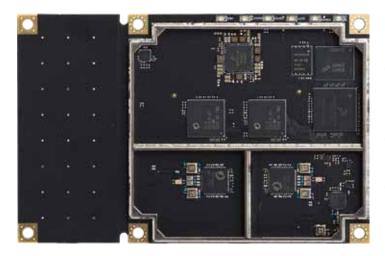


Crescent® Vector™ H220 GNSS OEM Board

NEXT GENERATION, HIGH-PERFORMANCE GNSS POSITION AND HEADING MODULE



atlas

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.

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

Key Features

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

GNSS Receiver Specifications

GNSS Receiver Specifications		
Receiver Type:	Single Frequency GPS, GLONASS, BeiDou, Galileo, QZSS4, and Atlas	
Signals Received:	GPS L1CA/L1P	
	GLONASS G1, P1 BeiDou B1	
	GALILEO E1BC	
	QZSS L1CA4	
	Atlas	
Channels:	424	
GPS Sensitivity:	-142 dBm	
SBAS Tracking:	2-channel, parallel tracking	
Update Rate:	10 Hz standard, 1 Hz, 20 Hz or 50 Hz	
Timein or (1 DDC)	optional (with activation)	
Timing (1 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	50.0	
Impedance:	50Ω	
Maximum Speed: Maximum Altitude:	1,850 mph (999 kts) 18,288 m (60,000 ft)	
Muximon Allioue.	10,200 11 (00,000 11)	
Accuracy		

A curacy

Positioning:	RMS (67%)	2DRMS (95%)
Autonomous, no SA: 1	1.2 m	2.5 m
SBAS: 1	0.3 m	0.6 m
Atlas Basic: ^{1, 3}	0.50 m	1.0 m
RTK: 1		1 20 mm + 2 ppm
Heading (RMS):	0.15° @ 1.0 m a 0.08° @ 2.0 m a	ntenna separation ntenna separation ntenna separation ntenna separation
Pitch/Roll (RMS): Heave (RMS): '	1° 30 cm (DGPS),	10 cm (RTK)

L-Band Receiver Specifications

Receiver Type: Channels: Sensitivity: Channel Spacing: Satellite Selection: **Reacquisition Time:** Single Channel 1525 to 1560 MHz -130 dBm 5.0 kHz Manual and Automatic 15 seconds (typical)

1. Depends on multipath environment, number of satellites in view, satellite

geometry, and ionospheric activity

2. Based on a 40 second time constant 3.

- Hemisphere GNSS proprietary 4. With future firmware upgrade and activation
- 5. CMR and CMR+ do not cover proprietary messages outside of the typical standard

Communications	
Ports:	

Hz⁵

Communications	
Ports:	4 x full-duplex 3.3V CMOS (3 x main serial ports, 1 x differential- only port) 1 x USB Host 1 x USB Device
Interface Level: Baud Rates: Correction I/O Protocol	3.3V CMOS 4800 - 115200 :Hemisphere GNSS proprietary ROX format, RTCM v2.3, RTCM v3.2, CMR ⁵ , CMR+ ⁵
Data I/O Protocol: Timing Output:	NMEA 0183, Crescent binary ³ 1 PPS, CMOS, active high, rising edge sync, 10 k Ω , 10 pF load
Event Marker Input:	CMOS, active low, falling edge sync, 10 k Ω , 10 pF load
Power Input Voltage: Power Consumption:	3.3 VDC +/- 5% 2.1 W nominal GPS (L1) and GLONASS (L1)
Current Consumption:	0.64 A nominal GPS (L1) and GLONASS (L1)
Antenna Voltage: Antenna Short Circuit	5 VDC maximum
Protection: Antenna Gain Input	Yes
Range:	10 to 40 dB
Environmental Operating Temperature: Storage Temperature: Humidity:	-40°C to +85°C (-40°F to +185°F) -40°C to +85°C (-40°F to +185°F) 95% non-condensing (when in an
Mechanical Shock:	enclosure) EP455 Section 5.14.1 Operational (when mounted in an enclosure with screw mounting
Vibration: EMC:	holes utilized) EP455 Section 5.15.1 Random CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B CISPR 22
Mechanical Dimensions:	109 L x 71 W x 5 H (mm) 4.3 L x 2.8 W x 0.2 H (in)
	50 g (1.77 oz) Power, Primary and Secondary GNSS lock, Differential lock, DGNSS position, Heading
Power/Data Connector: Antenna Connectors:	34-pin male header 2 mm pitch MCX, female, straight
Aiding Devices Gyro:	Provides smooth and fast heading reacquisition. During loss of GNSS signals heading stability is degraded by $< 1^{\circ}$ per minute for up to 3 minutes. ²
Tilt Sensors:	Provide pitch and roll data and assist in fast startup and reacquisition of heading solution.



Hemisphere GNSS

8515 E. Anderson Drive Scottsdale, AZ 85255, USA Phone: +1 (480) 348-6380 Toll-Free: +1 (855) 203-1770 Fax: +1 (480) 270-5070

precision@hgnss.com www.hgnss.com

Copyright @ Hemisphere GNSS, Inc. All rights reserved. Specifications subject to change without notice. Aquila, aRTK, Atlas, AtlasLink, BaseLink, Crescent logo, Cygnus, Earthworks logo, Eclipse, GradeMetrix, Hemisphere, LandMetrix, Lyra, Outback Guidance, SiteMetrix, SureFix, Vector, and Vega are trademarks of Hemisphere GNSS, Inc. Rev. A1 (07/2019)