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.
Vector V500 Smart Antenna

GNSS Receiver Specifications
Receiver Type: Vector GNSS RTK Receiver
Signals Received: GPS, GLONASS, BeiDou, Galileo, QZSS, 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
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: 2.4 m
SBAS: 0.6 m
Atlas H10 (L-band): 0.08 m
Atlas H30 (L-band): 0.3 m
Atlas Basic (L-band): 0.5 m
RTK: 8 mm + 1 ppm
Heading (RMS): 0.27°
Pitch/Roll (RMS): 1°
Heave (RMS): 30 cm (DGPS) 10 cm (Atlas) 5 cm (RTK)

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: 1 x full-duplex RS-232/RS-422, 1 x RS232, 2 x CAN, 1 x Ethernet
Baud Rates: 4800 - 115200
Radio Interfaces: Bluetooth 2.0 (Class 2), Wi-Fi 2.4 GHz
Correction I/O: 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

Mechanical
Dimensions: 68.6 L x 22.0 W x 12.3 H (cm)
Weight: 27.0 L x 8.7 W x 4.8 H (in)
3.7 kg (8.2 lb)
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
Tilt Sensors:
Provides 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

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