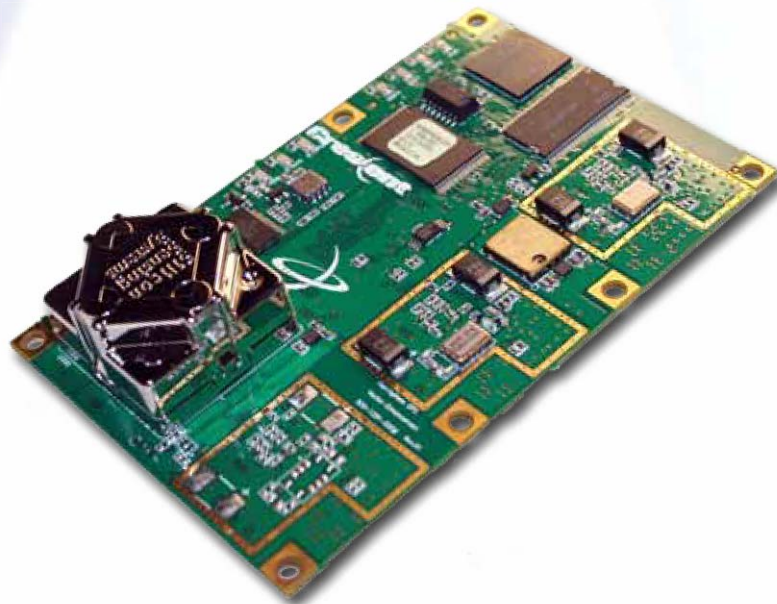
Crescent Vector II OEM Board

Enhanced Heading and Positioning



Create a more dynamic navigation solution through Hemisphere GPS' advancements in Crescent® Vector II™ technology. The enhanced Crescent Vector II OEM board brings a series of new features to the patented receiver technology including heave, pitch and roll output, more accurate timing, lower phase noise and an improved accelerometer. Use the new Crescent Vector II OEM Board for all applications that require reliable heading and positioning.

The Crescent Vector II OEM board computes heading and position using two antennas in both static and dynamic applications. The compact size, low-power consumption and simple configuration of the Crescent Vector II OEM board make it an ideal solution for system integrators.



Key Crescent Vector II OEM Board Advantages

- New heave, pitch and roll messages
- Improved in-band and out-of-band interference rejection
- Improved clock performance
- More robust clock buffer and accelerometer
- Improved satellite tracking with higher SNR's on both primary and secondary channels

Crescent Vector II OEM Board

GPS Sensor Specifications

Receiver Type:	L1, C/A code, with carrier phase smoothing
Channels:	Two 12-channel, parallel tracking (Two 10-channel when tracking SBAS)
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	Standard 10 Hz, optional 20 Hz (position and heading)
Horizontal Accuracy:	< 0.02 m 95% confidence (RTK ^{1,4}) < 0.6 m 95% confidence (DGPS ¹) < 2.5 m 95% confidence (autonomous, no SA ²)
Heading Accuracy:	< 0.30° rms @ 0.5 m antenna separation < 0.15° rms @ 1.0 m antenna separation < 0.10° rms @ 2.0 m antenna separation
Pitch / Roll Accuracy:	< 1° rms
Heave Accuracy:	30 cm
Timing (1PPS) Accuracy:	50 ns
Rate of Turn:	90°/s maximum
Cold Start:	< 60 s typical (no almanac or RTC)
Warm Start:	< 20 s typical (almanac and RTC)
Hot Start:	< 1 s typical (almanac, RTC and position)
Heading Fix:	< 10 s typical (valid position)
Antenna Input Impedance:	50 Ω
Maximum Speed:	1,607 kph (999 mph)
Maximum Altitude:	18,288 m (60,000 ft)

Communications

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

¹ Depends on multipath environment, antenna selection, number of satellites in view, satellite geometry, baseline length (for local services), and ionospheric activity
² Depends on multipath environment, number of satellites in view, and satellite geometry
³ Hemisphere GPS proprietary
⁴ Up to 10 km baseline length

Environmental

Operating Temperature:	-30°C to +70°C (-22°F to +158°F)
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Humidity:	95% non-condensing
Shock and Vibration:	IEC 60945, EP 455
EMC:	FCC Part 15, Subpart B, Class B, CISPR22, CE

Power

Input Voltage:	3.3 VDC +/- 3%
Power Consumption:	~ 1 W nominal
Current Consumption:	~ 300 mA @ 12 VDC
Antenna Voltage:	~ 5 VDC
Antenna Short Circuit Protection:	Yes
Antenna Gain Input Range:	10 to 40 dB
Antenna Input Impedance:	50 Ω

Mechanical

Dimensions:	10.9 L x 7.1 W x 2.8 H cm (4.3" L x 2.8" W x 1.1" H)
Weight:	~ 55 g (~ 1.9 oz)
Status Indication (LED):	Power, primary GPS lock, secondary lock, DGPS lock, and heading lock
Power/Data Connector:	34-pin male header, 0.05" pitch
Antenna Connectors:	MCX, female, straight (x2)

Aiding Devices

Gyro:	Provides smooth heading, fast heading reacquisition and reliable < 1° heading for periods up to 3 minutes when loss of GPS lock has occurred
Tilt Sensors:	Assists in fast start-up of heading solution

