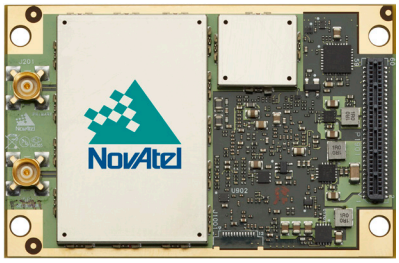
OEM7720

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 centimeter level positioning utilizing 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. Hexagon | 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 the optional second antenna allows ALIGN to compute a high precision heading solution. Increasing the distance between antennas maximizes the heading precision. The OEM7720's dual antennas will also quickly initialize SPAN GNSS+INS technology, enabling continuous 3D position, velocity and attitude. RTK delivers centimeter level real-time positioning, or go base-free with centimeter and decimeter 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 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

- All-constellation, multi-frequency heading and 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

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, L1C, 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, L1C, 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
TerraStar-X[6]	2 cm
RTK	1 cm + 1 ppm
Initialization time	< 10 s
Initialization reliability	> 99.9%

ALIGN Heading Accuracy

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

Maximum Data Rate

Measurements	up to 100 Hz
Position	up to 100 Hz

Time to First Fix

Cold start[7]	< 39 s (typ)
Hot start[8]	< 20 s (typ)

Signal Reacquisition

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

Time Accuracy[9] 20 ns RMS

Velocity Accuracy < 0.03 m/s RMS

Velocity Limit[10] 515 m/s

Physical and Electrical

Dimensions 46 x 71 x 8 mm

Weight 29 g

Power

Input voltage 3.0 to 5.0 VDC

Power Consumption[11]

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[12]	-40°C to +85°C
Storage	-55°C to +95°C

Humidity 95% non-condensing

Vibration

Random
MIL-STD-810G (CH1), Method 514.7 (Cat 24, 20 g RMS)[13]
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, 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 GNSS+INS technology
- 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

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. 2. Model-configurable to track L5/E5a (all / Galileo) through L2 (GPS) or L3/E5b/B2 (GLONASS / Galileo / BeiDou) through L2 (GLONASS). See manual for details. 3. Hardware ready for L3 and L5. 4. E1bc and E6bc support only. 5. GPS-only. 6. Requires a subscription to a TerraStar data service. Subscriptions available from NovAtel. 7. Typical value. No almanac or ephemerides and no approximate position or time. 8. Typical value. Almanac and recent ephemerides saved and approximate position and time entered. 9. Time accuracy does not include biases due to RF or antenna delay. 10. Export licensing restricts operation to a maximum of 515 meters per second, message output impacted above 500 m/s. 11. Typical values using serial port communication without interference mitigation. Consult the OEM7 User Documentation for power supply considerations. 12. May require an optional heat spreader in high current configurations. Consult the OEM7 user documentation (docs.novatel.com/OEM7) for further details. 13. Requires mechanical mounting rails to meet 20g; 7.7 g without rails.

Contact Hexagon | NovAtel

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

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