

# Vector Sensor



## Vector Sensor

- Delivers accurate 2D GPS heading data (heading and roll or pitch) with better than 0.1 degree rms accuracy with a short 2 m antenna separation
- Computes accurate heading at rates of up to 10 Hz and position at rates of up to 5 Hz
- Includes internal SBAS demodulator for differential positioning
- Beacon DGPS source available with the Vector Sensor Pro
- LED indicators located on the front panel provide a quick indication of system status
- Fast heading fix is in less than 20 s after initial position for 0.5 m separation
- Dual RS 232 serial ports offers flexibility for data configuration
- High performance, professional GPS compass



# Vector Sensor

## General Specifications

<b>Receiver Type:</b>	LI, C/A code with carrier phase smoothing
<b>Channels:</b>	12-channel, parallel tracking (10-channel when tracking SBAS)
<b>Update Rate:</b>	5Hz position max, 10Hz heading max
<b>Horizontal Accuracy:</b>	<1 m 95% (DGPS)* <5 m 95% (autonomous, no SA)**
<b>Heading Accuracy:</b>	<0.25° rms @ 0.5 m antenna sep. <0.15° rms @ 1 m antenna sep. <0.1° rms @ 2 m antenna sep.
<b>Pitch / Roll Accuracy:</b>	<1° rms @ 0.5m antenna sep.
<b>Rate of Turn:</b>	25°/s max
<b>Start Up Time:</b>	< 60 s typ.
<b>Heading Fix:</b>	< 20 s
<b>GPS Reacquisition:</b>	< 1 s
<b>Antenna Input Impedance:</b>	50 Ω

## Beacon Sensor Specifications (PRO version only)

<b>Channels:</b>	2-channel, parallel tracking
<b>Frequency Range:</b>	283.5 to 325 kHz
<b>Operating Modes:</b>	Automatic and manual
<b>Sensitivity:</b>	2.5dB μV for 6 dB SNR @ 200 bps
<b>Dynamic Range:</b>	100 dB
<b>Adjacent Channel Rejection:</b>	61 dB @ $f_0 \pm 400$ Hz

## Communications

<b>Serial ports:</b>	2 full duplex RS-232
<b>Isolation:</b>	All serial ports optically isolated from power supply.
<b>Baud Rates:</b>	4800, 9600, 19200
<b>Correction I/O Protocol:</b>	RTCM SC-104
<b>Data I/O Protocol:</b>	NMEA 0183, SLX binary
<b>Timing Output:</b>	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)
<b>IPPS Accuracy:</b>	50 ns
<b>NMEA Heading Messages:</b>	\$HEHDT, \$HEROT, \$PSAT, HPR

## Environmental

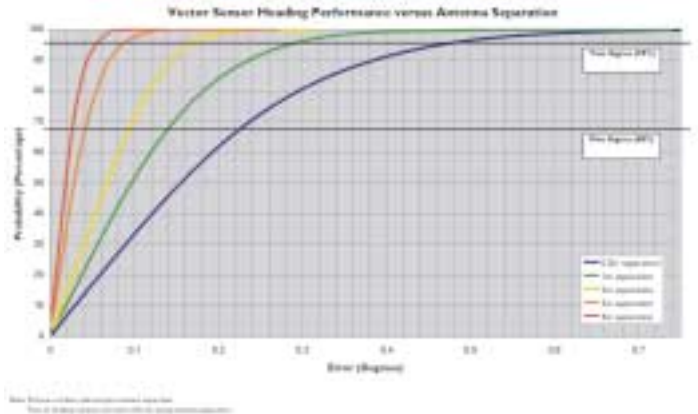
<b>Operating Temperature:</b>	-30°C to +70°C
<b>Storage Temperature:</b>	-40°C to +85°C
<b>Humidity:</b>	95% non-condensing

## Power

<b>Input Voltage:</b>	8.0 to 40 VDC
<b>Reverse Polarity Protection:</b>	Yes (but not reverse polarity operation)
<b>Power Consumption:</b>	< 4.5 W
<b>Current Consumption:</b>	< 360 mA @ 12 VDC
<b>Antenna Voltage Output:</b>	5 VDC
<b>Antenna Short Circuit Protection:</b>	Yes

## Mechanical

<b>Dimensions:</b>	203 mm L x 139 mm W x 64 mm H (8.00" L x 5.47" W x 2.52" H)
<b>Weight:</b>	< 1000 g (< 2.2 lb)
<b>Status Indication:</b>	Power, GPS lock, differential lock, DGPS position, and heading indication
<b>Power Switch:</b>	Miniature push-button
<b>Data Connector:</b>	2-pin circular miniature
<b>Data Connector:</b>	DB9 female
<b>GPS Antenna Connectors:</b>	TNC female
<b>Beacon Antenna Connector:</b>	TNC female

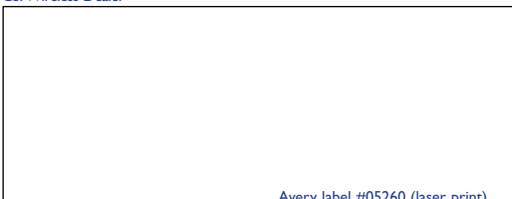


\* Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for local services), and ionospheric activity

\*\* Depends on multipath environment, number of satellites in view, and satellite geometry

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