Vector™ V320 GNSS Smart Antenna

All-in-one Professional Positioning and Heading Receiver

key features

atlas

- **Simple all-in-one RTK-capable heading solution**
- **Athena™ and Atlas™ capable**
- **Multi frequency GPS/GLONASS/BeiDou RTK capable**
- **Maintain position and heading lock when more of the sky is blocked**
- **Accurate heading with a precise baseline**
- **COAST technology maintains differentially-corrected positioning for 40 minutes or more after loss of differential signal**
- **Integrated gyro and tilt sensors deliver fast start-up times and provide heading updates during temporary loss of satellites**

Vector V320 is the first all-in-one multi-frequency, multi-constellation GNSS smart antenna, which provides RTK level postion and precise heading. Using Hemipshere's patented Eclipse™ Vector GNSS technology, V320 is a strong addition to our V family. The rugged IP69 design housing is sealed for the harshest environments. It incorporates fixed and pole mounting capability for both marine and land applications. The Vector V320 is series are suitable for both dynamic positioning and professional marine survey. The V320 provides a great solution for machine control and other challenging applications.

This all-in-one V320 smart antenna, can be conveniently installed on multiple vessels, and in various enviroments. With a set separation, the V320 provides consistent and reliable position and heading accuracy. The Vector V320 uses Atlas L-band and SBAS (WAAS, EGNOS, MSAS, etc.) for differential GPS position.

Hemisphere®

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Vector V320 GNSS Compass

GNSS Receiver Specifications

Receiver Type:	Vector GNSS RTK Receiver
Signals Received:	GPS, GLONASS, BeiDou, and Atlas
Channels:	540
GPS Sensitivity:	-142 dBm
SBAS Tracking:	3-channel, parallel tracking
Update Rate:	10 Hz standard, 20 Hz available by subscription
Timing (1PPS) Accuracy:	20 ns
Rate of Turn:	100˚/s maximum
Compass Safe Distance:	30 cm (with enclosure)
Cold Start:	60 s (no almanac or RTC)
Warm Start:	20 s typical (almanac and RTC)
Hot Start:	5 s typical (almanac, RTC and position)
Heading Fix:	20 s typical (valid position)
Maximum Speed:	1,850 mph (999 kts)
Maximum Altitude:	18,288 m (60,000 ft)

Positioning Accuracy:

RMS:	Horizontal	Vertical
Single Point [1]:	1.2 m	2.5 m
SBAS (WAAS) [2]:	0.3 m	0.6 m
L-Band [3,6]:	0.08 m	0.16 m
RTK [1,3]:	10 mm + 1 ppm	20 mm + 2 ppm
Heading Accuracy:	0.17˚ rms	
Pitch/Roll Accuracy (RMS):	1˚	
Heave Accuracy (RMS):	30 cm (DGPS) [5] ,10 cm (RTK) [2,4]	

L-Band Receiver Specifications

Receiver Type:	Single Channel
Channels:	1530 to 1560 MHz
Sensitivity:	-130 dBm
Channel Spacing:	5 kHz
Satellite Selection:	Manual or Automatic
Reacquisition Time:	15 sec (typical)

Communications

Serial Ports:	1 full-duplex RS-232; 1 full-duplex RS-422 and 1 half-duplex RS-422 (Tx only)
Baud Rates:	4800 - 115200
Correction I/O Protocol:	RTCM v2 (DGPS), RTCM v3 (RTK), CMR (RTK), CMR+ (RTK) [3]
Data I/O Protocol:	NMEA 0183, NMEA 2000, Crescent binary[5]
Timing Output:	1 PPS (CMOS, active high, rising edge sync, 10 kΩ, 10 pF load)
Heading Warning I/O:	Open relay system indicates invalid heading

Power

Input Voltage:	8 to 36 VDC
Power Consumption:	6.10 W nominal (GPS L1/L2) 7.25 W nominal (GPS L1/L2 + GLONASS L1/L2) 8.50 W nominal (GPS L1/L2 + GLONASS L1/L2 + BeiDou B1/B2) 9.50 W nominal (GPS L1/L2 + GLONASS L1/L2 + BeiDou B1/B2 + L-band)
Power Isolation:	Yes
Reverse Polarity Protection:	Yes

Environmental

Operating Temperature:	-30°C to + 70°C (-22°F to + 158°F)
Storage Temperature:	-40°C to + 85°C (-40°F to + 185°F)
Humidity:	95% non-condensing
Mechanical Shock:	EP455 Section 5.14.1
Vibration:	EP455 Section 5.15.1 Random
EMC:	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B CISPR22
Enclosure:	IP69

Mechanical

Dimensions:	66.3 L x 20.9 W x 14.6 H (cm) 26.1 L x 8.3 W x 5.8 H (in)
Weight:	2.1 kg (4.6 lb)
Status Indications (LED):	Power
Power/Data Connector:	18-pin, environmentally sealed

Aiding Devices

Gyro:	Provides heading smoothing with GNSS. Drift rate is 1˚ per minute in heading for periods up to 3 minute when loss of GNSS has occurred [3]
Tilt Sensors:	Provide pitch and 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 Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for differential services), and ionospheric activity.

4 Based on a 40 second time constant

5 Hemisphere GNSS proprietary

6 Requires a Hemisphere GNSS subscription

Authorized Distributor:

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