

# VECTOR LITE/PRO (MKII)

Professional, robust and high performance GPS Compass



Experience the Vector (MK II) GPS Compass series for its superb heading and positioning performance. The new, rugged IP69K design housing is sealed for the harshest environments. It incorporates fixed and pole mounting capability for both marine and land applications. The Vector Series is suitable for both commercial and professional marine, as well as for machine mounting in open pit mining, construction and other applications.

The Vector Lite and Pro utilize all of the recent innovations in Crescent® and Vector technology. New CrossDipole low-multipath antennas are separated by 50 cm between phase centers, resulting in better than 0.3° rms heading performance while delivering position accuracy of better than 60 cm 95% of the time when using SBAS (EGNOS, MSAS & WAAS) or Beacon corrections.

The Vector Lite and Pro support both NMEA 0183 and NMEA 2000 interfacing, enabling a seamless choice of communication protocols. Crescent Vector technology delivers accurate and continuous performance, including position, heading, heave, pitch and roll. The stability and maintenance-free design of the Vector Series replaces traditional gyrocompasses and stand-alone GPS at a fraction of the cost.

**YOUR GPS PARTNER**



## Technical specifications

### GPS Sensor Specifications

Receiver Type: L1, C/A code, with carrier phase smoothing  
Signal Tracking: Dual L1 GPS receiver design, parallel tracking  
GPS Sensitivity: -142 dBm  
SBAS Tracking: 2-channel, parallel tracking  
Update Rate: 20 Hz standard  
Horizontal Accuracy: < 0,6 m 95% confidence (DGPS<sup>1</sup>)  
< 2.5 m 95% confidence (autonomous, no SA<sup>2</sup>)  
Heading Accuracy: < 0.30° rms  
Pitch/Roll Accuracy: < 1° rms  
Heave Accuracy: < 30 cm<sup>5</sup>  
Timing (1PPS) Accuracy: 50ns  
Rate of Turn: 90°/s maximum  
Compass Safe Distance: 0,75 cm (with enclosure)<sup>4</sup>  
Cold Start: < 60 s (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)  
Maximum Speed: 1,850 mph (999 kts)  
Maximum Altitude: 18,288 m (60,000 ft)

### Beacon Sensor Specifications (Vector PRO version)

Channels: 2-channel, parallel tracking  
Frequency Range: 283.5 to 325 kHz  
Operating Modes: Manual, automatic, and database  
Compliance: IEC 61108-4 beacon standard

### Communications

Serial Ports: 1 full-duplex RS-232, 1 full-duplex RS-422 and 1 half-duplex RS-422 (Tx only)  
Baud Rates: 4800 - 38400  
Correction I/O Protocol: RTCM v2.3 (DGPS), RTCM SC-104, L-Dif<sup>TM</sup><sup>3</sup>  
Data I/O Protocol: NMEA 0183, NMEA 2000, Crescent binary<sup>3</sup>, L-Dif  
Timing Output: 1PPS CMOS, active low, falling edge sync, 10 kΩ, 10pF load  
Heading Warning I/O: Open relay system indicates invalid heading

### 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: 90% non-condensing  
Vibration: IEC 60945  
EMC: CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B  
IMO Wheelmark Certification: Yes<sup>6</sup>

### Electrical

Input Voltage: 6 to 36 VDC  
Power Consumption: Vector Lite ~3 W nominal  
Vector PRO ~3.3 W nominal  
Current Consumption: Vector Lite: ~320mA@9 VDC  
~240 mA@12 VDC  
~180 mA@16 VDC  
Vector PRO: ~350 mA@9 VDC  
~265 mA@12 VDC  
~200 mA@16 VDC  
Power Isolation: Isolated to enclosure  
Reverse Polarity Protection: Yes

### Physical

Dimensions: 66,3 L x 20,9 W x 14,6 H cm  
(26.1" L x 8.3" W x 5.8" H)  
Weight: Vector Lite 2,1 kg (4.6 lb)  
Vector PRO 2,4 kg (5.4 lb)  
Power/Data Connector: 18-pin, environmentally sealed  
Status Indications (LED): Power

### Aiding Devices

Gyro: Provides smooth heading, fast heading reacquisition and reliable <1° heading for periods up to 3 minutes when loss of GPS has occurred<sup>4</sup>  
Tilt Sensors: Assists in fast startup of heading solution

- 1 Depends on multipath environment, number of satellites in view, satellite geometry, ionospheric activity and use of SBAS
- 2 Depends on multipath environment, number of satellites in view, satellite geometry and ionospheric activity
- 3 True Heading GPS proprietary
- 4 IEC 60945 Standard
- 5 This is the minimum safe distance measured when the prouct is placed in the vicinity of the steering magnetic compass. The ISO 694 defines "vicinity" relative to the compass as within 5 m (16.4 ft) separation.
- 6 Based on a 40 second time constant (pending)
- 7 NMEA 0183 only



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