

Brújula de GPS VS101 y VS111

Receptor profesional de rumbo y posicionamiento



VS101™

Las aplicaciones precisas exigen rendimiento en las funciones de rumbo y posicionamiento que ofrece la Brújula de GPS VS101™ y VS111™.

Ideal para aplicaciones profesionales de control de máquinas y navegación, la serie VS101/111 brinda precisión confiable a un costo significativamente menor que el de los productos de la competencia o de los métodos tradicionales. La tecnología Crescent® Vector™ II brinda una serie de características nuevas a la serie VS 101/111, entre ellas, movimiento vertical cabeceo y balanceo, y un rendimiento más sólido.



VS111™

El receptor VS101/111, con su pantalla e interfaz de usuario, puede instalarse en forma práctica cerca del operador. Se montan las dos antenas por separado conservando cierta distancia, determinada por el usuario, para llegar a la precisión deseada.

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Crescent

La serie VS101 utiliza SBAS (WAAS, EGNOS, MSAS, etc.) para el posicionamiento de GPS diferencial. La serie VS111 incluye tanto SBAS como las opciones de posicionamiento de GPS diferencial por radiobaliza.

Principales ventajas de la Brújula de GPS VS101 y VS111

- Solución asequible que ofrece una precisión de rumbo de GPS 2D mejor que 0,1 grado rms
- Precisión de posicionamiento diferencial de menos de 60 cm el 95% de las veces
- Girocompás y sensores de inclinación integrados que ofrecen tiempos de arranque más rápidos y brindan actualizaciones sobre el rumbo durante la pérdida temporal en el GPS
- Tasas de salida de rumbo y posicionamiento rápidas de hasta 20 Hz
- Compatible con SBAS (WAAS, EGNOS, MSAS, etc.), baliza integrada (solo la serie VS111) y entrada diferencial externa opcional
- Tecnología COAST™ que mantiene el posicionamiento diferencialmente corregido por 40 minutos o más luego de la pérdida de una señal diferencial
- El sistema de estado de las luces y de menú hace que la serie VS101 sea más fácil de controlar y configurar

Brújula de GPS VS101 y VS111

Especificaciones del sensor de GPS

Tipo de receptor:	L1, código C/A con fase portadora suavizada
Canales:	Dos de 12 canales, seguimiento paralelo (Dos de 10 canales al realizar el seguimiento de SBAS)
Seguimiento SBAS:	2 canales, seguimiento paralelo
Velocidad de actualización:	Estándar 10 Hz, opcional 20 Hz (posición y rumbo)
Precisión horizontal:	< 0,02 m, 95% de confianza (RTK ^{1,4}) < 0,6 m, 95% de confianza (DGPS ¹) < 2,5 m, 95% de confianza (autónoma, sin SA ²)
Precisión de rumbo:	< 0,30° rms a 0,5 m de separación de antenas < 0,15° rms a 1,0 m de separación de antenas < 0,10° rms a 2,0 m de separación de antenas
Precisión de cabeceo/ balanceo:	< 1° rms
Precisión vertical:	30 cm
Precisión del temporizador (1PPS):	50 ns
Velocidad de giro:	90°/s máx.
Arranque en frío:	< 60 s típico (sin almanaque ni RTC)
Arranque tibio:	< 20 s típico (almanaque o RTC)
Arranque en caliente:	< 1 s típico (almanaque, RTC y posición)
Corrección de rumbo:	< 10 s típico (posición válida)
Impedancia de entrada de la antena:	50 Ω
Velocidad máxima:	1850 kph (999 kts)
Altitud máxima:	18.288 m (60.000 pies)

Especificaciones del sensor de baliza (serie VS111)

Canales:	2 canales, seguimiento paralelo
Rango de frecuencia:	De 283,5 a 325 kHz
Modos de operación:	Manual, automático y base de datos
Cumplimiento de normas:	Norma para balizas IEC 61108-4

Comunicaciones

Puertos serie:	2 dúplex completos RS-232
Tasas de baudios:	4800 - 115200
Protocolo I/O de corrección:	RTCM SC-104, L-Dif ³ , RTK ³
Protocolo I/O de datos:	NMEA 0183, binario Crescent ³ , L-Dif ³ , RTK ³
Salida del temporizador:	1PPS (HCMOS, activo alto, sinc. por borde ascendente, 10 kΩ, carga de 10 pF)
Entrada del marcador de eventos:	HCMOS, activo bajo, sinc. por borde descendente, 10 kΩ

Entorno

Temperatura de funcionamiento:	De -30 °C a +70 °C (de -22 °F a +158 °F)
Temperatura de almacenamiento:	De -40 °C a +85 °C (de -40 °F a +185 °F)
Humedad:	95% sin condensación
Amortiguación y vibración:	EP 455
EMC:	FCC Parte 15, Subparte B, Clase B, CISPR22, CE

Energía

Voltaje de entrada:	De 9 a 36 VDC
Consumo de energía:	~ 5 W nominal
Consumo de corriente:	~ 360 mA a 12 VDC
Aislamiento de energía:	Fuente de alimentación aislada
Voltaje de la antena:	~ 5 VDC
Protección contra cortocircuito de la antena:	Sí
Rango de entrada de ganancia de la antena:	De 10 a 40 dB
Impedancia de entrada de la antena:	50 Ω

Mecánica

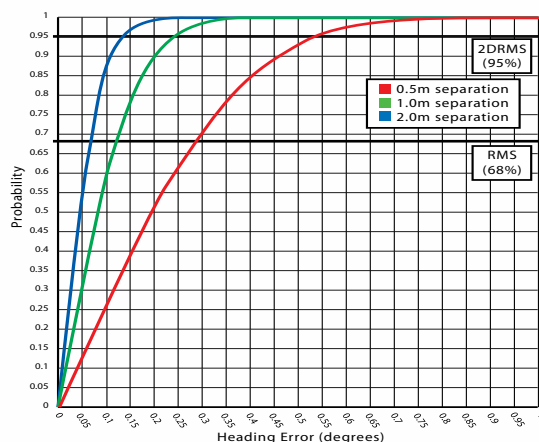
Dimensiones:	18,9 L x 11,4 A x 7,1 H (cm) 7,4 L x 4,5 A x 2,8 H (pulg.)
Peso:	~ 0,86 kg (~ 1,9 lb)
Indicación de estado:	Encendido, traba de GPS primario, traba de GPS secundario, traba DGPS y traba de rumbo
Interruptor de encendido:	Botón en miniatura
Conector de alimentación:	Micro Conxall de 2 clavijas
Conectores de datos:	DB9-hembra (x2)
Conectores de la antena:	TNC-hembra (x2)

Dispositivos auxiliares

Girocompás:	Ofrece un rumbo accesible, una readquisición inmediata del rumbo y un rumbo < 1° confiable durante períodos de hasta 3 minutos en caso de pérdida en el GPS
Sensores de inclinación:	Brindan asistencia para el arranque rápido de la solución de rumbo

- 1 Depende del entorno de trayectos múltiples, de la selección de antena, de la cantidad de satélites a la vista, de la geometría de los satélites, de la longitud de la línea base (para los servicios locales) y de la actividad ionosférica
- 2 Depende del entorno de trayectos múltiples, de la cantidad de satélites a la vista y de la geometría de los satélites
- 3 Propietario de Hemisphere GPS
- 4 Hasta 10 km de longitud de línea base

Rendimiento en el rumbo de la serie VS101 frente a la separación de antenas



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

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

Vector VS131 Receiver

Professional Heading and Positioning Receiver



Vector VS131

Powered by
Crescent

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: ¹	10 mm + 1 ppm	20 mm + 2 ppm
L-band DGNSS/HP/XP		
(OmniSTAR): ^{2,7}	0.3 m	0.6 m
SBAS (WAAS): ²	0.3 m	0.6 m
Autonomous, no SA: ²	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 ⁶	
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:	75 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-Dif™ ³
Data I/O Protocol:	NMEA 0183, Crescent binary ³ , L-Dif
Timing Output:	1PPS CMOS, active low, falling edge sync, 10 kΩ, 10pF load

Power

Input Voltage:	8 to 36 VDC
Power Consumption:	< 4.5 W nominal (GPS (L1) and L-band DGNSS/HP/XP) < 3.6 W nominal (GPS (L1))
Current Consumption:	< 0.38 A nominal (GPS (L1) and L-band DGNSS/HP/XP) < 0.30 A nominal (GPS (L1))
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)
Shock and Vibration:	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
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:	2TNC (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 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



Vector VS330 GNSS Compass

Professional Heading and Positioning Receiver



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 m
- L1/L2 GPS/GLONASS RTK capable
- L-band DGNSS/HP/XP(OmniSTAR®) capable
- Beacon capable
- Fast RTK acquisition 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 separation	
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:	2 full-duplex RS-232, 1 full-duplex RS-422 port
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 CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B CISPR22
EMC:	

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 Front panel soft switch 9-pin ODU metal circular 2-pin ODU metal circular DB9 (sealed) 2TNC (female)
Power Switch:	
Power/Data Connector:	
Power Connector:	
Data Connector:	
Antenna Connectors:	

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.

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HEMISPHERE GPS
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Calgary, AB T2G 3C4
Canada

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Fax: 403.259.8866
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- 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