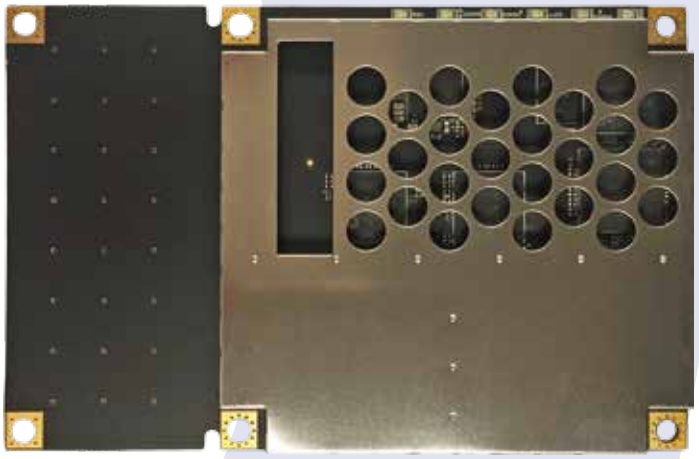
Crescent® Vector™ H220 Board

Next Generation, High-Performance GNSS Module

key features

- **Extremely accurate heading with short baselines**
- **L1 GPS/GLONASS/BeiDou/Galileo RTK capable**
- **Integrated L-band for Atlas® corrections**
- **Excellent coasting performance**
- **10 cm heave accuracy with RTK**
- **Strong multipath mitigation and interference rejection**
- **New multi-axis gyro and tilt sensor for reliable coverage during short GNSS outages**



The Crescent Vector H220 GNSS OEM board is the next generation, single-frequency, high-performance GNSS heading, positioning, and attitude module available from Hemisphere GNSS.

The H220 provides integrators with an opportunity for developing sophisticated marine, navigation, and land applications in challenging, dynamic environments. The H220 uses Hemisphere's advancements in Vector technology, advanced multipath mitigation techniques, and Hemisphere's patented Multifunction Application.

H220 is capable of providing heading of 0.04° with a 5 meter antenna baseline and either RTK or SBAS positioning depending on your location requirements. With Atlas corrections, the H220 can obtain instant sub-meter accuracy worldwide while being more robust than SBAS even in SBAS regions.

Integrate the robust H220 GNSS OEM board into your applications to experience exceptional heading, positioning, and attitude performance in a compact size. Diversity and cost savings make it an ideal part of your solution for system integrators.

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GNSS Sensor Specifications

Receiver Type:	GNSS L1 RTK
Signals Received:	GPS, GLONASS, BeiDou, Galileo, L-band
Channels:	300
GNSS Sensitivity:	-142 dBm
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	Standard 10 Hz, optional 20 Hz or 50 Hz (position and heading)

Positioning Accuracy

RMS (67%):	Horizontal	Vertical
Autonomous:[1]	1.2 m	2.5 m
SBAS (WAAS):[1]	0.3 m	0.6 m
Code Differential GPS:	0.3 m	0.6 m
RTK:[1, 2]	10 mm + 1 ppm	20 mm + 2 ppm
Atlas (L-band) Accuracy:	30 cm	
Heading Accuracy: [2]	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 [3]	

Timing (1PPS)	
Accuracy:	20 ns
Rate of Turn:	145˚/s maximum
Cold Start:	< 40 s typical (no almanac or RTC)
Warm Start:	< 20 s typical (almanac and RTC)
Hot Start:	< 5 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)

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 binary [4]
Protocol:	RTCM SC-104, RTCM v2 (DGPS), RTCM v3 (RTK), CMR (RTK), CMR+ (RTK) [5]
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:	Pin 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:	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:	10.9 L x 7.1 W x 0.5 H (cm) 4.3 L x 2.8 W x 0.2 H (in)
Weight:	~ 50 g (~ 1.8 oz)
Status Indications (LED):	Power, master GPS lock, secondary GPS lock, differential lock, DGPS position, and heading lock

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. [5]
Tilt Sensors:	Provide pitch and roll data and assist in fast startup and reacquisition of heading solution.

[1] Depends on multipath environment, number of satellites in view, and satellite geometry

[2] Depends on multipath environment, antenna selection, number of satellites in view, satellite geometry, baseline length (for local services), and ionospheric activity

[3] Based on a 40 second time constant

[4] Hemisphere GNSS proprietary

[5] IMO standard

Authorized Distributor:

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