NavtechGPS
+1-703-256-8900 or 800-628-0885
info@NavtechGPS.com
www.NavtechGPS.com

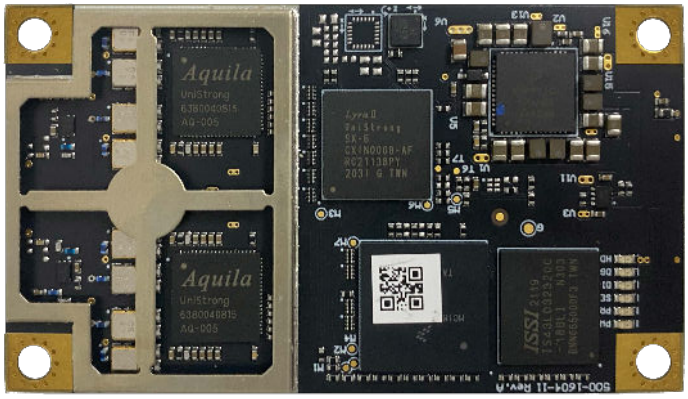
Hemisphere®

Vega™ 34

GNSS Compass Board

ADVANCED HEADING AND RTK POSITIONING

atlas®



The Vega 34 is our most advanced GNSS heading and positioning board.

Vega 34 uses dual antenna ports to create a series of additional capabilities; including fast, high-accuracy heading over short baselines, RTK positioning, on-board Atlas L-band, RTK-enabled heave, low power consumption, and precise timing.

Scalable Solutions

With Vega 34, heading and positioning are scalable and field upgradeable with all Hemisphere software and service options. Utilize the same multi-constellation GNSS solutions in either single-frequency mode or employ the full performance and fast RTK initialization times over long distances with multi-frequency signals. High accuracy L-band positioning from meter to sub-decimeter levels is available via the Atlas correction service.

Ease of Migration

Leverage the 34-pin connector for easy upgradeability from previous 34-pin Hemisphere modules.

Key Features

- Extremely accurate heading with long baselines
- Available multi-frequency position, dual-frequency heading supporting GPS, GLONASS, BeiDou, Galileo, QZSS, NavIC (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 rejection and Cygnus™ interference mitigation
- New multi-axis gyro and tilt sensor for reliable coverage during short GNSS outages

GNSS Receiver Specifications

Receiver Type:	Multi-Frequency GPS, GLONASS, BeiDou, Galileo, QZSS, NavIC (IRNSS) and Atlas L-band
Signals Received:	GPS L1CA/L1P/L1C/L2P/L2C/L5 GLONASS G1/G2/G3, P1/P2 BeiDou B1i/B2i/B3i/B1C/B2a/B2b/AceBOC GALILEO E1BC/E5a/E5b/E6BC/AltBOC QZSS L1CA/L2C/L5/L1C/L6 NavIC (IRNSS) L5 Atlas
Channels:	1,100+
GPS Sensitivity:	-142 dBm
SBAS Tracking:	3-channel, parallel tracking
Update Rate:	10 Hz standard, 1 Hz or 20 Hz optional (with activation)
Timing (PPS) Accuracy:	20 ns
Rate of Turn:	100°/s maximum
Cold Start:	60 s typical (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 (Hot Start)
Antenna Input Impedance:	50 Ω
Maximum Speed:	1,850 mph (999 kts)
Maximum Altitude:	18,288 m (60,000 ft)

Accuracy

Positioning:	**RMS (67%)**	**2DRMS (95%)**
Autonomous, no SA: [1]	1.2 m	2.5 m
SBAS: [2]	0.3 m	0.6 m
Atlas H10: [1, 3]	0.04 m	0.08 m
Atlas H30: [1, 3]	0.15 m	0.3 m
Atlas Basic: [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):	0.5°
Heave (RMS)[1]:	30 cm RMS (DGNSS), 5 cm RMS (RTK)

L-Band Receiver Specifications

Receiver Type:	Dual Channel[4]
Channels:	1525 to 1560 MHz
Satellite Selection:	Manual and Automatic
Reacquisition Time:	15 seconds (typical)

Power

Input Voltage:	3.3 VDC +/- 5%
Power Consumption:	< 2.5 W all signals + L-band
Current Consumption:	757 mA all signals + L-band
Antenna Voltage:	5 VDC maximum
Antenna Short Circuit Protection:	Yes
Antenna Gain Input Range:	10 to 40 dB

Communications

Ports:	4 x full-duplex 3.3V CMOS 2 x USB (1 Host/1 Device) 2 x CAN (NMEA2000, ISO 11783) 1 x PPS output, 1 x Event input
Interface Level:	3.3V CMOS
Baud Rates:	4800 - 460800
Correction I/O Protocol:	Hemisphere GNSS proprietary ROX format, RTCM v2.3, RTCM v3.2, CMR[5], CMR+[5]
Data I/O Protocol:	NMEA 0183, Hemisphere binary
Timing & Event I/O:	CMOS, programmable edge sync, 10 kΩ, 10 pF load

Environmental

Operating Temperature:	-40°C to +85°C (-40°F to +185°F)
Storage 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:	71 L x 46 W x 10 H (mm) 2.8 L x 1.8 W x 0.4 H (in)
Weight:	24 g (0.85 oz)
Status Indicators (LED):	Power, Primary and Secondary GNSS lock, Differential lock, DGNSS position, Heading
Connectors:	34-pin male header, 0.05" (1.27 mm) pitch RF: MCX, 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 update
5. CMR and CMR+ do not cover proprietary messages outside of the typical standard

Hemisphere®