

## LOW COST, L1 GPS+GLONASS RECEIVER ENHANCES SATELLITE AVAILABILITY & POSITIONING



### DESIGNED FOR INTEGRATION

The OEMStar receiver has the same form factor as NovAtel's OEMV-1 series receivers and uses the OEMV® style command interface. This allows you to easily integrate the OEMStar into existing OEMV-1 series systems. The OEMStar uses SBAS corrections from services such as WAAS and EGNOS.

### MULTI-CONSTELLATION PERFORMANCE

The OEMStar features up to 14 channels of L1 GPS only, GLONASS only or combined GPS and GLONASS code and carrier phase tracking for increased positioning accuracy and availability. The position, velocity and time information is available at up to 10 Hz, with a 1 PPS accuracy of 20 ns for GPS and 40 ns for GLONASS. The multi-constellation timing feature lets a user select a primary and secondary constellation for the timing source.

### SMALL FORM FACTOR WITH LOW POWER CONSUMPTION

The OEMStar measures only 46 by 71 mm, accepts an input voltage between 3.1 and 5.25 VDC and consumes less than 500 mW. This makes the OEMStar an attractive choice for use in handheld and battery powered applications.

### CUSTOMIZING WITH API

Application Programming Interface (API) functionality is available on the OEMStar. 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.

### BENEFITS

- + Increased satellite availability with GLONASS tracking
- + Easy to integrate
- + Form-factor consistent with NovAtel OEMV-1 receivers
- + NovAtel OEMV style command interface

### FEATURES

- + Small form factor
- + Very low power consumption
- + GLIDE™ firmware option
- + API firmware option
- + Receiver Autonomous Integrity Monitoring (RAIM) firmware option

If you require more information about our receivers, visit [www.novatel.com/products/gnss-receivers/oem-receiver-boards/](http://www.novatel.com/products/gnss-receivers/oem-receiver-boards/)

## PERFORMANCE<sup>1</sup>

### Channel Configuration

14 GPS L1  
12 GPS L1 + 2 SBAS  
10 GPS L1 + 4 GLO L1  
8 GPS L1 + 6 GLO L1  
8 GPS L1 + 4 GLO L1 + 2 SBAS  
10 GPS L1 + 2 GLO L1 + 2 SBAS  
7 GPS L1 + 7 GLO L1  
14 GLO L1

### Horizontal Position Accuracy (RMS)

|                   |       |
|-------------------|-------|
| Single point L1   | 1.5 m |
| SBAS <sup>2</sup> | 0.7 m |
| DGPS              | 0.5 m |

### Measurement Precision (RMS)

|                  | GPS    | GLO    |
|------------------|--------|--------|
| L1 C/A code      | 5 cm   | 35 cm  |
| L1 carrier phase | 0.6 mm | 1.5 mm |

### Maximum Data Rate

|              |       |
|--------------|-------|
| Measurements | 10 Hz |
| Position     | 10 Hz |

### Time to First Fix

|                         |      |
|-------------------------|------|
| Cold start <sup>3</sup> | 65 s |
| Hot start <sup>4</sup>  | 35 s |

### Signal reacquisition

|    |                   |
|----|-------------------|
| L1 | < 1.0 s (typical) |
|----|-------------------|

### Time Accuracy

|                        |           |
|------------------------|-----------|
| GPS <sup>2,5</sup>     | 20 ns RMS |
| GLONASS <sup>5,6</sup> | 40 ns RMS |

|                   |                |
|-------------------|----------------|
| Velocity Accuracy | < 0.05 m/s RMS |
|-------------------|----------------|

|                             |           |
|-----------------------------|-----------|
| Velocity Limit <sup>7</sup> | < 515 m/s |
|-----------------------------|-----------|

## PHYSICAL AND ELECTRICAL<sup>8</sup>

|            |                 |
|------------|-----------------|
| Dimensions | 46 × 71 × 13 mm |
|------------|-----------------|

|        |      |
|--------|------|
| Weight | 18 g |
|--------|------|

### Power

|                                |                     |
|--------------------------------|---------------------|
| Input voltage                  | +3.3 to 5.0 VDC ±5% |
| Power consumption <sup>9</sup> | 0.36 W              |

### Antenna LNA Power Output

|                 |             |
|-----------------|-------------|
| Output voltage  | 5 V nominal |
| Maximum current | 100 mA      |

### Connectors

|               |                             |
|---------------|-----------------------------|
| Main          | 20-pin dual row male header |
| Antenna input | MCX female                  |

## COMMUNICATION PORTS

|           |                    |
|-----------|--------------------|
| 2 LV-TTL  | 300 to 230,400 bps |
| 1 USB 2.0 |                    |

## ENVIRONMENTAL

### Temperature

|           |                |
|-----------|----------------|
| Operating | -40°C to +85°C |
| Storage   | -45°C to +90°C |

|          |                    |
|----------|--------------------|
| Humidity | 95% non-condensing |
|----------|--------------------|

### Vibration

|        |                     |
|--------|---------------------|
| Random | MIL-STD 810G        |
| Sine   | IEC 60068-2-6 (5 g) |

|       |              |
|-------|--------------|
| Shock | MIL-STD 810G |
|-------|--------------|

## FEATURES

- Auxiliary strobe signals, including a configurable PPS output for time synchronization and a mark input
- Outputs to drive external LEDs
- Common, field-upgradeable software

## FIRMWARE OPTIONS

- GLIDE
- API
- RAIM

## OPTIONAL ACCESSORIES

- GPS-700 series antennas
- ANT series antennas
- RF cables—5, 10 and 30 m lengths
- Right angle RF connector
- Available in the FlexPak-G2™ enclosure

## NOVATEL CONNECT™

NovAtel Connect is an intuitive configuration and visualization tool suite allowing comprehensive control of the OEMStar product.

- Easy to use wizards guide you through positioning mode configuration and raw data collection
- Detailed graphical windows display comprehensive status information
- Plan view and playback files allow you to monitor the positioning and configuration history
- Remotely control and monitor the OEMStar over the internet
- Windows XP and Windows 7 platforms

For the most recent details of this product: [www.novatel.com/products/gnss-receivers/oem-receiver-boards/oemstar/](http://www.novatel.com/products/gnss-receivers/oem-receiver-boards/oemstar/)

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**Version 6** Specifications subject to change without notice.

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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. Clock aligned to GPS system time.  
3. Typical value. No almanac or ephemerides. No approximate position or time.  
4. Typical value. Almanac and recent ephemerides saved and approximate position and time entered.

5. Time accuracy does not include biases due to RF or antenna delay.  
6. GLONASS only. Clock aligned to GLONASS system time.  
7. Export licensing restricts operation to a maximum of 515 metres per second.  
8. Physical size, mounting holes and connector location is identical to OEMV-1/1G receivers. Some of the 20-pin connector signal assignments have been modified.  
9. Typical values for 14 channel GPS only operation. Power consumption will vary depending upon features selected.