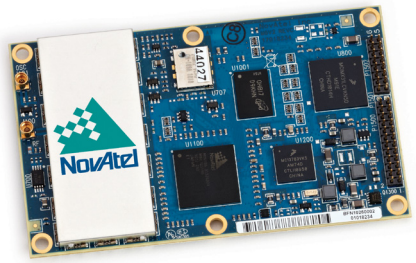
Receivers

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

High position accuracy and availability

SPAN® INS functionality

Designed with the Future in Mind

The OEM628 tracks all current and upcoming Global Navigation Satellite System (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 OEM628 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

The OEM628 is designed and built with a focus on product quality and ease of integration. It maintains our industry setting OEMV-2 form factor, ensuring easy drop-in replacement, and provides a backward compatible command and log interface for existing customers. An integrator's development kit and user friendly configuration software are available to assist new customers with integration, enabling faster time to market. NovAtel's well established, comprehensive set of software commands also 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, innovative NovAtel technology combines to achieve the best in GNSS positioning. NovAtel's industry leading Pulse Aperture Correlator (PAC) multipath mitigation technology is standard and ensures the highest quality measurements and positioning. The OEM628 provides excellent resistance to interference for consistent, accurate and reliable positioning. Configurable options ensure your positioning and accuracy needs are always met. 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[2]
Signal Tracking

GPS	L1, L2, L2C, L5
GLONASS	L1, L2
BeiDou[3]	B1, B2
Galileo	E5a, E5b, Alt-BOC
SBAS	
QZSS	
L-Band	

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
L-Band	
VBS	0.6 m
XP	0.15 m
HP	0.1 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[5]	8 cm	8 cm
L2 carrier phase[5]	1.0 mm	1.0 mm
L2C code[7]	8 cm	8 cm
L2C carrier phase[6]	0.5 mm	0.5 mm
L5 code	3 cm	-
L5 carrier phase	0.5 mm	-

Maximum Data Rate[7]

Measurements	100 Hz
Position	100 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[11] 515 m/s

Physical and Electrical

Dimensions 60 x 100 x 9 mm

Weight 37 g

Power

Input voltage[12]	+3.3 VDC [+5%/-5%]
Power consumption[13]	1.3 W

Antenna LNA Power Output

Output voltage	5 VDC [±5%]
Maximum current	100 mA

Connectors

Main	24-pin dual row male header
Aux	16-pin dual row male header
Antenna input	MMCX female
External oscillator input	MMCX female

Communication Ports

1 RS-232/RS-422	up to 921,600 bps
2 LVTTL	up to 921,600 bps
2 CAN Bus[14]	1 Mbps
1 USB port	12 Mbps

1 LAN Ethernet port supporting:
-10BaseT/100BaseT networks
-Direct TCP/IP & UDP connectivity
-NTRIP (v2.0) client and server

Pulse per second (PPS) output

Event marker input support

Environmental

Temperature

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

Humidity 95% non-condensing

Vibration

Random vibe	MIL-STD 810G (Cat 24, 7.7 g RMS)
Sine vibe	IEC 60068-2-6

Bump ISO 9022-31-06 (25 g)

Shock MIL-STD-810G (40 g) Survival (1000 g)

Features

- Field upgradeable software
- 20 Hz measurement and position data rate
- PAC 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 1 PPS output for time synchronization and mark inputs
- Outputs to drive external LEDs
- External oscillator input

NovAtel Connect™

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 XP, Windows 7 and Linux platforms

Firmware Options

- RT-2
- L-Band
- ALIGN
- GL1DE
- RAIM
- 100 Hz output rate[7]
- SPAN

Optional Accessories

- GPS-700 series antennas
- ANT series antennas
- RF cables–5, 10 and 30 m lengths
- OEM6 Development Kit

High Vibration Hardware

The OEM628 is available as a High Vibration TCXO hardware variant, the OEM628V. This is compliant with MIL-STD810G (category 24, 20 g RMS).

Version 7 - 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] Designed for Compass Phase 2 and 3, B1 and B2 compatibility.
[4] GPS only.
[5] L2 P for GLONASS.
[6] L2 C/A for GLONASS.
[7] 100 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] Consult the *OEM6 Family Installation & Operation* user manual for power supply considerations.
[13] Power consumption values for GPS L1/L2 with Ethernet disabled.
[14] User application software required.