Vector™ V123/133 Smart Antenna

Professional GNSS Heading & Positioning Smart Antenna

atlas

key features

- Simple all-in-one single-frequency, multi-GNSS heading solution

- Single-frequency GPS/GLONASS/ BeiDou/Galileo/QZSS/IRNSS

- Atlas® L-band and beacon (V133) capable

- Integrated gyroscope provides smooth, fast heading reacquisition

- Reliable < 1° per minute heading for periods up to 3 minutes when loss of GNSS has occurred

- Fully rugged solution for the harshest environments

The Vector V123/133 is Hemisphere GNSS' all-in-one single-frequency, multi-GNSS smart antenna which provides Atlas decimeter-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 V123/133 combines simple installation with consistent and precise heading accuracy and decimeter positioning.

Hemisphere®

Vector V123/133 Smart Antenna

GNSS Receiver Specifications

Receiver Type:	Vector GNSS Receiver
Signals Received:	GPS, GLONASS, BeiDou, Galileo, QZSS[7], IRNSS[7] and Atlas
Channels:	300
GPS Sensitivity:	-142 dBm
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	10 Hz standard, 50 Hz optional
Timing (1PPS) Accuracy:	20 ns
Rate of Turn:	100˚/s maximum
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 (Hot Start)
Antenna Input Impedance:	50 Ω
Maximum Speed:	1,850 mph (999 kts)
Maximum Altitude:	18,288 m (60,000 ft)
Differential Options:	SBAS, Atlas (L-band)

Positioning Accuracy

	RMS (67%)	2DRMS (95%)
Autonomous, no SA [2]:	1.2 m	2.5 m
SBAS (WAAS) [2]:	0.3 m	0.6 m
Atlas (L-band) [2, 6]:	0.3 m	0.6 m
Heading Accuracy:	< 0.3° rms	
Pitch/Roll Accuracy (RMS):	<1˚	
Heave Accuracy (RMS):	30 cm (DGPS) [6] ,10 cm (Atlas) [6]	

L-Band Receiver Specifications

Channels:	1530 to 1560 MHz
Sensitivity:	-130 dBm
Channel Spacing:	5 kHz
Satellite Selection:	Manual or Automatic
Reacquisition Time:	15 sec (typical)
Processor:	DSP for demodulation and protocol decoding module provides processing for the differential algorithms

Communications

Ports:	1x RS232, 1x RS422, 1x half-duplex RS422(TX), NMEA2000
Baud Rates:	4800 - 115200
Correction I/O Protocol:	Atlas, Hemisphere GNSS proprietary, RTCM v2.3 (DGPS)
Data I/O Protocol:	NMEA 0183, NMEA 2000, Hemisphere GNSS binary
Timing Output:	1PPS, CMOS, active low, falling edge sync, 10 kΩ, 10 pF load
Event Marker Input:	CMOS, active low, falling edge sync, 10 kΩ, 10 pF load
Heading Warning I/O:	Open relay system indicates invalid heading

Power

Input Voltage:	9 - 36 VDC with reverse polarity operation
Power Consumption:	TBD
Current Consumption:	TBD
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
Vibration:	IEC60945 Section 8.7
EMC:	IEC60945 FCC part 15 Subpart B, CISPR32
IMO Wheelmark Certification:	No
Enclosure:	IP66/IP69

Mechanical

Dimensions:	66.9 L x 20.9 W x 12.2 H cm
Weight:	2.1kg
Status Indications (LED):	Power, GNSS Lock, Heading
Power/Data Connector:	22 pin environmentally sealed

Aiding Devices

Gyro:	Integrated gyroscope provides smooth heading, fast heading reacquisition and reliable < 1° per minute heading for periods up to 3 minutes when loss of GNSS has occurred [4]
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, no SA, and ionospheric activity

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

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

4 Based on a 40 second time constant

5 Hemisphere GNSS proprietary

6 Requires a Hemisphere GNSS subscription

7 With future firmware upgrade and activation

Authorized Distributor:

Hemisphere GNSS, Inc.
8515 E. Anderson Drive
Scottsdale, AZ, USA 85255

Toll-Free: +1 (855) 203-1770
Phone: +1 (480) 348-6380
Fax: +1 (480) 270-5070
Precision@HGNSS.com
www.HGNSS.com