Hemisphere®

Vector™ V102
GPS Smart Antenna

GENERAL NAVIGATION HEADING AND POSITIONING COMPASS

Experience superior navigation from the accurate heading and positioning performance available with the Vector™ V102 GPS compass. The Vector V102 uses SBAS for differential GPS positioning allowing Hemisphere GNSS to provide a highly effective heading and position based smart antenna that out rank any fluxgate compasses.

The rugged low profile enclosure combined with Hemisphere GNSS' Crescent® Vector OEM technology gives portability and simple installation. The compass - 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 simple integration into autopilots, chart plotters, and AIS systems.

Key Features

- Provides heading, positioning, heave, roll, and pitch
- Excellent in-band and out-of-band interference rejection
- 0.75 degree heading accuracy in an amazingly small form factor
- Differential positioning accuracy of 1.0 m, 95% of the time
- Integrated gyro and tilt sensors help deliver fast start-up times and provide heading updates during temporary loss of satellites
- Accurate heading up to 3 minutes during GNSS outages

GPS Receiver Specifications

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, 20 Hz optional
Rate of Turn:	90°/s maximum
Compass Safe Distance:	30 cm [4]
Cold Start:	60 s (no almanac or RTC)
Warm Start:	30 s typical (almanac and RTC)
Hot Start:	10 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)
Differential Options:	SBAS

Accuracy

Position:	**RMS (67%)**
Autonomous, no SA: [1]	1.2 m
SBAS: [2]	0.5 m
Heading (RMS):	0.75°
Pitch/Roll (RMS):	1.5°
Heave (RMS):	30 cm [3]

Communications

Ports:	2 full-duplex RS232
Baud Rates:	4800 - 115200
Correction I/O Protocol:	RTCM SC-104
Data I/O Protocol:	NMEA 0183, NMEA 2000, Hemisphere Crescent binary [5]

Power

Input Voltage:	6 to 36 VDC
Power Consumption:	3.0 W nominal (GPS L1)
Current Consumption:	0.25 A nominal (GPS L1)
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:	95% non-condensing
Mechanical Shock:	EP455 Section 5.14.1
Vibration:	EP455 Section 5.15.1 Random
EMC:	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B, CISPR22

Mechanical

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:	1.5 kg (3.3 lbs.)
Status Indications (LED):	Power, GNSS Lock, Heading
Power/Data Connector:	12-pin, Female, IP67

Aiding Devices

Gyro:	Provides smooth heading, fast heading reacquisition and reliable 1° per minute heading for periods up to 3 minutes when loss of GPS has occurred
Tilt Sensors:	Provide pitch and roll data and 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, WAAS coverage and satellite geometry
3. Based on a 40 second time constant
4. 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
5. Hemisphere GNSS proprietary

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