Receivers

**OEMV-3™**

**Multi-Frequency GNSS Receiver**
**Provides Expandable Functionality Without Compromising Performance**

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**Benefits**

- Proven OEMV® technology
- Integrated L-band supports OmniSTAR® correction services
- Application Programming Interface (API) reduces hardware requirements and system complexity

**Features**

- High random vibration performance for demanding applications
- L1, L2, L2C and L5 signal tracking
- Increased satellite availability with GLONASS tracking
- RT-2™, RT-20®, ALIGN® and GL1DE® firmware options

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**Designed with the Future in Mind**

The OEMV-3 is designed to track the GPS L1, L2, L2C, and L5 signals, as well as GLONASS L1 and L2. With integrated L-band onboard and multi-frequency tracking loadable through firmware upgrades, the OEMV-3 receiver eliminates the need for future hardware changes.

**Enhanced, Flexible Firmware Features**

The OEMV-3 provides decimetre level pass-to-pass accuracy with NovAtel’s GL1DE technology. NovAtel’s optional AdVance® RTK technology is available for centimetre-level real-time position accuracy. ALIGN® technology is available for heading and position outputs.

**Superior Hardware Design**

L-band capability is onboard the OEMV-3, eliminating the need for additional hardware. OEMV-3 hardware is designed to be flexible for a wide range of applications. It supports a higher input voltage range, and its high-vibe TCXO design allows for better shock and acceleration performance.

**Customization with an API**

Application Programming Interface (API) functionality is available on the OEMV-3. Using a recommended compiler with the API library, an application can be developed in a standard C/C++ environment to run directly from the receiver platform; eliminating system hardware, reducing development time and resulting in faster time to market.

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If you require more information about our receivers, visit novatel.com/products/gnss-receivers/oem-receiver-boards

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1-800-NOVATEL (U.S. and Canada)
or 403-295-4900
China 0086-21-54452990-8011
Europe 44-1993-848-736
SE Asia and Australia 61-400-833-601
### Performance

<table>
<thead>
<tr>
<th>Channel Configuration</th>
<th>72 Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal Tracking</td>
<td>14 GPS L1, 14 GPS L2, 6 GPS L5</td>
</tr>
<tr>
<td></td>
<td>12 GLONASS L1, 12 GLONASS L2</td>
</tr>
<tr>
<td>2 SBAS</td>
<td>1 L-band</td>
</tr>
</tbody>
</table>

### Horizontal Position Accuracy (RMS)

<table>
<thead>
<tr>
<th></th>
<th>Single Point L1</th>
<th>Single Point L1/L2</th>
<th>SBAS</th>
<th>DGPS</th>
<th>OmniSTAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5 m</td>
<td>1.2 m</td>
<td>0.6 m</td>
<td>0.4 m</td>
<td>0.6 m</td>
</tr>
</tbody>
</table>

### Power

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>+4.5 to +18.0 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>2.1 W</td>
</tr>
</tbody>
</table>

### Antenna LNA Power Output

<table>
<thead>
<tr>
<th>Output Voltage</th>
<th>5 V nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Current</td>
<td>100 mA</td>
</tr>
</tbody>
</table>

### Connectors

- Main: 40-pin dual row male header
- Antenna Input: MMCX female
- External Oscillator Input: MMCX female
- CAN: 14-pin dual row male header

### Communication Ports

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 RS-232</td>
<td>300 to 921,600 bps</td>
</tr>
<tr>
<td>1 RS-232</td>
<td>300 to 921,600 bps</td>
</tr>
<tr>
<td>1 LV-TTL</td>
<td>300 to 230,400 bps</td>
</tr>
<tr>
<td>2 CAN Bus</td>
<td>1 Mbps</td>
</tr>
<tr>
<td>1 USB</td>
<td>5 Mbps</td>
</tr>
</tbody>
</table>

### Measurement Precision (RMS)

<table>
<thead>
<tr>
<th></th>
<th>GPS</th>
<th>GLONASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 C/A</td>
<td>4 cm</td>
<td>15 cm</td>
</tr>
<tr>
<td>L1 Carrier Phase</td>
<td>0.5 mm</td>
<td>1.5 mm</td>
</tr>
<tr>
<td>L2 P(Y)</td>
<td>8 cm</td>
<td>8 cm</td>
</tr>
<tr>
<td>L2 Carrier Phase</td>
<td>1.0 mm</td>
<td>1.5 mm</td>
</tr>
</tbody>
</table>

### Data Rate

- Measurements: up to 50 Hz
- Position: up to 50 Hz

### Time to First Fix

- Cold Start: 60 s
- Hot Start: 35 s

### Signal Reacquisition

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

### Time Accuracy

- 20 ns RMS

### Velocity Accuracy

- 0.03 m/s RMS

### Velocity

- 515 m/s

### Environmental

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Operating: -40°C to +85°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Storage: -45°C to +95°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>95% non-condensing</td>
</tr>
</tbody>
</table>

### Vibration

- Random Vibe: MIL-STD 810F (7.7 g RMS)
- MIL-STD 810F tailored (19.4 g RMS)
- Sine Vibe: SAEJ11211 (4 g)

### Bump/Shock

- IEC 68-2-27 (30 g)

### Features

- Common, field-upgradeable software for all OEMV family receivers
- Auxiliary strobe signals, including a configurable PPS output for time synchronization and mark inputs
- Outputs to drive external LEDs
- External oscillator input

### Firmware Options

- RT-20
- ALIGN
- GL1DE
- RT-2
- OmniSTAR HP, XP, VBS, G2
- L5 signal tracking
- Pseudo Range/Delta-Phase (PDP)

### Physical and Electrical

- Dimensions: 85 x 125 x 13 mm
- Weight: 75 g

### Power

- Input Voltage: +4.5 to +18.0 VDC
- Power Consumption: 2.1 W

### Antenna LNA Power Output

- Output Voltage: 5 V nominal
- Maximum Current: 100 mA

### Connectors

- Main: 40-pin dual row male header
- Antenna Input: MMCX female
- External Oscillator Input: MMCX female
- CAN: 14-pin dual row male header

### Communication Ports

- 1 RS-232 or RS-422: 300 to 921,600 bps
- 1 RS-232 or LV-TTL: 300 to 921,600 bps
- 1 LV-TTL: 300 to 230,400 bps
- 2 CAN Bus: 1 Mbps
- 1 USB: 5 Mbps

### Data Rate

- Measurements: up to 50 Hz
- Position: up to 50 Hz

### Time to First Fix

- Cold Start: 60 s
- Hot Start: 35 s

### Signal Reacquisition

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

### Time Accuracy

- 20 ns RMS

### Velocity Accuracy

- 0.03 m/s RMS

### Velocity

- 515 m/s

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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. GPS only.
3. Expected accuracy after static convergence.
4. OmniSTAR and GLONASS not supported at 50 Hz.
5. Typical value. No almanac or ephemerides and no approximate position or time.
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 514 metres per second.
10. Only available with high vibe hardware variant.

**OEMV-3 Specifications subject to change without notice.**

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OmniSTAR is a registered trademark of OmniSTAR Inc.

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For the most recent details of this product:
novatel.com/assets/Documents/Papers/OEMV-3.pdf