Receivers OEM615™

COMPACT, DUAL-FREQUENCY GNSS RECEIVER DELIVERS ROBUST RTK FUNCTIONALITY

HIGH PRECISION GNSS, COMPACT SIZE

The dual-frequency OEM615 offers future ready, precise positioning for space constrained applications. Backward compatible with NovAtel's popular OEMV-1 form factor, the OEM615 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 OEM615 tracks all current and upcoming GNSS constellations and satellite signals including GPS, GLONASS, Galileo, BeiDou and QZSS. It features configurable channels to optimize satellite availability in any condition, no matter how challenging. The OEM615 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 OEM615 for their unique application needs. The OEM615 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 and RAIM for increased GNSS pseudorange integrity.

CUSTOMIZATION WITH AN API

Application Programming Interface (API) functionality is available on the OEM615. 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 GLONASS tracking
+ L1, L2, L2C, B1 and E1 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/

OEM615™

PERFORMANCE[1]

Channel Configuration
120 Channels[2]

Signal Tracking
GPS	L1, L2, L2C
GLONASS	L1, L2, L2C
BeiDou[3]	B1
Galileo	E1
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]	1.0 mm	1.0 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 VDC ±5%

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

Antenna LNA Power Output
Output voltage	5.0 VDC
Maximum current	100 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 OEM615 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 OEM615 over the internet
- Windows XP and Windows 7 platforms

FIRMWARE OPTIONS

- ALIGN
- GLIDE
- RAIM
- RT-2
- SPAN

OPTIONAL ACCESSORIES

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

HIGH VIBRATION HARDWARE

The OEM615 is available as a High Vibration TCXO hardware variant, the OEM615V. This is compliant with MIL-STD 810G (Category 24, 20 g RMS).

For the most recent details of this product: www.novatel.com/products/gnss-receivers/oem-receiver-boards/oem6-receivers/oem615/

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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 3 B1 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.