H102 GPS Compass OEM Board

Heading and Positioning Smart Antenna Module

H102

Powered by Crescent

Enjoy the simplified integration, flexible communication, and powerful, precise performance of the all-in-one H102™ GPS compass OEM board. The integrated Crescent® Vector™ II technology offers precise heading and positioning as well as heave, pitch and roll output.

The H102 integrates two GPS antennas, a CANBUS communications processor, a single axis gyro, tilt sensors and a power supply into a single module. The dual antennas allow for ease of integration into your application and provide 0.75 degree heading and 0.6 m 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 temporarily lost. The integrated Crescent Vector II technology provides more accurate code phase measurement and improved multipath mitigation resulting in excellent accuracy and stability.

Key H102 GPS Compass OEM Board Advantages

- Affordable solution delivers 2D GPS heading accuracy better than .75 degree rms
- Differential positioning accuracy of less than 0.6 m, 95% of the time
- All-in-one, smart antenna design ensures simple integration into finished product
- Fast heading and position output rates up to 20Hz
- 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 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:	10 Hz standard, 20 Hz optional (position and heading)
Horizontal Accuracy:	< 0.6 m 95% confidence (DGPS[1]) < 2.5 m 95% confidence (autonomous, no SA[2])
Heading Accuracy:	< 0.75˚ rms
Pitch/Roll Accuracy:	< 1.5˚ rms
Heave Accuracy:	30 cm [4]
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 kph (999 kts)
Maximum Altitude:	18,288 m (60,0000 ft)

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:	100% non-condensing
Shock and Vibration:	IEC 60945, EP 455
EMC:	FCC Part 15, Subpart B, CISPR22, CE

Power

Input Voltage:	6 to 36 VDC
Power Consumption:	3 W nominal
Current Consumption:	250 mA @ 12 VDC
Power Isolation:	Isolated to ground
Reverse Polarity Protection:	Yes

Mechanical

Dimensions:	37.5 L x 10.5 W x 2.5 H cm (14.8" L x 4.1" W x 1.0" H)
Weight:	250 g (8.8 oz)

Communications

Serial Ports:	2 full-duplex RS-232
Baud Rates:	4800 - 115200
Correction I/O Protocol:	RTCM SC-104
Data I/O Protocol:	NMEA 0183, Crescent binary[3], NMEA 2000

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

Authorized Distributor:

[1] Depends on multipath environment, number of satellites in view, satellite geometry, ionospheric activity and use of SBAS
[2] Depends on multipath environment, number of satellites in view, satellite geometry and ionospheric activity
[3] Hemisphere GPS proprietary
[4] Based on a 40 second time constant

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