# Receivers **OEM617**™



## COMPACT, DUAL-FREQUENCY GNSS RECEIVER DELIVERS ROBUST RTK FUNCTIONALITY

### HIGH PRECISION GNSS, COMPACT SIZE

The dual-frequency OEM617 offers future ready, precise positioning for space constrained applications. Backward compatible with NovAtel's popular OEM615™ form factor, the OEM617 provides the most efficient way to bring powerful Global Navigation Satellite System (GNSS) capable products to market quickly.

### DESIGNED WITH PERFORMANCE AND THE FUTURE IN MIND

The OEM617 tracks all current GNSS constellations including GPS, GLONASS, Galileo, BeiDou and QZSS. It features configurable channels to optimize satellite availability in any condition, no matter how challenging. The OEM617 is software upgradable to track future signals as they become available. Maximizing satellite availability and optimizing GNSS signal usage now, and in the future, ensures consistent, high performance GNSS positioning.

### DESIGNED FOR FLEXIBILITY

The modular nature of NovAtel's OEM6® firmware gives users the flexibility to configure the OEM617 for their unique application needs. The OEM617 is scalable to offer sub-metre to centimetre-level positioning, and is field upgradable to all OEM6 family software options. Options include NovAtel CORRECT™ with RTK for centimetre-level real-time positioning, ALIGN® for precise heading and relative positioning, GLIDE™ for decimetre-level pass-to-pass accuracy, SPAN for continuous 3D position, velocity and attitude and RAIM for increased GNSS pseudorange integrity.

### CUSTOMIZATION WITH AN API

Application Programming Interface (API) functionality is available on the OEM617. Using a recommended compiler with the API library, an application can be developed in a standard C/C++ environment to run directly on the receiver platform, eliminating system hardware, reducing development time and resulting in a faster time to market.
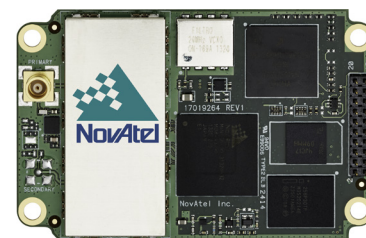
## BENEFITS

+ Proven NovAtel technology
+ Easy to integrate
+ Low power consumption
+ API reduces hardware requirements and system complexity

## FEATURES

+ Increased satellite availability with BeiDou, GLONASS and Galileo tracking
+ L1, L2, L2C, B1, B2, E1 and E5b signal tracking
+ GLIDE smoothing algorithm
+ RT-2®, ALIGN and RAIM firmware options
+ SPAN® INS functionality

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

# OEM617™

## PERFORMANCE[1]

### Channel Configuration
120 Channels[2]

### Signal Tracking
| | |
|---|---|
| GPS | L1, L2, L2C |
| GLONASS | L1, L2 |
| BeiDou[3] | B1, B2 |
| Galileo | E1, E5b |
| SBAS | |
| QZSS | |

### Horizontal Position Accuracy (RMS)
| | |
|---|---|
| Single Point L1 | 1.5 m |
| Single Point L1/L2 | 1.2 m |
| SBAS[4] | 0.6 m |
| DGPS | 0.4 m |

NovAtel CORRECT
| | |
|---|---|
| » RT-2 | 1 cm + 1 ppm |
| Initialization time | < 10 s |
| Initialization reliability | >99.9% |

### Measurement Precision (RMS)
Fully independent code and carrier measurements:

| | GPS | GLO |
|---|---|---|
| L1 C/A code | 4 cm | 8 cm |
| L1 carrier phase | 0.5 mm | 1 mm |
| L2 P(Y) code[5] | 8 cm | 8 cm |
| L2 carrier phase[5] | 1 mm | 1 mm |
| L2C code[5] | 8 cm | 8 cm |
| L2C carrier phase[6] | 1 mm | 1 mm |

### Maximum Data Rate[7]
| | |
|---|---|
| Measurements | 50 Hz |
| Position | 50 Hz |

### Time to First Fix
| | |
|---|---|
| Cold start[8] | < 50 s |
| Hot start[9] | < 35 s |

### Signal Reacquisition
| | |
|---|---|
| L1 | < 0.5 s (typical) |
| L2 | < 1.0 s (typical) |

### Time Accuracy[10]
20 ns RMS

### Velocity Accuracy
0.03 m/s RMS

### Velocity Limit[11]
515 m/s

## PHYSICAL AND ELECTRICAL

### Dimensions
46 × 71 × 11 mm

### Weight
<24 g

### Power
Input voltage    +3.3 V +5%/-3%

### Power Consumption[12]
| | |
|---|---|
| GPS L1/L2 | <1.0 W |
| GPS/GLONASS L1/L2 | 1.1 W |
| all on | 1.2 W |

### Antenna LNA Power
| | |
|---|---|
| Input voltage | 6 VDC–12 VDC |
| Output voltage | 5.0 VDC |
| Max output current | 200 mA |

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

## COMMUNICATION PORTS
| | |
|---|---|
| 3 LVTTL | up to 921,600 bps |
| 2 CAN Bus[13] | 1 Mbps |
| 1 USB | 12 Mbps |

Pulse Per Second (PPS) output

## ENVIRONMENTAL

### Temperature
| | |
|---|---|
| Operating | –40°C to +85°C |
| Storage | –55°C to +95°C |

### Humidity
95% non-condensing

### Vibration
| | |
|---|---|
| Random | MIL-STD 810G (Cat 24, 7.7 g RMS) |
| Sinusoidal | IEC 60068-2-6 |

### Bump
ISO 9022-31-06 (25 g)

### Shock
MIL-STD-810G (40 g) Survival (75 g)

## FEATURES

- Field upgradeable software
- Multi-path mitigating technology
- Differential GPS positioning
- Differential correction support for RTCM 2.1, 2.3, 3.0, 3.1, CMR, CMR+ and RTCA
- Navigation output support for NMEA 0183 and detailed NovAtel ASCII and binary logs
- Auxiliary strobe signals, including a configurable output for time synchronization and mark inputs
- Outputs to drive external LEDs
- GLIDE smoothing algorithm

## NOVATEL CONNECT™

*NovAtel Connect* is an intuitive configuration and visualization tool suite allowing comprehensive control of the OEM617 product.

- Easy to use wizards for positioning mode configuration and raw data collection
- Detailed GUI for comprehensive status information
- Plan view and playback files allow to monitor positioning and configuration history
- Remotely control and monitor the OEM617 over the internet
- Windows XP and Windows 7 platforms

## FIRMWARE OPTIONS

- ALIGN
- RAIM
- SPAN

## OPTIONAL ACCESSORIES

- GPS-700 series antennas
- ANT series antennas
- RF Cables—5 and 10 m lengths
- OEM6 Development Kit

For the most recent details of this product: www.novatel.com/products/gnss-receivers/oem-receiver-boards/oem6-receivers/

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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. Tracks up to 60 L1/L2 satellites.
3. Designed for BeiDou Phase 2, B1 and B2 compatibility.
4. GPS only.
5. L2 P for GLONASS.
6. L2 C/A for GLONASS.
7. 50 Hz while tracking up to 20 satellites.
8. Typical value. No almanac or ephemerides and no approximate position or time.
9. Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
10. Time accuracy does not include biases due to RF or antenna delay.
11. Export licensing restricts operation to a maximum of 515 metres per second.
12. Typical power consumption values.
13. User application software required.

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