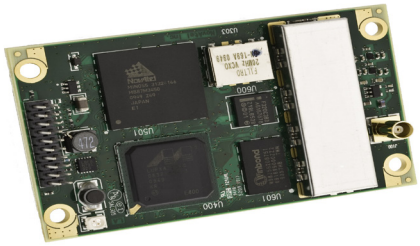
OEMV-1™ Series



Compact, Low Power GNSS Platform Offers Flexible Positioning Options

Benefits

Proven OEMV® technology

Scalable positioning performance

Low cost receiver card

Easy to integrate

Application Programming Interface (API) reduces hardware requirements and system complexity

Features

Small form factor

Low power consumption

AdVance® RTK, RT-2 L1TE™, RT-20®, GL1DE®, and ALIGN® firmware options

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

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or 403-295-4900
China 0086-21-54452990-8011
Europe 44-1993-848-736
SE Asia and Australia 61-400-833-601

Easy System Integration

At just 46 millimetres by 71 millimetres and with low power consumption, the OEMV-1 Series delivers customized performance for applications where efficiency is critical. All OEMV-1 Series variants are pin-for-pin compatible and share common interface commands offering the functionality of three GNSS receivers with one integration effort.

Scalable Functionality

The OEMV-1 Series offers three variants, each with its own distinct functionality. Each receiver is software upgradable in the field to provide custom performance for your application.

OEMV-1: Offers GPS L1 tracking with integrated L-band capability eliminating the need for additional hardware and reducing the size, cost and complexity of the end-user system. Users can access OmniSTAR® VBS, RT-20 and SBAS corrections for accurate and reliable sub-metre positioning in real time.

OEMV-1G: Offers GPS+GLONASS L1 tracking for greater satellite availability, providing reliable positioning and measurements even in obstructed sky conditions. NovAtel's RT-2 L1TE RTK algorithm allows reliable centimetre-level accuracy in real time for high precision applications.

OEMV-1DF: Offers dual frequency GPS tracking in the industry's smallest form factor with lowest power consumption for applications where space is constrained. Available with NovAtel's AdVance RTK for reliable centimetre-level accuracy for fast initialization over extended baselines. Enhanced interference rejection for consistent GNSS positioning and measurements.

Customization with an API

Application Programming Interface (API) functionality is available on the OEMV-1. 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.

OEMV-1 Series

	OEMV-1	OEMV-1G	OEMV-1DF
Power Consumption[1]	1.0 W	1.0 W	1.1 W
Channel Configuration	36	36	36
Signal Tracking			
GPS	L1	L1	L1, L2
GLONASS		L1	
SBAS	√	√	√
L-band	√		
Horizontal Position Accuracy (RMS)[2]	Single Point L1 1.5 m SBAS[1] 0.6 m DGPS 0.4 m OmniSTAR VBS[2] 0.6 m RT-20[3] 0.2 m	Single Point L1 1.5 m SBAS 10.6 m DGPS 0.4 m RT-20[3] 0.2 m RT-2 L1TE[4] 2 cm+1 ppm	Single Point L1 1.5 m Single Point L1/L2 1.2 m SBAS[1] 0.6 m DGPS 0.4 m RT-20[3] 0.2 m RT-2™ 1 cm+1 ppm
Measurement Precision (RMS)	L1 C/A Code 4 cm L1 Carrier Phase 0.5 mm	GPS L1 C/A Code 4 cm GLO L1 C/A Code 15 cm GPS L1 Carrier Phase 0.5mm GLO L1 Carrier Phase 1.5 mm	L1 C/A Code 4 cm L1 Carrier Phase 0.5 mm L2 P(Y) Code 8 cm L2 Carrier Phase 1 mm
Signal Reacquisition	L1 0.5 s (typical)	L1 0.5 s (typical)	L1 0.5 s (typical) L2 1.0 s (typical)
Maximum Data Rate	50 Hz	50 Hz	20 Hz
Firmware Options	RT-20 GL1DE OmniSTAR VBS Pseudo Range/Delta-Phase (PDP) Positioning	RT-2 L1TE RT-20 GL1DE ALIGN Pseudo Range/Delta-Phase (PDP) Positioning	RT-2 RT-20 GL1DE ALIGN Pseudo Range/Delta-Phase (PDP) Positioning

Physical and Electrical

Dimensions 46 x 71 x 13

Weight 21.5 g

Time to First Fix
Cold Start[5] 60 s
Hot Start[6] 35 s

Time Accuracy[7] 20 ns RMS

Velocity Accuracy 0.03 m/s RMS

Velocity[8] 515 m/s

Power
Input Voltage +3.3 VDC [+5%/-3%]

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[9]

1 LV-TTL	300 to 921,600 bps
2 LV-TTL	300 to 230,400 bps
2 CAN Bus[10]	1 Mbps
1 USB	5 Mbps

Environmental

Temperature
Operating -40°C to +85°C
Storage -40°C to +85°C

Humidity 95% non-condensing

Vibration
Random Vibe
OEMV-1/1G RTCA D0-160D (4 g)
OEMV-1DF MIL-STD 810F (7.7 g)
High Vibe MIL-STD 810 tailored[11] (19.4 g)
Sine Vibe SAEJ1211 (4 g)

Shock
OEMV-1/1G MIL-STD 810F
OEMV-1DF 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
- RF Shielding (only available on OEMV-1DF

Optional Accessories

- GPS-700 series antennas
- ANT series antennas
- RF Cables–5, 10 and 30 m lengths
- Right angle RF connector
- 20g random vibe variant (Only on OEMV-1G)

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For the most recent details of this product:
novatel.com/assets/Documents/Papers/OEMV-1_Series.pdf

[1] GPS only.
[2] 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.
[3] Expected accuracy after static convergence.
[4] Expected accuracy after convergence; maximum baseline of 3 km.
[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 515 metres per second.
[9] Not all communication ports available concurrently.
[10] External CAN transceiver and user application software required.
[11] Only available with OEMV-1G high vibe hardware variant.

RoHS COMPLIANT
ISO 9001:2000 FM 92323