

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 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 utilizing TerraStar satellite-delivered correction services, the OEM7720 ensures globally available, high performance positioning without the need for expensive network infrastructure. Anywhere. Anytime.

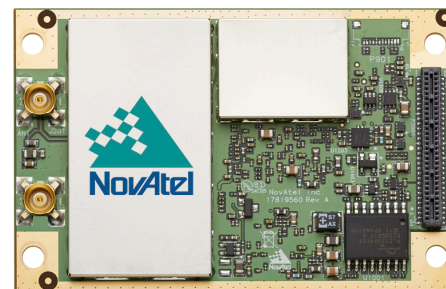
SINGLE-BOARD HEADING

The OEM7720 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 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 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 NavIC. 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



PERFORMANCE¹

Channel Count

555 Channels

Signal Tracking

Primary RF²

GPS L1 C/A, L1C, L2C, L2P, L5

GLONASS³ L1 C/A, L2 C/A, L2P, L3, L5

BeiDou⁴ B1, B2

Galileo E1, E5 AltBOC, E5a, E5b

NavIC (IRNSS) L5

SBAS L1, L5

QZSS L1 C/A, L1C, L2C, L5

L-Band up to 5 channels

Secondary RF²

GPS L1 C/A, L1C, L2C, L2P, L5

GLONASS³ L1 C/A, L2 C/A, L2P, L3, L5

BeiDou⁴ B1, B2

Galileo E1, E5 AltBOC, E5a, E5b

NavIC (IRNSS) L5

QZSS L1 C/A, L1C, L2C, L5

Horizontal Position Accuracy (RMS)

Single Point L1 1.5 m

Single Point L1/L2 1.2 m

NovAtel CORRECT

» SBAS⁵ 60 cm

» DGPS 40 cm

» PPP⁶

TerraStar-L 40 cm

TerraStar-C 4 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, 14} < 40 s (typ)

Hot start^{8, 14} < 19 s (typ)

Signal Reacquisition

L1 < 0.5 s (typ)

L2 < 1.0 s (typ)

Time Accuracy⁹ 20 ns RMS

Velocity Accuracy

< 0.03 m/s RMS

Velocity Limit¹⁰ 515 m/s

PHYSICAL AND ELECTRICAL

Dimensions 46 × 71 × 8 mm

Weight 31 g

Power

Input voltage 3.0 to 5.0 VDC

Power Consumption¹¹

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 5.0 VDC ±5%

Maximum current 200 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

Operating¹² -40°C to +85°C

Storage -55°C to +95°C

Humidity 95% non-condensing

Vibration

Random¹³ 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 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
- Interference Toolkit
- Web GUI
- Outputs to drive external LEDs
- 4 Event inputs
- 4 Event outputs
- Pulse Per Second (PPS) output

FIRMWARE SOLUTIONS

- ALIGN
- RTK ASSIST™
- SPAN
- TerraStar PPP
- RTK
- API¹⁴

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

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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 (open sky conditions). 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 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 Designed for BeiDou Phase 2 and 3, B1 and B2 compatibility (where applicable).

⁵ GPS only.

⁶ Requires subscription to 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 metres per second, message output impacted above 500 m/s.

¹¹ Typical values using serial port communication without interference mitigation and Ethernet disabled. Consult the OEM7 Family Installation & Operation User Manual 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 20 g; meets 7.7 g without rails.

¹⁴ Available in Q2 2018.