Now with GLONASS

Vector™ VS131™ GNSS Compass

Professional Heading and Positioning GNSS Compass

key features

- **Enhanced heading performance with GLONASS**
- **GNSS heading better than 0.04° RMS**
- **L1 GPS/GLONASS RTK capable**
- **Additional satellite tracking ensures a robust solution**
- **Maintains heading and position lock in obstructed areas**
- **Accurate heading up to 3 minutes during GPS outages**
- **COAST™ technology maintains differentially-corrected positioning for 40 minutes or more after loss of differential signal**
- **Integrated gyro and tilt sensors help deliver fast start-up times and provide heading updates during temporary loss of satellites**

Enhanced GNSS heading and positioning technology with GLONASS. Precise marine and land applications demand the heading and positioning performance of the Vector™ VS131™ receiver making it ideal for professional machine control and navigation applications in any environment.

The Vector VS131 utilizes all of the innovations of Hemisphere GNSS' Crescent® Vector technology, offering a series of features to the Vector VS131 including heave, pitch, and roll output.

The Vector VS131 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 accuracy. The Vector VS131 is L-Band DGNSS (VBS), Beacon, and SBAS capable for differential GNSS positioning. Our MFA DGNSS patented technology allows the VS131 to smoothly transition between DGNSS systems.

Hemisphere

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Vector VS131 GNSS Compass

GNSS Sensor Specifications

Receiver Type:	Vector GNSS L1 RTK Receiver
Signals Received:	GPS, GLONASS
Channels:	540
GPS Sensitivity:	-142 dBm
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	10 Hz standard, 20 Hz optional

Positioning Accuracy

RMS:	Horizontal	Vertical
Single Point, no SA [1]:	1.2 m	2.5 m
SBAS (WAAS) [2]:	0.3 m	0.6 m
L-Band DGNSS [3]:	0.3 m	0.6 m
Code Differential GNSS [1]:	0.3 m	0.6 m
RTK [2, 4]:	10 mm + 1 ppm	20 mm + 2 ppm

Heading Accuracy:	0.30° rms @ 0.5 m antenna separation 0.15° rms @ 1.0 m antenna separation 0.08° rms @ 2.0 m antenna separation 0.04° rms @ 5.0 m antenna separation
Pitch/Roll Accuracy (RMS):	1°
Heave Accuracy (RMS):	30 cm [5]
Timing (1PPS) Accuracy:	20 ns
Rate of Turn:	90°/s maximum
Cold Start:	60 s (no almanac or RTC)
Warm Start:	20 s typical (almanac and RTC)
Hot Start:	1 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)
Differential Options:	SBAS, Beacon, External RTCM, L-Band (VBS/HP/XP/G2) and RTK

Beacon Sensor Specifications

Channels:	2-channel parallel tracking
Frequency Range:	283.5 to 325.0 kHz
Operating Modes:	Manual, Automatic, and Database
Compliance:	IEC 61108-4 beacon standard

L-Band 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

Communication

Serial Ports:	2 full-duplex RS232 ports
USB Ports:	1 USB-B
Baud Rates:	4800 - 115200
Correction I/O Protocol:	RTCM SC-104, L-Dif™ [6], RTCM v2 (DGPS), RTCM v3 (RTK), CMR (RTK), CMR+ (RTK) [3]
Data I/O Protocol:	NMEA 0183, Hemisphere GNSS binary [6]
Timing Output:	1 PPS (CMOS, active high, rising edge sync, 10 kΩ, 10 pF load)

Power

Input Voltage:	8 to 36 VDC
Power Consumption:	4.5 W nominal (GPS L1 + GLONASS L1) 4.8 W nominal (GPS L1 + GLONASS L1 + Beacon) 5.5 W nominal (GPS L1 + GLONASS L1 + L-Band)
Current Consumption:	0.34 A nominal (GPS L1 + GLONASS L1) 0.40 A nominal (GPS L1 + GLONASS L1 + Beacon) 0.46 A nominal (GPS L1 + GLONASS L1 + L-Band)
Power Isolation:	500 V
Reverse Polarity Protection:	Yes
Antenna Voltage:	5 VDC maximum 60 mA
Antenna Short Circuit Protection:	Yes
Antenna Gain Input Range:	10 to 40 dB
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
Mechanical Shock:	EP455 Section 5.14.1
Vibration:	EP455 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 x 3.0 H (in)
Weight:	~1.1 kg (~2.5 lbs.)
Status Indications (LED):	Power, Primary and Secondary GNSS lock, Differential lock, DGNSS position, Heading, L-Band lock
Power Switch:	Front panel soft switch
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 [4]
Tilt Sensors:	Provide pitch, roll data, assist in fast start-up and heading reacquisition.

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 Requires a subscription from OmniSTAR®

4 Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for differential services), and ionospheric activity

5 Based on a 40 second time constant

6 Hemisphere GNSS proprietary

Authorized Distributor:

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