

# Vector V102 GPS Compass Series

## General Navigation Heading and Positioning Smart Antenna

key features



- Provides heading, positioning, heave, roll and pitch
- Excellent in-band and out-of-band interference rejection
- 0.75 degree heading accuracy in amazingly small form factor
- Extremely quick time-to-first-fix
- Differential positioning accuracy of 1.0 m, 95% of the time
- Integrated gyro and tilt sensors deliver fast startup times and provide heading updates during temporary loss of GPS
- SBAS compatible (WAAS, EGNOS, MSAS, etc.) and optional external differential input
- COAST™ technology maintains differentially corrected positioning for 40 minutes after loss of differential signal

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Experience superior navigation from the accurate heading and positioning performance available with the Vector™ V102™ GPS compass. The Vector V102 uses SBAS (WAAS, EGNOS, MSAS, etc.) for differential GPS positioning allowing Hemisphere GNSS to provide a low cost and highly effective heading and position based smart antenna.

The rugged and low profile enclosure combines Hemisphere GPS' Crescent® Vector II OEM technology and two multipathresistant antennas for accuracy, portability and simple installation. The smart antenna - measuring less than half-meter length - mounts easily to a flat surface or pole. The stability and maintenance-free design of the Vector V102 provides traditional GPS positioning and heading at a low cost.

 Hemisphere

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## 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 (DGPS <sup>1</sup> ) < 2.5 m 95% confidence (autonomous, no SA <sup>2</sup> )
Heading Accuracy:	< 0.75° rms
Pitch/Roll Accuracy:	< 1.5° rms
Heave Accuracy:	< 30 cm <sup>5</sup> rms
Rate of Turn:	90°/s maximum
Compass Safe Distance:	30 cm <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)

## 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, NMEA 2000, Crescent binary <sup>3</sup> , 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 IEC 60945 (CE)

## Power

Input Voltage:	6 to 36 VDC
Power Consumption:	~ 3 W nominal
Current Consumption:	240 mA @ 12 VDC
Power Isolation:	Isolated to enclosure
Reverse Polarity Protection:	Yes

## Mechanical

Enclosure:	UV resistant, white plastic, AES HW 600G, non-corrosive, self-extinguishing
Dimensions:	41.7 L x 15.8 W x 6.9 H (cm) 16.4 L x 6.2 W x 2.7 H (in)
Weight:	~1.5kg (3.3 lb)
Power/Data Connector:	12-pin, Female, IP67

## 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 start-up of heading solution

<sup>1</sup> Depends on multipath environment, number of satellites in view, satellite geometry, ionospheric activity and use of SBAS

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

<sup>3</sup> Hemisphere GNSS proprietary

<sup>4</sup> This is the minimum safe distance measured when the product 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

<sup>5</sup> Based on a 40 second time constant

## Authorized Distributor:



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