Vector™ V500 Smart Antenna

Multi-Frequency, Multi-GNSS Vector Compass

atlas

key features

- **Simple all-in-one RTK-capable**
- **Multi-frequency GPS/GLONASS/ BeiDou/Galileo/QZSS/IRNSS**
- **Athena™ RTK and Atlas® L-band capable**
- **Supports Ethernet, CAN, Serial, Bluetooth, and Wi-Fi**
- **Powerful WebUI accessed via Wi-Fi**
- **Fully rugged solution for the harshest environments**

The Vector V500 is Hemisphere GNSS' all-in-one multi-frequency, multi-GNSS smart antenna which provides RTK-level position and precise heading. This rugged design is sealed for the harshest environments and is a great solution for professional marine and other challenging applications.

The all-in-one V500 combines simple installation with consistent and precise heading accuracy and RTK positioning.

Hemisphere®

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Vector V500 Smart Antenna

GNSS Receiver Specifications

Receiver Type:	Vector GNSS RTK Receiver
Signals Received:	GPS, GLONASS, BeiDou, Galileo, QZSS [7], IRNSS [7], and Atlas
Channels:	1059
GPS Sensitivity:	-142 dBm
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	10 Hz standard, 20 Hz optional
Timing (1PPS)	
Accuracy:	20 ns
Rate of Turn:	100°/s maximum
Cold Start:	60 s (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 (valid position)
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

Position:	Horizontal (95%)	Vertical (95%)
Single Point: [1]	2.4 m	
SBAS: [2]	0.6 m	
Atlas H10 (L-band): [6]	0.08 m	0.16 m
Atlas H30 (L-band): [6]	0.3 m	
Atlas Basic (L-band): [6]	0.5 m	
RTK: [1, 3]	8 mm + 1 ppm	15 mm + 2 ppm
Heading (RMS):	0.27°	
Pitch/Roll (RMS):	1°	
Heave (RMS):	30 cm (DGPS) [1],10 cm (Atlas) [1, 6], 5 cm (RTK) [1, 6]	

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)

Communications

Ports:	1x full-duplex RS-232/RS-422, 1x RS232, 2x CAN, 1x Ethernet
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+
Data I/O Protocol:	NMEA 0183, Hemisphere GNSS binary
Timing Output:	1PPS (CMOS, rising edge sync)
Event Marker Input:	Open drain, falling edge sync, 10 kΩ, 10 pF load

Power

Input Voltage:	9 - 32 VDC
Power Consumption:	7.5 W maximum
Current Consumption:	1.8 A maximum
Power Isolation:	No
Reverse Polarity Protection:	Yes

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
Enclosure:	ISO 60529:2013 for IPx6/IPx7/IPx9
Vibration:	IEC 60945:2002 Section 8.7 Vibration
EMC:	IEC60945:2002 EN 301 489-1 V2.1.1 EN 301 489-5 V2.1.1 EN 301 489-19 V2.1.0 EN 303 413 V1.1.1

Mechanical

Dimensions:	68.6 L x 22.0 W x 12.3 H (cm) 27.0 L x 8.7 W x 4.8 H (in)
Weight:	3.7 kg (8.2 lb)
Status Indications (LED):	Power, GNSS Lock, Heading
Power/Data Connector:	22-pin environmentally sealed

Aiding Devices

Gyro:	Provides smooth heading, fast heading reacquisition and reliable < 1° per min heading for periods up to 3 min. when loss of GPS has occurred [4]
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 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

7 With future firmware upgrade and activation

Authorized Distributor:

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