

# 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.

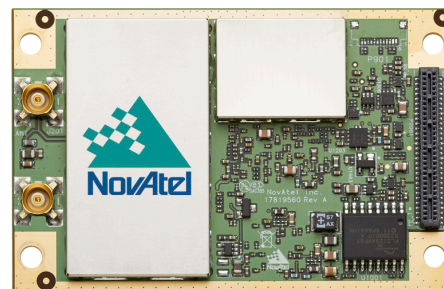
### SINGLE-BOARD HEADING

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



# OEM7720



## PERFORMANCE<sup>1</sup>

### Channel Count

555 Channels

### Signal Tracking

#### Primary RF

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

GLONASS<sup>2</sup> L1 C/A, L2C, L2P, L3, L5

BeiDou<sup>3</sup> B1, B2, B3

Galileo<sup>4</sup> E1, E5 AltBOC, E5a, E5b, E6

IRNSS<sup>5</sup> 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<sup>2,6</sup> L1 C/A, L2C, L2P

BeiDou<sup>3</sup> B1, B2

Galileo<sup>4,6</sup> 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<sup>7</sup> 60 cm

» DGPS 40 cm

» PPP<sup>8</sup>

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<sup>9,15</sup> < 40 s (typical)

Hot start<sup>10,15</sup> < 19 s (typical)

### Signal Reacquisition

L1 < 0.5 s (typical)

L2 < 1.0 s (typical)

Time Accuracy<sup>11</sup> 20 ns RMS

### Velocity Accuracy

< 0.03 m/s RMS

Velocity Limit<sup>12</sup> 515 m/s

## PHYSICAL AND ELECTRICAL

Dimensions 46 × 71 × 11 mm

Weight 35 g

### Power

Input voltage +3.3 VDC ±5%

### Power Consumption<sup>13</sup>

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

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<sup>14</sup> 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<sup>15</sup>

## 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 1 Specifications subject to change without notice

©2016 NovAtel Inc. All rights reserved.

NovAtel, SPAN and ALIGN are registered trademarks of NovAtel Inc.

GLIDE, OEM7, OEM7720, VEXXIS and NovAtel CORRECT are trademarks of NovAtel Inc.

Printed in Canada.

D21633 September 2016



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.