Experience the addition of L-band DGNSS/HP/XP technology to our Vector™ VS family. Precise marine and land applications demand the heading and positioning performance of the Vector VS131™ receiver. The Vector VS131 is ideal for professional machine control and navigation applications in areas where L-band DGNSS/HP/XP is achieved.

The Vector VS131 utilizes all of the innovations in Hemisphere GPS’ Crescent® Vector and brings a series of features to the Vector VS131 including heave, pitch and roll output, and more robust positioning performance.

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

### Key Vector VS131 Receiver Advantages

- L-band DGNSS/HP/XP capable
- Professional heading < 0.03° rms
- Differential position accuracy of < 30 cm rms
- Heave < 30 cm rms
- Pitch and Roll < 1° rms
- Simple menu operations
- 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 deliver fast start-up times and provide heading updates during temporary loss of GPS
Vector VS131 Receiver

GPS Sensor Specifications
Receiver Type: L1, C/A code, with carrier phase smoothing
Signals Received: GPS
Channels: 270
GPS Sensitivity: -142dBm
SBAS Tracking: 2-channel, parallel tracking
Update Rate: 10 Hz standard, 20 Hz available by subscription
Horizontal Accuracy: RMS (67%) 2DRMS (95%)
RTK: 10 mm + 1 ppm 20 mm + 2 ppm
L-band DGNSS/HP/XP
(OmniSTAR): 0.3 m 0.6 m
SBAS (WAAS): 0.3 m 0.6 m
Autonomous, no SA: 1.2 m 2.5 m
Heading Accuracy: < 0.33˚ rms @ 0.5 m antenna separation
< 0.17˚ rms @ 1.0 m antenna separation
< 0.08˚ rms @ 2.0 m antenna separation
< 0.03˚ rms @ 5.0 m antenna separation
Pitch/Roll Accuracy: < 1˚ rms
Heave Accuracy: 30 cm rms
Timing (1PPS) Accuracy: 50 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)

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 and 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: 2 full-duplex RS-232 ports
USB Ports: 1 USB-B
Baud Rates: 4800 - 115200
Correction I/O Protocol: RTCM v2.3 (DGPS), RTCM SC-104, L-DifTM
Data I/O Protocol: NMEA 0183, Crescent binary, LDif
Timing Output: 1PPS CMOS, active low, falling edge sync,
10 kHz, 10pF load

Power
Input Voltage: 8 to 36 VDC
Power Consumption: < 4.5 W nominal (GPS (L1) and L-band
gps (L1) and L-band DGNSS/HP/XP)
Current Consumption: < 0.38 A nominal (GPS (L1) and L-band
gps (L1) and L-band DGNSS/HP/XP)
Power Isolation: 500 V
Reverse Polarity Protection: Yes
Antenna Short Circuit Protection: Yes

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
Enclosure Rating: IP66 (IEC 60529)
Vibration: EP455 Section 5.15.1 Random
EMC: CE (IEC 60945 Emissions and Immunity)
FCC Part 15, Subpart B
CISPR22
IMO Wheelmark Certification: No

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 GPS lock,
Differential lock, DGPS position, Heading,
RTK lock, L-band DGNSS/HP/XP 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 smooth heading, fast heading
reacquisition and reliable < 1˚ per minute
heading for periods up to 3 minute when
loss of GPS has occurred 1
Tilt Sensors: Provide 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, 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

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