OEMV-2

NovAtel's OEMV-2 is a backwards compatible, drop-in replacement for the OEM4-G2L. In addition to maintaining features from the OEM4 receivers, this dual frequency board features NovAtel's new Vision Correlator, use of the L2C signal, GLONASS measurements and future support for full GLONASS positioning.

Features

GPS modernization, capable of tracking L2C

L1 and L2 GLONASS measurements

PAC and Vision Correlator Technologies

Application Programming Interface (API) option

Benefits

Ensures future compatibility as more satellites are available

Improved positioning in challenging or limited visibility environments

Offers superior multipath detection to eliminate close-in multipath and to flag poor signal quality

Eliminates system hardware by taking advantage of the receiver's processor and memory, resulting in reduced development costs and faster time to market

Ease of Integration

The OEMV-2 receiver is a backwards compatible replacement for the OEM4-G2L. Featuring the same commands and logs, this board is designed to be a drop-in replacement, meaning fewer upgrades and faster time to market. In addition to providing superior performance, the OEMV-2 card consumes less power than previous generation cards and is compliant with the European Union's Restriction of Hazardous Substance (RoHS) directive, eliminating the need for future hardware changes.

GPS Modernization

NovAtel's OEMV-2 provides the user with performance and flexibility. Capable of tracking the new L2 civil signal, it provides stronger signal tracking and better cross correlation protection. Not only is the L2C signal better for low power applications, but having access to multiple signals allows the user to select the one that is best suited to their needs.

GLONASS

The OEMV-2 offers GLONASS measurement data which can be used in combination with GPS data to provide more satellites for positioning in challenging environments. Full position and real-time kinematic (RTK) capabilities will be available in the future with a simple firmware upgrade.

Advanced multipath mitigation

The OEMV family of GNSS receivers is available with PAC, NovAtel's current industry-leading multipath mitigation technology, and the new Vision Correlator. The initial OEMV release will include PAC as the default technique with enhanced Vision functionality added in future firmware updates. Vision uses innovative technology to model the signal's unique signature to detect multipath reflections. With full Vision functionality, the OEMV receivers will offer superior multipath elimination close to the antenna and in high multipath environments.

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Precise thinking

OEMV-2

Performance[1]

Channel Configuration
14 L1,14 L2 GPS
12 L1, 12 L2 GLONASS
2 SBAS

Position Accuracy (RMS)

Single Point L1	1.8 m
Single Point L1/L2	1.5 m
WAAS L1 only	1.2 m
WAAS L1/L2	0.9 m
DGPS	0.45 m
RT-20[2]	0.2 m
RT-2	1 cm + 1ppm

Measurement Precision

L1 C/A Code	6 cm RMS
L1 Carrier Phase	0.75 mm RMS (differential channel)
L2 P(Y) Code	25 cm RMS
L2 Carrier Phase	2 mm RMS (differential channel)

Data Rate[3]

Measurements	20 Hz
Position	20 Hz

Time to First Fix

Cold Start[4]	50 s
Warm Start[5]	40 s
Hot Start[6]	30 s

Signal Reacquisition

L1	0.5 s (typical)
L2	1.0 s (typical)

Time Accuracy[7] **20 ns RMS**

Velocity Accuracy **0.03 m/s RMS**

Dynamics

Velocity[8]	515 m/s
Altitude[8]	18,288 m

Physical & Electrical

Size **60 x 100 x 13 mm**

Weight **56 g**

Power

Input Voltage	+ 3.3 +5%/-3% VDC
Power Consumption	1.6 W (typical)

Antenna LNA Power Output

Output Voltage	+ 5.1 VDC
Maximum Current	100 mA

Communication Ports

- 2 LV-TTL serial port capable of 300 to 230,400 bps
- 1 RS-232 or RS-422 capable of 300 to 921,600 bps
- 1 CAN Bus[9] serial port capable of 1 Mbps
- 1 USB port capable of 5 Mbps

Input/Output Connectors

Main	24-pin dual row male header
Antenna Input	MMCX female
External Oscillator Input	MMCX female

Environmental

Temperature	
Operating	-40°C to +85°C
Storage	-45°C to +95°C
Humidity	95% non-condensing

Regulatory

Random Vibe	MIL-STD 810F (7.7g)
Sine Vibe	SAEJ1211 (4g)
Bump/Shock	IEC 68-2-27 (30g)

Accessories

GPS-701-GG or GPS-702-GG antenna (optional)

Additional Features

- Common, field-upgradeable software for all OEMV family receivers with OEM4 compatible commands and logs
- Auxiliary strobe signals, including a configurable PPS output for time synchronization and mark inputs
- Outputs to drive external LEDs
- External oscillator input on dual frequency cards

1 Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
2 Expected accuracy after static convergence.
3 Slower data rates are expected for API customers. The maximum data rate is dependent on the size of the application.
4 Typical value. No almanac or ephemerides and no approximate position or time.
5 Typical value. Almanac saved and approximate position and time entered. No recent ephemerides.
6 Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
7 Time accuracy does not include biases due to RF or antenna delay.
8 Export licensing restricts operation to a maximum of 18,288 meters and 514 meters per second.
9 External CAN transceiver and user application software required. Replaces one LV-TTL serial port

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RoHS COMPLIANT

ISO 9001:2000 FM 92323

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