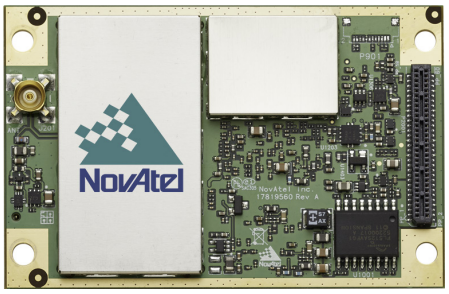
Receivers OEM7700™

MULTI-FREQUENCY GNSS RECEIVER DELIVERS ROBUST POSITIONING AND SIMPLIFIES INTEGRATION



HIGH PRECISION GNSS

The multi-frequency OEM7700 offers future ready precise positioning for space constrained applications. Advanced interference mitigation features maintain high performance in challenging environments. With a variety of interface options to facilitate system integration, the OEM7700 provides the most efficient way to bring powerful Global Navigation Satellite System (GNSS) capable products to market quickly. With centimeter level positioning utilizing TerraStar® satellite-delivered correction services, the OEM7700 ensures globally available, high performance positioning without the need for expensive network infrastructure. Anywhere. Anytime.

BUILT-IN FLEXIBILITY

The OEM7700 uses a 555 channel architecture and can be configured in multiple ways for maximum flexibility. NovAtel®'s OEM7® firmware provides users with the ability to configure the OEM7700 for their unique application needs. The OEM7700 is scalable to offer sub-meter to centimeter level positioning, and is field upgradeable to all OEM7 family software options. These options include ALIGN® for precise heading and relative positioning, GLIDE® for decimeter level pass-to-pass accuracy and SPAN® GNSS+INS for continuous 3D position, velocity and attitude. NovAtel CORRECT® with RTK delivers centimeter level real-time positioning, or go base-free for centimeter and decimeter PPP solutions using TerraStar corrections.

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

DESIGNED WITH THE FUTURE IN MIND

The OEM7700 is capable of tracking all current and upcoming GNSS constellations including GPS, GLONASS, Galileo, BeiDou, QZSS and NavIC. It is software upgradeable to track upcoming signals as they become available.

FEATURES

+ 555 channel, all-constellation, multi-frequency positioning solution
+ TerraStar correction services supported over multi-channel L-Band and IP connections
+ Serial, USB, CAN and Ethernet connectivity with Web interface
+ Advanced interference visualization and mitigation features
+ RTK, GLIDE and STEADYLINE® firmware options
+ Simple to integrate, small form factor with 20 g vibration performance rating
+ SPAN GNSS+INS functionality

If you require more information about our receivers, visit novatel.com/oem7

OEM7700

PERFORMANCE[1]

Channel Count
555 Channels

Signal Tracking

GPS	L1 C/A, L1C, L2C, L2P, L5
GLONASS[2]	L1 C/A, L2 C/A, L2P, L3, L5
Galileo[3]	E1, E5 AltBOC, E5a, E5b, E6
BeiDou	B1I, B1C, B2I, B2a, B3I
QZSS	L1 C/A, L1C, L2C, L5, L6
NavIC (IRNSS)	L5
SBAS	L1, L5
L-Band	up to 5 channels

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
Single Point L1/L2	1.2 m
SBAS[4]	60 cm
DGPS	40 cm
TerraStar-L™ [5]	40 cm
TerraStar-C PRO™ [5]	2.5 cm
TerraStar-X™ [5]	2 cm
RTK	1 cm + 1 ppm
Initialization time	< 10 s
Initialization reliability	> 99.9%

Maximum Data Rate

Measurements	up to 100 Hz
Position	up to 100 Hz

Time to First Fix

Cold start[6]	< 39 s (typical)
Hot start[7]	< 20 s (typical)

Signal Reacquisition

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

Time Accuracy[8] 20 ns RMS

Velocity Accuracy
< 0.03 m/s RMS

Velocity Limit[9] 515 m/s

PHYSICAL AND ELECTRICAL

Dimensions 46 × 71 × 8 mm

Weight 31 g

Power
Input voltage +3.3 VDC ±5%

Power Consumption[10]

GPS L1	0.9 W (typical)
GPS/GLONASS L1/L2	1.3 W (typical)
All frequencies/All constellations with L-Band	1.8 W (typical)

Antenna Port Power Output

Output voltage	5.0 VDC ±5%
Maximum current	200 mA

Connectors
Main
60-pin dual row female socket
Antenna Input MMBX female

COMMUNICATION PORTS

5 LVCMOS Serial	up to 460,800 bps
2 CAN Bus	1 Mbps
1 USB 2.0 (device)	HS
1 USB 2.0 (host)	HS
1 Ethernet	10/100 Mbps

ENVIRONMENTAL

Temperature

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

Humidity 95% non-condensing

Vibration
Random[11] MIL-STD-810G (CH1) Method 514.7 (Cat 24, 20 g RMS)
Sinusoidal IEC 60068-2-6

Bump ISO 9022-31-06 (25 g)

Shock
Operating
MIL-STD-810G (CH1) Method 516.7 (40 g)
Non-operating
MIL-STD-810G (CH1), Method 516.7 (75 g)-Survival

Acceleration
Operating
MIL-STD 810G (CH1), Method 513.7 (16 g)

COMPLIANCE

FCC, ISED, CE and Global Type Approvals

FEATURES

- Field upgradeable software
- Differential GPS positioning
- Differential correction support for RTCM 2.1, 2.3, 3.0, 3.1, 3.2, 3.3, 3.4, 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
- Interference Toolkit
- Web GUI
- Outputs to drive external LEDs
- 4 Event inputs
- 4 Event outputs
- Pulse Per Second (PPS) output

FIRMWARE SOLUTIONS

- ALIGN
- SPAN
- RTK
- RTK ASSIST™
- TerraStar PPP
- API

OPTIONAL ACCESSORIES

- VEXXIS® GNSS-500 and GNSS-800 series antennas
- Compact GNSS antennas
- Mechanical mounting rails
- OEM7 Development Kit

For the most recent details of this product: novatel.com/oem7

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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 5
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 Hardware ready for L3 and L5.
3 E1bc and E6bc support only.
4 GPS only.
5 Requires subscription to TerraStar data service. Subscriptions available from NovAtel.
6 Typical value. No almanac or ephemerides and no approximate position or time.
7 Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
8 Time accuracy does not include biases due to RF or antenna delay.
9 Export licensing restricts operation to a maximum of 515 meters per second, message output impacted above 500 m/s.
10 Typical values using serial port communication without interference mitigation and Ethernet disabled. Consult the OEM7 User Documentation for power supply considerations.
11 Requires mechanical mounting rails to meet 20 g; meets 7.7 g without rails.