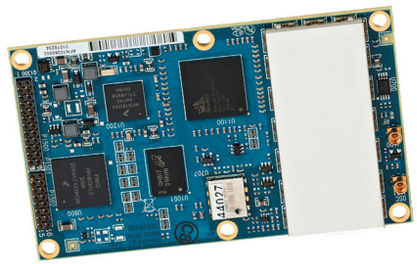
Receivers

OEM628™



Next Generation High Performance GNSS Receiver

Benefits

Innovative OEM6 Technology

Supports Current and Future GNSS Signals

Application-Based Configurations

Designed for Rapid Integration

Features

Low Power Consumption

Flexible Communication Interfaces

Software Configurable Performance

Ultra-Light

High Position Accuracy and Availability

Designed With Future in Mind

The OEM628 is designed with NovAtel's new 120 channel ASIC, which tracks all current and upcoming GNSS constellations and satellite signals including GPS, GLONASS, Galileo and Compass. Configurable channels optimize satellite availability in any condition, no matter how challenging. Already tracking GPS L5 and Galileo GIOVE-A/B test satellites, the OEM6 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.

Easy System Integration

Like all NovAtel products, the OEM628 is designed and built with a focus on product quality and ease of integration. It maintains our industry-setting V2 form factor ensuring a successful drop-in replacement and backwards compatibility for existing customers. A development kit and user-friendly configuration software is available to assist new customers with rapid integration and faster time to market. NovAtel's well-established, comprehensive set of software commands facilitates system integration. Ethernet and NTRIP 2.0 Client and Server connectivity is offered in addition to our traditional communications interfaces.

Flexible Configurations for your Application

Proven and innovative new NovAtel technology combine to achieve the best in GNSS positioning. NovAtel's industry-leading Pulse Aperture Correlator multipath mitigation technology is standard and ensures the highest quality measurements and positioning. Innovative new technology provides excellent resistance to interference for consistent, accurate and reliable positioning. Configurable options ensure that your positioning and accuracy needs are being met at all times. To learn more about how our firmware options can enhance your positioning, please visit www.novatel.com/products/firmware-options.

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

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OEM628™

Performance[1]

Channel Configuration
120 Channels with flexible configuration[2] including:
- GPS: L1, L2, L2C, L5
- GLONASS: L1, L2
- Galileo: E1, E5[3]
- GIOVE-A/GIOVE-B (test)
- Compass[4]
- SBAS
- L-band

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
Single Point L1/L2	1.2 m
SBAS[5]	0.6 m
CDGPS[5]	0.6 m
DGPS	0.4 m
OmniSTAR	
VBS	0.6 m
XP	0.15 m
HP	0.1 m
RT-20®[6]	0.2 m
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	1.0 mm
L2 P(Y) Code[7]	8 cm	8 cm
L2 Carrier Phase[7]	1.0 mm	1.0 mm
L2C Code[8]	8 cm	8 cm
L2C Carrier Phase[8]	0.5 mm	0.5 mm
L5 Code	3 cm	-
L5 Carrier Phase	0.5 mm	-

Maximum Data Rate[9]

Measurements	100 Hz
Position	100 Hz

Time to First Fix

Cold Start[10]	<50 s
Hot Start[11]	<35 s

Signal Reacquisition

L1	<0.5 s (typical)
L2	<1.0 s (typical)

Time Accuracy[12]	**20 ns RMS**
Velocity Accuracy	**0.03 m/s RMS**
Velocity[13]	**514 m/s**

Physical and Electrical

Dimensions	**60 x 100 x 9.1 mm**
Weight	**37 g**

Power

Input Voltage	+3.3 VDC + 5%/ -5%
Power Consumption[14]	1.3 W (GPS L1/L2) 1.5 W (L1/L2 GG)

Antenna LNA Power Output

Output Voltage	5 VDC +/-5%
Maximum Current	100 mA

Communication Ports
- 1 RS-232 (300 to 921,600 bps)
- 2 LVTTL (300 to 921,600 bps)
- 2 CAN Bus[15] serial ports (1 Mbps)
- 1 USB port (12 Mbps)
- Event Marker Inputs
- 1 LAN Ethernet port supporting:
  -10BaseT/100BaseT networks
  -Direct TCP/IP & UDP connectivity
  -NTRIP (v2.0) Client and Server

Input/Output Connectors

Main	24-pin dual row male header
Aux	16-pin dual row male header
Antenna Input	MMCX female
External Oscillator Input	MMCX female

Environmental

Temperature	
Operating	-40°C to +85°C
Storage	-40°C to +85°C
Humidity	95% non-condensing
Random Vibe	MIL-STD 810G (Cat 24, 7.7 g RMS)
Sine Vibe	IEC60068-2-6
Bump	IEC9022-31-06 (25 g)
Shock	MIL-STD-810G (40g)

Standard Features
- Field-upgradeable software
- 20 Hz measurement and position data rate
- PAC multipath 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 ASICII and binary logs
- Auxiliary strobe signals, including a configurable PPS output for time synchronization and mark inputs
- Outputs to drive external LEDs
- External oscillator input

Firmware Options
All firmware features are field upgradeable using authorization codes:
- RT-2
- RT-20
- OmniSTAR® HP, XP, VBS, G2
- CDGPS
- ALIGN®
- GL1DE®
- RAIM
- 100 Hz output rate[9]

Accessories
- GPS-700 series antennas
- ANT series antennas
- RF Cables–5, 10 and 30 m lengths
- Development Kit

NovAtel Connect Software
NovAtel Connect is an intuitive configuration and visualization tool suite allowing comprehensive control of the OEM628 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 OEM628 over the internet
- Available on Windows platforms

Version 1 -Specifications subject to change without notice.

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For the most recent details of this product:
novatel.com/assets/Documents/Papers/OEM628.pdf

[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] Includes E5a, E5b and Alt-BOC.
[4] The Compass signal is not finalized and changes in the signal structure may still occur. Designed for Compass Phase 3 compatibility.
[5] GPS only.
[6] Expected accuracy after static convergence.
[7] L2 P for GLONASS.
[8] L2 C/A for GLONASS.
[9] 100 Hz while tracking up to 20 satellites.
[10] Typical value. No almanac or ephemerides and no approximate position or time.
[11] Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
[12] Time accuracy does not include biases due to RF or antenna delay.
[13] Export licensing restricts operation to a maximum of 514 metres per second.
[14] Power Consumption values with Ethernet disabled.
[15] User application software required.

RoHS COMPLIANT
ISO 9001:2000 FM 92323