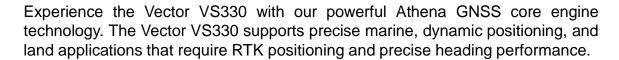
UniStrong

Vector™ VS330 GNSS Receiver

KEY FEATURES

- Athena™ RTK, Atlas® L-band, Beacon and SBAS capable
- Extremely accurate heading with baselines up 50 m
- Multi-frequency GPS/GLONASS/BeiDou RTK capable
- Automatic antenna baseline survey
- Maintain heading and position lock when more of the sky is blocked
- Runs Athena core GNSS engine offering improved initialization times, robustness in difficult environments, performance over long baselines and under scintillation
- Integrated gyro and tilt sensors help deliver fast start-up times and provide heading updates during temporary loss of satellites



The Vector VS330 utilizes all of the innovations in Hemisphere GNSS' Eclipse™ Vector technology. Our optimized Eclipse Vector technology brings a series of new features to the Vector VS330 including heave, pitch, and roll output, and more robust positioning and heading performance.

The Vector VS330 receiver, with its display and user interface, can be conveniently installed near the operator. The two antennas are mounted separately with a user-determined separation to meet the desired heading accuracy. The fully-subscribed Vector VS330 uses Atlas L-band, Beacon, and SBAS for differential positioning. Our firmware allows the VS330 to smoothly transition between DGNSS systems.



UniStrong

Vector™ VS330 GNSS Receiver

GNSS Receiver Specifications

Receiver Type: Vector GNSS L1/L2 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 optional

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)

Differential Options: SBAS, Beacon, External RTCM, Atlas L-band and Athena RTK

Positioning and Heading Accuracy

 RMS:
 Horizontal
 Vertical

 Single Point :
 1.2 m
 2.5 m

 SBAS (WAAS) :
 0.3 m
 0.6 m

 Code Differential GNSS :
 0.3 m
 0.6 m

 L-Band :
 0.08m
 0.16 m

RTK: 10 mm + 1 ppm 20 mm + 2 ppm

Heading Accuracy: 0.2° rms @ 0.5 m antenna separation

0.1° rms @ 1.0 m antenna separation 0.05° rms @ 2.0 m antenna separation 0.02° rms @ 5.0 m antenna separation

Pitch/Roll Accuracy (RMS): 1

Heave Accuracy (RMS): 30 cm (DGPS) ,10 cm (RTK)

Beacon Receiver Specifications

Channels: 2-channel, parallel tracking

Frequency Range: 283.5 to 325 kHz

Operating Modes: Manual, Automatic, and Database Compliance: IEC 61108-4 beacon standard

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: 2 full-duplex RS232, 1 half-duplex RS422 port

USB Ports: 1 USB-A Baud Rates: 4800 - 115200

Correction I/O Protocol: RTCM SC-104, L-Dif™, RTCM v2 (DGPS), RTCM v3 (RTK), CMR

(RTK), CMR+ (RTK)

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

Timing Output: 1 PPS (CMOS, active high, rising edge sync, 10kΩ, 10 pF load)

UniStrong

Vector™ VS330 GNSS Receiver

Power

Input Voltage: 8-36 VDC

Power Consumption: 5.3 W nominal (GPS L1/L2 + GLONASS L1/L2)

7 W nominal (GPS L1/L2 + GLONASS L1/L2 + BeiDou B1/B2 + L-band)

Current Consumption: 0.44 A nominal (GPS L1/L2 + GLONASS L1/L2)

0.51 A nominal (GPS L1/L2 + GLONASS L1/L2 + BeiDou B1/B2 +

L-band)

Power Isolation: 500 V Reverse Polarity Protection: Yes

Antenna Voltage: 5 VDC maximum 60mA

Antenna Short Circuit Protection: Yes

Antenna Gain Input Range: 10 to 40 dB Antenna Input Impedance: 50 Ω

Environmental

Operating Temperature: $-30^{\circ}\text{C to} + 70^{\circ}\text{C }(-22^{\circ}\text{F to} + 158^{\circ}\text{F})$ Storage Temperature: $-40^{\circ}\text{C to} + 85^{\circ}\text{C }(-40^{\circ}\text{F to} + 185^{\circ}\text{F})$

Humidity: 95% non-condensing Mechanical Shock: EP455 Section 5.14.1

Operational (when mounted in an enclosure with screw mounting holes

utilized) EP455

Vibration: Section 5.15.1 Random

EMC: CE (IEC 60945 Emissions and Immunity)

FCC Part 15, Subpart B

CISPR22

Enclosure: IP66 (IEC 60529)

Mechanical

Dimensions: 20.2 L x 12.0 W x 7.5 H (cm)

8.0 L x 4.7 W x3.0 H (in)

Weight: ~1.1 kg (~2.5 lbs.)

Status Indications (LED): Power, Primary and Secondary GPS lock, Differential lock, DGPS

position, Heading, RTK lock, L-band DGNSS lock

Power Switch: Front panel soft switch
Power/Data Connector: 9-pin ODU metal circular
Power Connector: 2-pin ODU metal circular

Data Connector: DB9 (sealed)
Antenna Connectors: 2 TNC (female)

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

Tilt Sensors: Provide pitch, roll data, assist in fast start-up and heading reacquisition