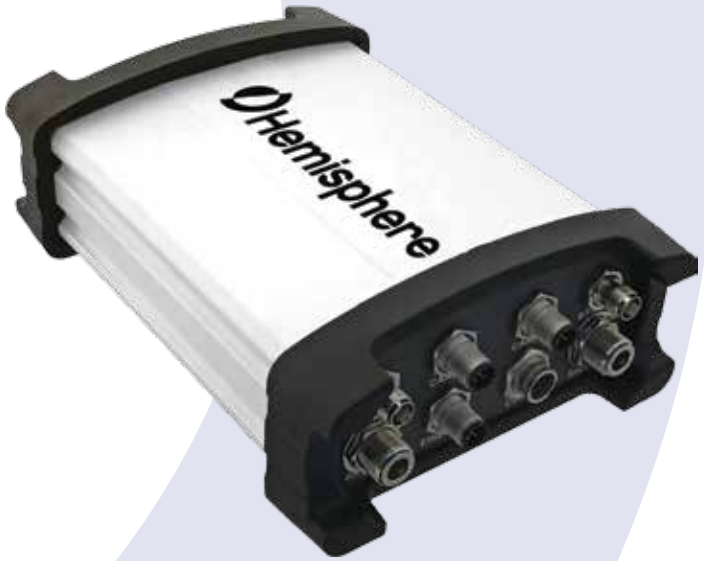
Vector™ V1000 GNSS Receiver

High-Precision Positioning & Heading for Professional Marine Systems

key features

- **Athena™ RTK and Atlas® L-band capable**
- **Extremely accurate heading (to 0.01° RMS)**
- **Multi-frequency GPS/ GLONASS/BeiDou/Galileo/ QZSS/IRNSS**
- **Purpose-built for the most challenging environments**
- **Supports Ethernet, CAN, Serial, Bluetooth, and Wi-Fi**
- **Powerful WebUI accessed via Wi-Fi plus a 128x64 display and 10 multi-color LEDs**



atlas

The Vector V1000 is Hemisphere GNSS' premiere multi-GNSS, multi-frequency receiver designed specifically for the professional marine market. Providing precise heading, Athena RTK positioning, and full Atlas capability, its rugged design is compliant to IP67, MIL-STD810G, MIL-STD-202F, and IEC 60068-2 standards.

The V1000 supports antenna separations up to 10 meters, offering heading accuracy to 0.01 degrees RMS in addition to RTK position accuracy and full support for Hemisphere GNSS' Atlas worldwide L-band corrections.

Hemisphere®

Precision@HGNSS.com
www.HGNSS.com

Vector V1000 GNSS Receiver

GNSS Receiver Specifications

Receiver Type:	Vector GNSS RTK Receiver
Signals Received:	GPS, GLONASS, BeiDou, Galileo, QZSS[6], IRNSS[6] and Atlas[3]
Channels:	744
GPS Sensitivity:	-142 dBm
SBAS Tracking:	3-channel, parallel tracking
Update Rate:	10 Hz standard, 50 Hz optional
Timing (1PPS) Accuracy:	20 ns
Rate of Turn:	100˚/s maximum
Cold Start:	40 s (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 (Hot Start)
Antenna Input Impedance:	50 Ω
Maximum Speed:	1,850 mph (999 kts)
Maximum Altitude:	18,288 m (60,000 ft)
Differential Options:	SBAS, Atlas (L-band), RTK

Accuracy

	Horizontal (95%)	Vertical (95%)
Positioning:		
Autonomous, no SA [2]:	2.4 m	
SBAS (WAAS) [2]:	0.6 m	
Atlas H10 (L-band) [3]:	0.08 m	
Atlas H30 (L-band) [3]:	0.3 m	
Atlas Basic (L-band) [3]:	0.5 m	
RTK [1]:	8 mm + 1 ppm	15 mm + 2 ppm
Heading (RMS):	< 0.2° @ 0.5 m antenna separation < 0.1° @ 1.0 m antenna separation < 0.05° @ 2.0 m antenna separation < 0.02° @ 5.0 m antenna separation < 0.01° @ 10.0 m antenna separation	
Pitch/Roll (RMS):	1˚	
Heave (RMS):	30 cm (DGPS) [3],10 cm (Atlas) [3]	

L-Band Receiver Specifications

Channels:	1525 to 1560 MHz
Sensitivity:	-130 dBm
Channel Spacing:	5 kHz
Satellite Selection:	Manual or Automatic
Reacquisition Time:	15 sec (typical)
Processor:	DSP for demodulation and protocol decoding module provides processing for the differential algorithms

Communications

Ports:	1x CAN, 1x Ethernet, 1x 12-pin multi-purpose (RS232, RS422, CAN, 1PPS)
Baud Rates:	4800 - 115200
Radio Interfaces:	Bluetooth 2.0 (Class 2), Wi-Fi 2.4 GHz
Correction I/O Protocol:	Atlas, Hemisphere GNSS proprietary, RTCM v2.3 (DGPS), RTCM v3 (RTK), CMR, CMR+ [1]
Data I/O Protocol:	NMEA 0183, Hemisphere GNSS binary
Timing Output:	1PPS, CMOS, active low, falling edge sync, 10 kΩ, 10 pF load
Event Marker Input:	CMOS, active low, falling edge sync, 10 kΩ, 10 pF load

Environmental

Operating Temperature:	-40°C to +70°C (-40°F to +158°F)
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Humidity:	95% non-condensing
Mechanical Shock:	ISO 16750-3 / MIL-STD-202F / EP455
EMC:	EN 13309 Construction Machinery ISO 13766 Earth Moving E-Mark FCC part 15 Subpart B, CISPR22
IMO Wheelmark Certification:	No
Enclosure:	IP67

Mechanical

Dimensions:	No mounting Plate 23.2 L x 16.5 W x 7.9 H (cm) 9.1 L x 6.5 W x 3.1 H (in) With Mounting Plate 23.2 L x 21.4 W x 8.3 H (cm) 9.1 L x 8.4 W x 3.3 H (in)
Display:	128 x 64 Resolution
Status Indications (LED):	Power, Primary Antenna, Secondary Antenna, Heading, Quality, Atlas, Bluetooth, Wi-Fi, CAN, Ethernet
Power/Data Connector:	M12 Power, CAN, 12-pin multi-purpose

Aiding Devices

Gyro:	Provides fast reacquisition and reliable heading for short periods when loss of GNSS has occurred
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, no SA, and ionospheric activity
2 Depends on multipath environment, number of satellites in view, WAAS coverage and satellite geometry
3 Requires a subscription
4 Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for differential services), and ionospheric activity
5 Hemisphere GNSS proprietary
6 With future firmware upgrade and activation

Authorized Distributor:

Rev. 07/18

Hemisphere®

Hemisphere GNSS, Inc.
8515 E. Anderson Drive
Scottsdale, AZ, USA 85255

Toll-Free: +1 (855) 203-1770
Phone: +1 (480) 348-6380
Fax: +1 (480) 270-5070
Precision@HGNSS.com
www.HGNSS.com