

Vector™ V500 GNSS Smart Antenna









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.

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

GNSS Receiver Specifications

Vector GNSS RTK Receiver Receiver Type:

Signals Received: GPS, GLONASS, BeiDou, Galileo, QZSS 7,

IRNSS 7, and Atlas

Channels: 1059 -142 dBm **GPS Sensitivity:**

SBAS Tracking: 2-channel, parallel tracking 10 Hz standard, 20 Hz optional Update Rate:

Timing (1 PPS)

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)

10 s typical (almanac, RTC and position) **Hot Start:**

10 s typical (valid position) **Heading Fix:**

Antenna Input

Impedance: 50 Ω

Maximum Speed: 1,850 kph (999 kts)

Maximum

Altitude: 18,000 m (59,055 ft)

Differential

Options: SBAS, Atlas (L-band), RTK

Accuracy

Position: RMS (67%) 2DRMS (95%)

Single Point: 1 2.4 m SBAS: 2 0.6 m Atlas H10: 6 0.08 m 0.16 m Atlas H30: 6 $0.3 \, \mathrm{m}$ Atlas Basic: 6 $0.5 \, \mathrm{m}$

RTK: 1, 3 8 mm + 1 ppm 15 mm + 2 ppm

Heading (RMS): 0.27° Pitch/Roll (RMS):

30 cm (DGPS) 1,10 cm (Atlas) 1,6, Heave (RMS):

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: Hemisphere GNSS proprietary ROX

format, RTCM v2.3, RTCM v3.2, CMR8,

CMR+8

Data I/O Protocol: NMEA 0183, Hemisphere GNSS binary

Timing Output:

1 PPS (CMOS, rising edge sync)

Event Marker

Input: Open drain, falling edge sync, $10 \text{ k}\Omega$, 10

pF load

Power

9 - 32 VDC Input Voltage: **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

Provides smooth heading, fast Gyro:

> 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

Depends on multipath environment, number of satellites in view, satellite geometry, no SA.

and ionospheric activity

Depends on multipath environment, number of satellites in view, WAAS coverage and satellite aeometry

Depends on multipath environment, number of satellites in view, satellite geometry, baseline

length (for differential services), and ionospheric activity Based on a 40 second time constant

Hemisphere GNSS proprietary

Requires a Hemisphere GNSS subscription 6.

With future firmware upgrade and activation

CMR and CMR+ do not cover proprietary messages outside of the typical standard



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