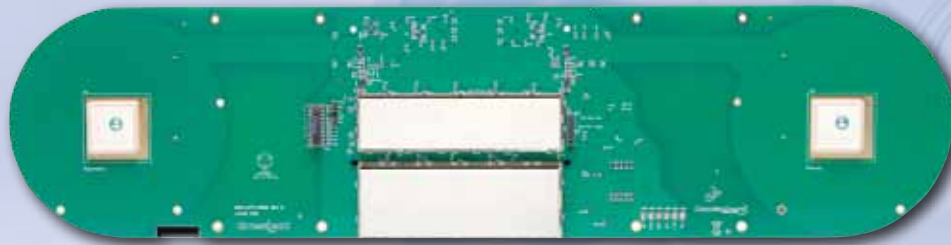


LV101 GPS Compass OEM Board

Superior Heading and Positioning Smart Antenna Module



Experience superb navigation or antenna alignment from the accurate heading and position available with the LV101™ GPS compass OEM board. The Crescent® Vector™ II technology brings a series of new features to the LV101 GPS compass OEM board including heave, pitch and roll output, and more robust performance.

The LV101 integrates two GPS antennas, a CANBUS communications processor, a single axis gyro, tilt sensors and a power supply into a single system. The dual antennas allow for ease of integration into your application and provide for precise heading and GPS sub-meter position accuracy even while sitting stationary. The gyro and tilt sensor improve system performance and provide backup heading information if the GPS-based heading is ever lost. The Crescent Vector II technology provides more accurate code phase measurement and improved multipath mitigation resulting in excellent accuracy and stability.

Key LV101 GPS Compass OEM Board Advantages

- Affordable solution delivers 2D GPS heading accuracy better than 0.75 degree rms
- Differential positioning accuracy of less than 1m, 95% of the time
- Smart antenna design ensures simple integration into finished product
- Fast heading and positioning output rates up to 20 Hz
- NMEA 2000 certified
- Integrated gyro and tilt sensors deliver fast start-up times and provide heading updates during temporary loss of GPS
- SBAS compatible (WAAS, EGNOS, MSAS, etc.) and optional external differential input
- COAST™ technology maintains differentially-corrected positioning for 40 minutes or more after loss of differential signal

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GPS Sensor Specifications

Receiver Type:	L1, C/A code, with carrier phase smoothing
Channels:	Two 12-channel, parallel tracking (Two 10-channel when tracking SBAS)
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	Standard 10 Hz, optional 20 Hz (position and heading)
Horizontal Accuracy:	< 1.0 m 95% confidence (DGPS ¹) < 3.5 m 95% confidence (autonomous, no SA ²)
Heading Accuracy:	< 0.75° rms
Pitch / Roll Accuracy:	< 1° rms
Heave Accuracy:	30 cm
Timing (1PPS) Accuracy:	50 ns
Rate of Turn:	90°/s maximum
Cold Start:	< 60 s typical (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 kph (999 kts)
Maximum Altitude:	18,288 m (60,000 ft)

Communications

Serial ports:	2 full-duplex RS-232 and 2 half-duplex RS-422
Baud Rates:	4800 to 115200
Correction I/O Protocol:	RTCM SC-104
Data I/O Protocol:	NMEA 0183, NMEA 2000, Crescent binary ³ , L-Dif ^{TM3}
Timing Output:	1PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)

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
Shock and Vibration:	⁴ IEC 60945
EMC:	⁴ FCC Part 15, Subpart B, CISPR22, CE

Power

Input Voltage:	9 to 36 VDC
Power Consumption:	5.4W nominal
Current Consumption:	450 mA @ 12 VDC nominal
Power Isolation:	Isolated power supply
Reverse Polarity Protection:	Yes

Mechanical

Dimensions:	45.8 L x 11.3 W x 3.7 H (cm) 18.0 L x 4.4 W x 1.4 H (in)
Weight:	350 g (12.3 oz)
Status Indications (LED): GPS	Power, primary GPS lock, secondary lock, DGPS lock, and heading lock
Power/Data Connector:	2 connectors, 2R x 2.54 mm (2R x .01")

Aiding Devices

Gyro:	Provides smooth heading, fast heading reacquisition and reliable < 1° heading for periods up to 3 minutes when loss of GPS has occurred
Tilt Sensors:	Assists in fast start-up of heading solution



Top View



Bottom View

Authorized Distributor:

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- 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, ionospheric activity and satellite geometry
- 3 Hemisphere GPS proprietary
- 4 When integrated in conjunction with the recommended shielding and protection as outlined in the Integrator's Guide.

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