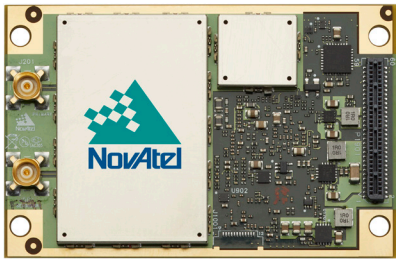
OEM7720

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 maintain high 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 utilising TerraStar 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 can be configured in multiple ways for maximum flexibility. OEM7 firmware from Hexagon | NovAtel allows users to configure the OEM7720 for their unique application needs. Utilising a single antenna, the OEM7720 delivers a traditional precise positioning solution, while connecting the optional second antenna allows ALIGN to compute a high precision heading solution. When the distance between antennas increases, it maximises the heading precision. The OEM7720's dual antennas will quickly initialise SPAN GNSS+INS technology, enabling continuous 3D position, velocity and attitude. RTK delivers centimetre-level real-time positioning, or it can go base-free with centimetre and decimetre PPP solutions using TerraStar corrections.

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

Designed with the future in mind

The OEM7720 can track all current and upcoming GNSS constellations including GPS, GLONASS, Galileo, BeiDou, QZSS and NavIC. It is software upgradeable to track modernised signals as they become available.

Features

- High position availability with multi-constellation, multi-frequency tracking and high data rate
- TerraStar Correction Services supported over multi-channel L-Band and IP connections
- Serial, USB, CAN and Ethernet connectivity with web interface
- Spoofing detection, interference detection and mitigation provided by GNSS Resilience and integrity Technology (GRIT)
- RTK, ALIGN, GLIDE, and STEADYLINE firmware options
- SPAN GNSS+INS technology integration bridges 3D positioning through GNSS outages in difficult environments
- Simple to integrate, small form factor with 20 g vibration performance rating
- Supports Precision Time Protocol (PTP) and generalised Precision Time Protocol (gPTP)

Performance[1]

Signal tracking

Primary RF[2]

GPS	L1 C/A, L1C, L2C, L2P, L5
GLONASS[3]	L1 C/A, L2 C/A, L2P, L3, L5
Galileo[4]	E1, E5 AltBOC, E5a, E5b
BeiDou	B1I, B1C, B2I, B2a, B2b
QZSS	L1 C/A, L1 C/B, L1C, L1S, L2C, L5
NavIC (IRNSS)	L5
SBAS	L1, L5
L-Band	up to 5 channels

Secondary RF[2]

GPS	L1 C/A, L1C, L2C, L2P, L5
GLONASS[3]	L1 C/A, L2 C/A, L2P, L3, L5
Galileo[4]	E1, E5 AltBOC, E5a, E5b
BeiDou	B1I, B1C, B2I, B2a, B2b
QZSS	L1 C/A, L1 C/B, L1C, L1S, L2C, L5
NavIC (IRNSS)	L5

Horizontal position accuracy (RMS)

Single point L1	1.5 m
Single point L1/L2	1.2 m
SBAS[5]	60 cm
DGPS	40 cm
TerraStar-L[6]	40 cm
TerraStar-C PRO[6]	2.5 cm
RTK	1 cm + 1 ppm

ALIGN heading accuracy

Baseline	Accuracy (RMS)
2 m	0.08°
4 m	0.05°

Maximum data rate

Measurements	up to 100 Hz
Position	up to 100 Hz

Time to first fix[7]

Cold start	< 34 s (typ)
Hot start	< 20 s (typ)

Signal reacquisition

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

Time accuracy[8] < 5 ns RMS

Velocity accuracy < 0.03 m/s RMS

Velocity limit[9] 600 m/s

Physical and electrical

Dimensions 46 x 71 x 8 mm

Weight 29 g

Input voltage 3.0 to 5.0 VDC

Power consumption[10]

GPS/GLONASS L1	1.8 W (typ)
GPS/GLONASS L1/L2	2.3 W (typ)
All frequencies/All constellations with L-Band	2.7 W (typ)

Antenna port power output

Output voltage	5 VDC ±5%
Maximum current	200 mA

Connectors

Main	60-pin dual row female socket
Antenna inputs	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[11]	-40°C to +85°C
Storage	-55°C to +95°C

Humidity 95% non-condensing

Vibration

Random[12]	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 GNSS 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
- Web GUI
- Outputs to drive external LEDs
- 4 Event inputs
- 4 Event outputs
- Pulse Per Second (PPS) output

Optional accessories

- Mechanical mounting rails
- OEM7 Development Kit

1. *Typical values under ideal, open sky conditions.*
2. *Signal availability based on model configuration. See manual for details.*
3. *Hardware ready for L5.*
4. *E1bc support only.*
5. *GPS-only.*
6. *Requires a subscription to TerraStar correction service.*
7. *Cold start: no almanac or ephemerides and no approximate position or time.*
   Hot start: 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 600 m/s, message output impacted above 585 m/s.*
10. *Typical values using serial port communication without interference mitigation. Consult the OEM7 user documentation for power supply considerations.*
11. *May require an optional heat spreader in high current configurations. Consult the OEM7 user documentation for further details.*
12. *Requires mechanical mounting rails to meet 20g; 7.7 g without rails.*

Contact Hexagon | NovAtel

sales.nov.ap@hexagon.com 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.
For the most recent details of this product: novatel.com

This document and the information contained herein are provided AS IS and without any representation or warranty of any kind. All warranties, express or implied, are hereby disclaimed, including but not limited to any warranties of merchantability, non-infringement, and fitness for a particular purpose. Nothing herein constitutes a binding obligation. The information contained herein is subject to change without notice.

ALIGN, GLIDE, NovAtel, OEM7, SPAN, STEADYLINE and TerraStar are trademarks of Hexagon AB and/or its subsidiaries and affiliates, and/or their licensors. All other trademarks are properties of their respective owners.

© Copyright 2016 – 2026 Hexagon AB and/or its subsidiaries and affiliates. All rights reserved.

D21633 Version 14 | 29 June 2026 | Printed in Canada