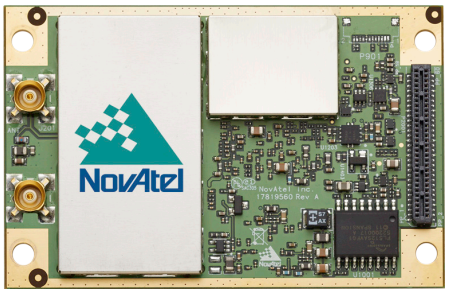
Receivers OEM7720™

DUAL-ANTENNA, MULTI-FREQUENCY GNSS RECEIVER DELIVERS ROBUST HEADING AND POSITIONING



HIGH PRECISION GNSS HEADING AND POSITIONING

The dual-antenna, multi-frequency OEM7720 offers future ready, precise heading and positioning for space constrained applications. Advanced interference mitigation features are available for performance in challenging environments. With a variety of interface options to facilitate system integration, the OEM7720 provides the most efficient way to bring powerful Global Navigation Satellite System (GNSS) capable products to market quickly. With centimetre level positioning utilizing TerraStar L-Band satellite-delivered correction services, the OEM7720 ensures globally available, high performance positioning without the need for expensive network infrastructure. Anywhere. Anytime.

SINGLE-BOARD HEADING

The OEM7720 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 OEM7720 for their unique application needs. Utilizing a single antenna, the OEM7720 delivers a traditional precise positioning solution. Connecting an optional second antenna allows ALIGN® to compute high precision heading solutions. Increasing the distance between antennas maximizes the heading precision. The OEM7720's dual antennas will also quickly calibrate a SPAN® GNSS+INS system for continuous 3D position, velocity and attitude. NovAtel CORRECT™ with RTK delivers centimetre level real-time positioning, or go base-free with centimetre and decimetre 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 OEM7720 is capable of tracking all current and upcoming GNSS constellations including GPS, GLONASS, Galileo, BeiDou, QZSS and IRNSS. It is software upgradable to track upcoming signals as they become available.

FEATURES

- 555 channel, all-constellation, multi-frequency heading and positioning solution
- Multi-channel L-Band supports TerraStar correction services
- 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

OEM7720

PERFORMANCE[1]

Channel Count
555 Channels

Signal Tracking

Primary RF

GPS	L1 C/A, L1C, L2C, L2P, L5
GLONASS[2]	L1 C/A, L2C, L2P, L3, L5
BeiDou[3]	B1, B2, B3
Galileo[4]	E1, E5 AltBOC, E5a, E5b, E6
IRNSS[5]	L5
SBAS	L1, L5
QZSS	L1 C/A, L1C, L2C, L5, L6
L-Band	up to 5 channels

Secondary RF

GPS	L1 C/A, L1C, L2C, L2P
GLONASS[2, 6]	L1 C/A, L2C, L2P
BeiDou[3]	B1, B2
Galileo[4, 6]	E1, E5b
QZSS	L1 C/A, L1C, L2C

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
Single Point L1/L2	1.2 m
NovAtel CORRECT	
» SBAS[7]	60 cm
» DGPS	40 cm
» PPP[8]	
TerraStar-L	40 cm
TerraStar-C	4 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[9, 15]	< 40 s (typical)
Hot start[10, 15]	< 19 s (typical)

Signal Reacquisition

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

Time Accuracy[11] 20 ns RMS

Velocity Accuracy
< 0.03 m/s RMS

Velocity Limit[12] 515 m/s

PHYSICAL AND ELECTRICAL

Dimensions 46 × 71 × 11 mm

Weight 35 g

Power

Input voltage	+3.3 VDC ±5%

Power Consumption[13]

GPS L1	1.3 W (typical)
GPS/GLONASS L1/L2	2.0 W (typical)
All frequencies/All constellations with L-Band	2.5 W (typical)

Antenna Port Power Output

Output voltage	3.3 VDC ±5%
Maximum current	400 mA

Connectors

Main	
60-pin dual row female socket	
Antenna Inputs	MMBX female

COMMUNICATION PORTS

5 LVCMOS	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[14]	MIL-STD-810G 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 (40 g)
Non-operating	MIL-STD-810G, Method 516.7 (75 g)-Survival

Acceleration

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

FEATURES

- Field upgradeable software
- Differential GPS positioning
- Differential correction support for RTCM 2.1, 2.3, 3.0, 3.1, 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[15]

OPTIONAL ACCESSORIES

- VEXXIS™ GNSS-500 and GNSS-800 series antennas
- ANT series antennas
- Mechanical mounting rails
- OEM7 Development Kit

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

novatel.com

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Europe 44-1993-848-736

SE Asia and Australia 61-400-883-601

Version 1 Specifications subject to change without notice

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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. Hardware ready for L3 and L5.
3. Designed for BeiDou Phase 2 and 3, B1, B2 and B3 compatibility (where applicable).
4. E1bc and E6bc support only.
5. Hardware ready for L5.
6. GLONASS L2 or Galileo E5b on Antenna 2.
7. GPS only.
8. Requires subscription to TerraStar data service. Subscriptions available from NovAtel.
9. Typical value. No almanac or ephemerides and no approximate position or time.
10. Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
11. Time accuracy does not include biases due to RF or antenna delay.
12. Export licensing restricts operation to a maximum of 515 metres per second, message output impacted above 500 m/s.
13. Typical values using serial port communication without interference mitigation and Ethernet disabled. Consult the OEM7 Family Installation & Operation User Manual for power supply considerations.
14. Requires mechanical mounting rails to meet 20 g; meets 7.7 g without rails.
15. Available in Q4 2017.