

# VECTOR CARBON PRO

Affordable, robust and high performance GPS Compass



## IMPROVES PERFORMANCE OF YOUR NAVIGATION



True Headings VECTOR CARBON is a GPS compass that gives that gives a precise heading information, at almost 100% of the time – at all courses. Every system such as radars, autopilots, sonars etc. in your boat that is dependent on compass information will improve its performance significantly with the Vector Carbon in comparison with a “normal” fluxgate compass with rate sensors (a.k.a. “rate compass”). It has a smart antenna design that does not require external processor or display, which simplifies installation and reduces the need for other equipment. Vector combines two GPS receivers in a housing. Everything is built-in the antenna, and no other devices need to be installed.

By using a sophisticated algorithm VECTOR CARBON has a true rate accuracy of  $\pm 1^\circ$  that is much better than a regular fluxgate compass – but at similar cost. If taken under consideration that you also will get GPS information such as POS, SOG and COG the VECTOR CARBON system is a much better choice than a fluxgate compass w/ rate sensors!

Vector Carbon provides updated location information of up to 20 Hz and also heading rate update of up to 20 Hz. It has integrated DGPS source in the form of WAAS and EGNOS. Vector Carbon is equipped with a rate gyro, that supports the receiver for quick changes of direction, giving an unprecedented accuracy. Vector Carbon has an position accuracy of  $\pm 1$  m with DGPS.

**YOUR GPS PARTNER**



# Technical specifications

## 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: 10 Hz standard  
 20 Hz optional (position and heading)

Horizontal Accuracy: < 1.0 m 95% confidence (DGPS1)  
 < 2.5 m 95% confidence (autonomous, no

SA2)  
 Heading Accuracy: < 0.75° rms  
 Pitch/Roll Accuracy: < 1.5° rms  
 Heave Accuracy: 30 cm 5  
 Rate of Turn: 90°/s maximum  
 Compass Safe Distance: 30 cm 4  
 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 kph (999 kts)  
 Maximum Altitude: 18,288 m (60,000 ft)

## Physical

Dimensions: 41.7 L x 15.8 W x 6.9 H cm  
 (16.4" L x 6.2" W x 2.7" H)  
 Weight: 1.5 kg (3.3 lb)  
 Power/Data Connector: 12-pin, Female, IP67

## Electrical

Input Voltage: 6 to 36 VDC  
 Power Consumption: 3 W nominal  
 Current Consumption: 250 mA @ 12 VDC  
 Power Isolation: Isolated to enclosure  
 Reverse Polarity Protection: Yes

## Communications

Serial Ports: 2 full-duplex RS-232  
 Baud Rates: 4800 - 115200  
 Correction I/O Protocol: RTCM SC-104  
 Data I/O Protocol: NMEA 0183, Crescent binary3, CAN

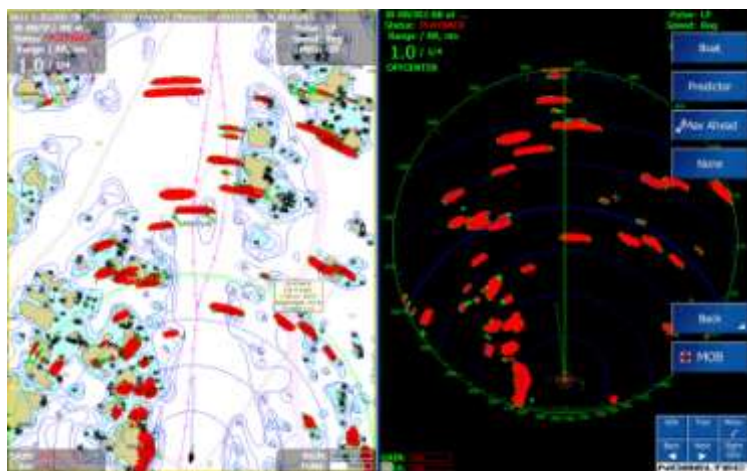
## Environmental

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: 100% non-condensing  
 Vibration: IEC 60945  
 EMC: FCC Part 15, Subpart B, CISPR22, CE

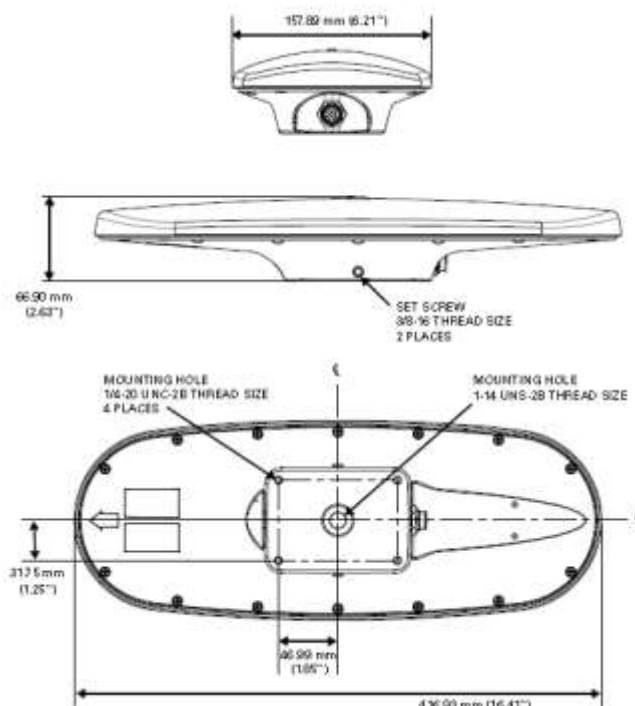
## Aiding Devices

Gyro: Provides smooth heading, fast heading reacquisition and reliable < 1° heading for periods up to 3 minutes when loss of GPS has occurred  
 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 Hemisphere GPS proprietary
- 4 IEC 60945 Standard
- 5 Based on a 40 second time constant



The Vector Carbon GPS Compass gives unvaluable support to radar overlay, sonar and autopilot performance so that full achievements can be obtained from all navigationsystems onboard.



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