

# 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 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.

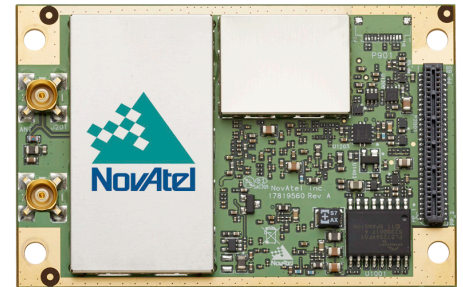
### SINGLE-BOARD HEADING

The OEM7720 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 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, please visit [novatel.com/products/firmware-options](http://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 upgradeable to track upcoming signals as they become available.



### FEATURES

- + 555 channel, 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

If you require more information about our receivers, visit [novatel.com/oem7](http://novatel.com/oem7)

# OEM7720



## PERFORMANCE<sup>1</sup>

**Channel Count**  
555 Channels

### Signal Tracking

#### Primary RF<sup>2</sup>

GPS L1 C/A, L1C, L2C, L2P, L5  
GLONASS<sup>3</sup> L1 C/A, L2 C/A, L2P,  
L3, L5

Galileo<sup>4</sup> E1, E5 AltBOC, E5a, E5b  
BeiDou B1I, B1C, B2I, B2a  
QZSS L1 C/A, L1C, L2C, L5  
NavIC (IRNSS) L5  
SBAS L1, L5  
L-Band up to 5 channels

#### Secondary RF<sup>2</sup>

GPS L1 C/A, L1C, L2C, L2P, L5  
GLONASS<sup>3</sup> L1 C/A, L2 C/A, L2P,  
L3, L5

Galileo<sup>4</sup> E1, E5 AltBOC, E5a, E5b  
BeiDou B1I, B1C, B2I, B2a  
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 <sup>5</sup>	60 cm
DGPS	40 cm
TerraStar-L™ <sup>6</sup>	40 cm
TerraStar-C PRO™ <sup>6</sup>	2.5 cm
TerraStar-X™ <sup>6</sup>	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 <sup>7</sup>	< 39 s (typ)
Hot start <sup>8</sup>	< 20 s (typ)

### Signal Reacquisition

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

**Time Accuracy**<sup>9</sup> 20 ns RMS

**Velocity Accuracy**  
< 0.03 m/s RMS

**Velocity Limit**<sup>10</sup> 515 m/s

## PHYSICAL AND ELECTRICAL

**Dimensions** 46 × 71 × 8 mm

**Weight** 29 g

### Power

Input voltage 3.0 to 5.0 VDC

### Power Consumption<sup>11</sup>

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 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 <sup>12</sup>	-40°C to +85°C
Storage	-55°C to +95°C

**Humidity** 95% non-condensing

### Vibration

Random<sup>13</sup> 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
- 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
- API

## 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](http://novatel.com/oem7)

## novatel.com

sales@novatel.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

### Version 8

Specifications subject to change without notice  
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Printed in Canada.

D21633 November 2019



<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> Hardware ready for L3 and L5.

<sup>4</sup> E1bc support only

<sup>5</sup> GPS only.

<sup>6</sup> Requires licensing subscription to TerraStar data service. Subscriptions available from NovAtel.

<sup>7</sup> Typical value. No almanac or ephemerides and no approximate position or time

<sup>8</sup> Typical value. Almanac and recent ephemerides saved and approximate position and time entered.

<sup>9</sup> Time accuracy does not include biases due to RF or antenna delay.

<sup>10</sup> Export licensing restricts operation to a maximum of 515 meters per second, message output impacted above 500 m/s.

<sup>11</sup> Typical values using serial port communication without interference mitigation and Ethernet disabled. Consult the OEM7 User Documentation for power supply considerations.

<sup>12</sup> May require an optional heat spreader in high current configurations. Consult the OEM7 user documentation ([docs.novatel.com/OEM7](http://docs.novatel.com/OEM7)) for further details.

<sup>13</sup> Requires mechanical mounting rails to meet 20 g; meets 7.7 g without rails.