The Crescent® Vector™ H200 Board
Next Generation, High Performance GNSS Module

- Extremely accurate heading with short baselines
- L1 GPS/GLONASS RTK capable
- L-Band capable (LX-2 module required)
- Fast RTK acquisition and reacquisition times
- Excellent coasting performance
- 10 cm heave accuracy with RTK
- Strong multipath mitigation and interference rejection

The Crescent® Vector™ H200™ GNSS module is the next generation, single frequency, high-performance GNSS heading, positioning, and attitude module available on the market from Hemisphere GNSS.

The Vector H200 GNSS module provides integrators with an opportunity for developing sophisticated marine, navigation, and land applications in challenging, dynamic environments. The H200 module uses Hemisphere GNSS’ advancements in Vector technology; advanced multipath mitigation techniques and Hemisphere GNSS’ patented Multifunction Application.

Vector H200 is capable of providing heading of 0.04° with a 5 meter antenna baseline and either RTK1, L-Band1, or SBAS positioning depending on your location requirements.

Integrate the robust Vector H200 module into your applications to experience exceptional heading, positioning, and attitude performance within a compact size. Diversity and cost savings makes it an ideal part of your solution for system integrators.

1 Requires additional components
GNSS Sensor Specifications

Receiver Type: GNSS L1 RTK
Signals Received: GPS, GLONASS, Galileo¹
Channels: 540
GNSS Sensitivity: -142 dBm
SBAS Tracking: 2-channel, parallel tracking
Update Rate: Standard 10 Hz, optional 20 Hz (position and heading)

Positioning Accuracy

- Horizontal: Autonomous: 1.2 m; SBAS (WAAS): 0.3 m; L-band DGPS: 0.3 m; L-band L1/L2: 0.15 m; RTK: 0.30" rms at 0.5 m antenna separation; 0.15" rms at 1.0 m antenna separation; 0.06" rms at 2.0 m antenna separation; 0.04" rms at 5.0 m antenna separation
- Vertical: Autonomous: 2.5 m; SBAS (WAAS): 0.6 m; L-band DGPS: 0.6 m

- Heading Accuracy: 0.30° rms @ 0.5 m antenna separation; 0.15° rms @ 1.0 m antenna separation; 0.08° rms @ 2.0 m antenna separation; 0.04° rms @ 5.0 m antenna separation

- Pitch/Roll Accuracy: < 1° rms
- Heave Accuracy: < 30 cm

Timing (1PPS)

- Accuracy: 20 ns
- Rate of Turn: 145°/s maximum
- Warm Start: < 20 s typical (almanac and RTC)
- Hot Start: < 5 s typical (almanac, RTC and position)
- Maximum Speed: 1,850 kph (999 kts)
- Maximum Altitude: 18,288 m (60,000 ft)

Communications

- Serial Ports: 4 full-duplex 3.3 V CMOS (3 main serial ports, 1 differential-only port)
- USB Ports: 1 USB Host, 1 USB Device
- Baud Rates: 4800 - 115200

Correction I/O

- Data I/O Protocol: NMEA 0183, Crescent binary¹, RTCM SC-104, L-Dif™, RTCM v2 (DGPS), RTCM v3 (RTK), CMR (RTK), CMR+ (RTK)²

- Timing Output: 1PPS, CMOS, active high, rising edge sync, 10 kΩ, 10 pf load
- Event Marker Input: CMOS, active low, falling edge sync, 10 kΩ, 10 pf load
- Heading Warning I/O: Pins 62

Power

- Input Voltage: 3.3 VDC +/- 5%
- Power Consumption: < 2.1 W nominal GPS (L1) and GLONASS (L1)
- Current Consumption: < 0.63 A nominal GPS (L1) and GLONASS (L1)

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)

Shock and Vibration

- 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: 10.9 L x 7.1 W x 0.5 H (cm)
- Weight: ~ 43 L x 2.8 W x 0.2 H (in)

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 and roll data and assist in fast startup and reacquisition of heading solution.

¹ Firmware update required
² Depends on multipath environment, number of satellites in view, and satellite geometry
³ Depends on multipath environment, antenna selection, number of satellites in view, satellite geometry, baseline length (for local services), and ionospheric activity
⁴ Based on a 40 second time constant
⁵ Hemisphere GNSS proprietary
⁶ IMO standard