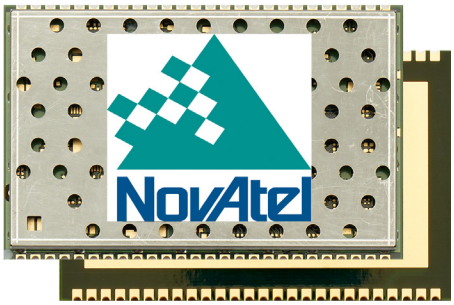
Receivers OEM7500™

COMPACT, DUAL FREQUENCY GNSS MODULE



HIGH PRECISION GNSS, MOST COMPACT SIZE

The dual frequency OEM7500 offers future ready, precise positioning for space constrained, large volume applications. This single-sided SMD package solders down directly, eliminating the need for connectors and mounting hardware.

DESIGNED WITH PERFORMANCE AND THE FUTURE IN MIND

The OEM7500 is capable of tracking GPS, GLONASS, Galileo, BeiDou and NavIC (IRNSS). The consistent and high performance positioning, along with the flexibility and upgradable features of this receiver, makes this the optimal GNSS receiver for autonomous applications.

DESIGNED FOR FLEXIBILITY

The OEM7500 is scalable to offer sub-metre to centimetre level positioning. Options include NovAtel CORRECT® with RTK or TerraStar PPP for centimetre level real-time positioning and SPAN® GNSS+INS for continuous 3D position, velocity and attitude.

To learn more about how our firmware solutions can enhance your positioning, please visit www.novatel.com/products/firmware-options.

BENEFITS

+ Compact, lightweight form factor
+ Easy to use interface simplifies integration
+ Low power consumption for power constrained, high performance positioning applications

FEATURES

+ Flexible positioning modes include RTK, TerraStar PPP, SBAS and single-point
+ Multi-constellation signal tracking for higher availability
+ Dual-frequency enables high accuracy
+ Advanced interference visualization and mitigation features
+ SPAN integration bridges difficult environments
+ Solder down module with effective thermal mitigation features

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

OEM7500

PERFORMANCE[1]

Channel Count
181 Channels

Signal Tracking

GPS[2]	L1, L2, L5
GLONASS[2]	L1, L2
Galileo[2]	E1, E5a, E5b, AltBOC
BeiDou	B1I, B1C, B2I, B2a
QZSS[2]	L1, L1C, L2C, L5
NavIC (IRNSS)[2]	L5
SBAS	WAAS, EGNOS, MSAS, GAGAN, QZSS
L-Band	Up to 3 channels

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
Single Point L1/L2	1.2 m
SBAS[3]	60 cm
DGPS	40 cm
TerraStar-L[4]	40 cm
TerraStar-C PRO[5]	2.5 cm
RTK	1 cm + 1 ppm
Initialization time	< 10 s
Initialization reliability	> 99.9%

Maximum Data Rate

Measurements	up to 20 Hz
Position	up to 20 Hz

Time to First Fix

Cold start[5]	< 39 s (typical)
Hot start[6]	< 20 s (typical)

Signal Reacquisition

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

Time Accuracy[7] 20 ns RMS

Velocity Accuracy < 0.055 m/s RMS

PHYSICAL AND ELECTRICAL

Dimensions 35 × 55 × 4 mm

Weight 12 g

Power

Input voltage	
» VDD	+1.2 VDC +5%/-3%
» VCC	+3.3 VDC ±5%

Power Consumption
Dual frequency GNSS 1.5 W (typ.)

Signals to Module Interfaces

GNSS RF In	1
UART	Up to 3
USB 2.0 (Device, 12 Mbit/s)	1
SPI (Host for IMU only)	1
PPS (Timemark)	1
Event In	2
Event out	1
CAN Bus	1
External LNA power control GPIO	2

Minimum Cascaded Antenna Gain 35 dB

ESD
Human body model <±2 KV

ENVIRONMENTAL

Temperature

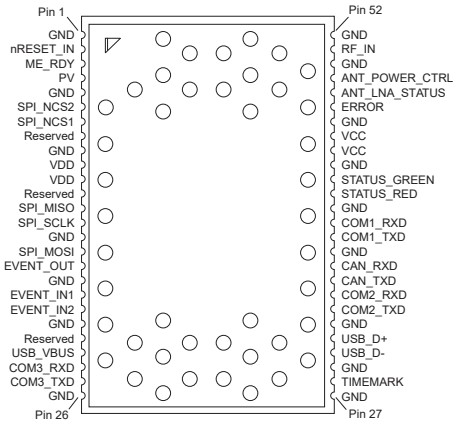
Operating	-40°C to +85°C
Storage	-55°C to +95°C

Humidity 95% non-condensing at 40°C

Vibration

Random	MIL-STD-810G (CH1), Method 514.7, Category 24, (7.7 g RMS)
Sinusoidal	IEC 60068-2-6 (5.0 g)

PIN-OUT DIAGRAM



FEATURES

- Field upgradeable software
- Differential GPS positioning
- Differential correction support for RTCM 2.1, 2.3, 3.0, 3.1, 3.2, 3.3, CMR, CMR+, RTCA and NOVATELX
- Navigation output support for NMEA 0183 and detailed NovAtel ASCII and binary logs
- Receiver Autonomous Integrity Monitoring (RAIM)
- GLIDE® and STEADYLINE® smoothing algorithms
- Dual receiver ALIGN heading solution
- Multipath mitigating technology
- Pulse Per Second (PPS) output
- Interference Toolkit
- SPAN IMU integration via SPI

OPTIONAL ACCESSORIES

- OEM7500 Evaluation Kit

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1-800-NOVATEL (U.S. and Canada) or 403-295-4900

China 0086-21-68882300

Europe 44-1993-848-736

SE Asia and Australia 61-400-883-601

Version 3 Specifications subject to change without notice

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1 Typical values. Performance specifications subject to GNSS system characteristics, Signal-In-Space (SIS) operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
2 Software selectable; signal plan 1 includes GPS L1/L2, GLO L1/L2, BDS B1/B2, GAL E1/E5b, QZSS L1/L1C/L2C, available Q1 2018; signal plan 2 includes GPS L1/L2/L5, GLO L1, BDS B1/B2, GAL E1/E5a/E5b/AltBOC, IRNSS L5, QZSS L1/L1C/L2C/L5.
3 GPS only.
4 Requires subsciption to TerraStar data service. Subscriptions available from NovAtel.
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.