

# Vector V104™ GPS Compass Series

## Small Form Factor GPS Compass

key features



- Provides heading, pitch, roll, heave and position
- Excellent in-band and out-of-band interference rejection
- 2 degree (RMS) heading accuracy in an amazingly small form factor
- Integrated gyro and tilt sensors deliver fast start-up times and provide heading updates during temporary loss of GPS and satellites
- Differential position accuracy of 1 m, 95% of the time
- Accurate heading for up to 3 minutes during GNSS outages
- COAST technology maintains differentially-corrected positioning for 40 minutes or more after loss of differential signal
- Offered as a Serial or NMEA 2000 version

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Vector V104™ GPS Compass offers superior navigation including accurate heading and position performance. V104 uses SBAS (WAAS, EGNOS, MSAS, etc.) for differential GPS position 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 GNSS' Crescent® Vector technology and two multi-path resistant antennas for accuracy, portability and simple installation. The smart antenna, measuring less than a half meter in length, mounts easily to a flat surface or pole. The stability and maintenance-free design of V104 provides traditional GPS position and heading at a low cost, replacing the combination of low-accuracy GPS and fluxgate compass.

DRAFT and Specifications are SUBJECT TO CHANGE.



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## Sensor

|                        |   |
|------------------------|---|
| Receiver Type:         | Vector GPS L1 Compass   |
| Signals Received:      | GPS   |
| Channels:              | Two 12-channel, parallel tracking (Two 10-channel when tracking SBAS) |
| GPS Sensitivity:       | -142 dBm  |
| SBAS Tracking:         | 2-channel, parallel tracking  |
| Update Rate:           | 10 Hz standard (position and heading)                                 |
| Rate of Turn:          | 90°/s maximum   |
| Compass Safe Distance: | 30 cm (11.8 in)   |
| 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)  |

## Accuracy

|                             |                    |
|-----------------------------|--------------------|
| Position:                   |                    |
| Single Point <sup>1</sup> : | 3 m (95%)          |
| SBAS <sup>2</sup> :         | 1 m (95%)          |
| Heading:                    | 2° (RMS)           |
| Pitch/Roll:                 | 2° (RMS)           |
| Heave:                      | 30 cm <sup>3</sup> |

## Communications

|                          |   |
|--------------------------|---|
| Ports:                   | 2 full-duplex RS232 <sup>4</sup> or 1 NMEA 2000 <sup>5</sup>  |
| Baud Rates:              | 4800, 9600, 19200, 38400, 57600, 115200                       |
| Correction I/O Protocol: | RTCM SC-104   |
| Data I/O Protocol:       | NMEA 0183, NMEA 2000, Hemisphere Crescent binary <sup>6</sup> |

## Power

|                              |                       |
|------------------------------|-----------------------|
| Input Voltage:               | 8 to 36 VDC           |
| Power Consumption:           | ~ 2.0 W nominal       |
| Current Consumption:         | 165 mA @ 12 VDC       |
| Power Isolation:             | Isolated to enclosure |
| Reverse Polarity Protection: | Yes                   |

## 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   |
| Shock and Vibration:   | IEC 60945   |
| EMC:                   | CE (IEC 60945 Emissions and Immunity), FCC Part 15 Subpart B, CISPR22 |
| IP Rating:             | IP69  |
| Enclosure:             | UV resistant, white plastic, Geloy CR7520 (ASA)                       |

## Mechanical

|                      |  |
|----------------------|--|
| Dimensions           |  |
| Not including mount: | 25.9 L x 12.9 W x 4.5 H (cm)<br>10.2 L x 5.1 W x 1.8 H (in)  |
| Including mount:     | 25.9 L x 12.9 W x 12.8 H (cm)<br>10.2 L x 5.1 W x 5.0 H (in) |

## Weight

|                       |   |
|-----------------------|---|
| Not including mount:  | 0.42 kg (0.9 lb)  |
| Including mount:      | 0.51 kg (1.1 lb)  |
| Power/Data Connector: | 8-pin Male for Serial or 5 Pin Male NMEA 2000 Micro connector |

## Aiding Devices

|               |  |
|---------------|--|
| Gyro:         | Provides smooth heading, fast heading reacquisition and reliable 2° per minute heading for periods up to 3 minutes when loss of GPS has occurred |
| Tilt Sensors: | Provide pitch and roll data, assist in fast start-up and reacquisition of heading solution   |

1 Depends on multipath environment, number of satellites in view, satellite geometry, no SA, and ionospheric activity

2 Depends on multipath environment, number of satellites in view, SBAS coverage and satellite geometry

3 Based on a 40-second time constant

4 Serial model only

5 NMEA 2000 model only

6 Hemisphere GNSS proprietary

## Authorized Distributor:

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