Vector™ H328 GNSS Compass Board
Advanced Heading and RTK Positioning

- Extremely accurate heading with long baselines
- Multi-frequency position, dual-frequency heading supporting GPS, GLONASS, Beidou, Galileo, QZSS, IRNSS, and L-band
- Atlas® L-band capable to 4 cm RMS
- Athena™ GNSS engine providing best-in-class RTK performance
- Excellent coasting performance
- 5 cm RMS RTK-enabled heave accuracy
- Strong multipath mitigation and interference rejection
- New multi-axis gyro and tilt sensor for reliable coverage during short GNSS outages

Develop sophisticated machine control and navigation solutions in a world full of complex dynamic environments. The Vector H328 is our most advanced GNSS heading and positioning board.

The Vector H328 utilizes dual antenna ports to create a series of additional capabilities to Eclipse™ Vector technology including fast, high-accuracy heading over short baselines, RTK positioning, onboard Atlas L-band, RTK-enabled heave, low-power consumption, and precise timing.

Scalable Solutions
With the Vector H328, positioning is scalable and field upgradeable with all Hemisphere software and service options. Utilize the same centimeter-level accuracy in either single frequency mode, or employ the full performance and fast RTK initialization times over long distances with multi-frequency multi-constellation GNSS signals. High-accuracy L-band positioning from meter to sub-decimeter levels available via Atlas correction service.

Ease of Migration
Leverage the industry standard form factor for easy upgradeability from other manufacturers’ modules.
Vector H328 GNSS Compass Board

GNSS Receiver Specifications

Receiver Type: Multi-Frequency GPS, GLONASS, BeiDou, Galileo, QZSS, and Atlas

Signals Received:
- GPS L1CA/L1P/L1C/L2P/L2C/L5
- GLONASS G1/G2, P1/P2
- BeiDou B1/B2/B3
- GALILEO E1/B/E5a/E5b
- QZSS L1CA/L2C/L5/L1C
- Atlas

Channels: 1059

GPS Sensitivity: -142 dBm

SBAS Tracking: 3-channel, parallel tracking

Update Rate: 10 Hz standard, 1 Hz or 20 Hz optional (with activation)

Timing (1PPS) Accuracy: 20 ns

Rate of Turn: 100°/s maximum

Warm Start: 30 s typical (no almanac or RTC)

Hot Start: 10 s typical (almanac, RTC and position)

Heading Fix: 10 s typical (Hot Start)

Antenna Input Impedance: 50 Ω

Maximum Speed: 1,850 kph (999 kts)

Maximum Altitude: 18,288 m (60,000 ft)

Accuracy

Position: RMS (67%)  2DRMS (95%)

Autonomous, no SA: 1 1.2 m  2.5 m

SBAS: 2  0.3 m  0.6 m

Atlas H10 (L-band): 1, 3  0.04 m  0.08 m

Atlas H30 (L-band): 1, 3  0.15 m  0.3 m

Atlas Basic (L-band): 1, 3  0.50 m  1.0 m

RTK: 1  8 mm + 1 ppm  15 mm + 2 ppm

Heading (RMS): 0.16° rms @ 0.5 m antenna separation

0.08° rms @ 1.0 m antenna separation

0.04° rms @ 2.0 m antenna separation

0.02° rms @ 5.0 m antenna separation

Pitch/Roll (RMS): 1°

Heave (RMS): 30 cm (DGPS) , 5 cm rms (RTK)

Power

Input Voltage: 3.3 VDC +/- 5%

Power Consumption:
- 2.0 W nominal GPS (L1)
- 2.7 W nominal GPS (L1/L2) and GLONASS (G1/G2)
- 3.8 W nominal All Signals + L-band

Current Consumption:
- 0.61 A nominal GPS (L1)
- 0.82 A nominal GPS (L1/L2)
- 1.15 A nominal All Signals + L-band

Antenna Voltage: 5 VDC maximum

Antenna Short Circuit Protection: Yes

Antenna Gain Input Range: 10 to 40 dB

Environmental

Operating Temperature: -40°C to +85°C (-40°F to +185°F)

Humidity: 95% non-condensing (when in an enclosure)

Mechanical Shock: EP455 Section 5.14.1 Operational (when mounted in an enclosure with screw mounting holes utilized)

Vibration: EP455 Section 5.15.1 Random

EMC:
- CE (IEC 60945 Emissions and Immunity)
- FCC Part 15, Subpart B
- CISPR 22

Mechanical

Dimensions: 100 L x 60 W x 10 H (mm)

Weight: 3.9 L x 2.4 W x 0.4 (in)

Status Indication (LED):
- Power, Primary and Secondary GNSS lock, Differential lock, DGPS position, Heading

Power/Data Connector:
- 24-pin male header 2 mm pitch
- 16-pin male header 2 mm pitch

Antenna Connectors:
- MMCX, female, straight

Aiding Devices

Gyro:
- Provides smooth and fast heading reacquisition. During loss of GNSS signals heading stability is degraded by < 1° per minute for up to 3 minutes.

Tilt Sensors:
- Provide pitch, 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, and ionospheric activity

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

3 Hemisphere GNSS proprietary

4 With future firmware upgrade and activation

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