Vector VS330 GNSS Compass

Professional Heading and Positioning Receiver

Vector VS330

Powered by Eclipse™

Experience the Vector™ VS330™ with Eclipse™ GNSS technology, an addition to our Vector VS family. Developed for precise marine and land applications which require precise heading and RTK position performance from the Vector VS330 GNSS receiver compass.

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

The Vector VS330 receiver, with its display and user interface, can be conveniently installed near the operator. The two antennas are mounted separately and with a user-determined separation to meet the desired heading accuracy.

The Vector VS330 uses L-band DGNSS/HP/XP and SBAS (WAAS, EGNOS, MSAS, etc.) for differential GPS positioning.

Key Vector VS330 GNSS Receiver Advantages

- Extremely accurate heading with both short and long baselines up to 10 km
- L1/L2 GPS/GLONASS RTK capable
- L-band DGNSS/HP/XP(OmniSTAR®) capable
- Beacon capable
- Fast RTK acquision and reacquisition times
- Excellent coasting performance
- 5 cm rms RTK-enabled heave accuracy
- Strong multipath mitigation and interference rejection

Vector VS330 GNSS Compass

GPS Sensor Specifications

Receiver Type:	Vector GNSS L1/L2 RTK	
Signals Received:	GPS, GLONASS, Galileo[8]	
Channels:	270	
GPS Sensitivity:	-142dBm	
SBAS Tracking:	3-channel, parallel tracking	
Update Rate:	10 Hz standard, 20 Hz available by subscription	
Horizontal Accuracy:	RMS (67%)	2DRMS (95%)
RTK: [1]	10 mm + 1 ppm	20 mm + 2 ppm
L-band DGNSS/HP/XP (OmniSTAR HP): [2, 7]	0.08 m	0.16 m
SBAS (WAAS): [2]	0.25 m	0.50 m
Autonomous, no SA: [2]	1.2 m	2.5 m
Heading Accuracy:	< 0.17˚ rms @ 0.5 m antenna separation < 0.09˚ rms @ 1.0 m antenna separation < 0.04˚ rms @ 2.0 m antenna separation < 0.02˚ rms @ 5.0 m antenna separation < 0.01˚ rms @10.0 m antenna seperation	
Pitch/Roll Accuracy:	< 1˚ rms	
Heave Accuracy:	30 cm (DGPS)[5],10 cm (RTK)[6]	
Timing (1PPS) Accuracy:	20 ns	
Rate of Turn:	100˚/s maximum	
Compass Safe Distance:	30 cm (with enclosure)[5]	
Cold Start:	< 40 s (no almanac or RTC)	
Warm Start:	< 20 s typical (almanac and RTC)	
Hot Start:	< 5 s typical (almanac, RTC and position)	
Heading Fix:	< 10 s typical (valid position)	
Maximum Speed:	1,850 mph (999 kts)	
Maximum Altitude:	18,288 m (60,000 ft)	

Beacon Sensor 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 DGNSS/HP/XP Sensor Specifications

Sensitivity:	-130 dBm
Channel Spacing:	7.5 KHz
Satellite Selection:	Manual and Automatic
Reacquisition Time:	15 seconds (typical)
Rejection:	15 kHz spacing > 30 dB, 300 kHz spacing > 60 dB
Processor:	DSP for demodulation and protocol decoding module provides processing for the differential algorithms
Command Support:	Reports L-band DGNSS/HP/XP(OmniSTAR) region, satellite info, allows input and status of L-band DGNSS/HP/XP (OmniSTAR) subscription, Bit Error Rate (BER) output for reception quality indication and manual frequency tuning

Communications

Serial Ports:	4 full-duplex RS232, 1 full-duplex RS422 ports
USB Ports:	1 USB-A
Baud Rates:	4800 - 115200
Correction I/O Protocol:	RTCM v2.3 (DGPS), RTCM v3 (RTK), CMR, CMR+[1]
Data I/O Protocol:	NMEA 0183, Crescent binary[3]
Timing Output:	1PPS CMOS, active low, falling edge sync, 10 kΩ, 10pF load

Power

Input Voltage:	8 to 36 VDC
Power Consumption:	< 6.2 W nominal (GPS (L1/L2), GLONASS (L1/L2) and L-band DGNSS/HP/XP) < 5.3 W nominal (GPS L1/L2) and GLONASS (L1/L2))
Current Consumption:	< 0.52 A nominal (GPS L1/L2), GLONASS (L1/L2) and L-band DGNSS/HP/XP) < 0.44 A nominal (GPS L1/L2) and GLONASS (L1/L2))
Power Isolation:	500 V
Reverse Polarity Protection:	Yes
Antenna Short Circuit Protection:	Yes
Antenna Input Impedance:	50 Ω

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 (when installed in an enclosure)
Enclosure Rating:	IP66 (IEC 60529)
Shock and Vibration:	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

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/HP/XP 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 smooth heading, fast heading reacquisition and reliable < 5˚ per minute heading for periods up to 3 minute when loss of GPS has occurred [4]
Tilt Sensors:	Provide pitch, roll data and assist in fast start-up and reacquisition of heading solution.

Authorized Distributor:

HEMISPHERE GPS
4110 - 9th Street S.E.
Calgary, AB T2G 3C4
Canada

Phone: 403.259.3311
Fax: 403.259.8866
precision@hemispheregps.com
www.hemispheregps.com

1 Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for local services), and ionospheric activity
2 Depends on multipath environment, number of satellites in view and satellite geometry
3 Hemisphere GPS proprietary
4 Under static conditions
5 This is the minimum safe distance measured when the product is placed in the vicinity of the steering magnetic compass. The ISO 694 defines "vicinity" relative to the compass as within 5 m (16.4 ft) separation.
6 Based on a 40 second time constant
7 Requires a subscription from OmniSTAR
8 Upgrade required