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.

If you require more information about our receivers, visit novatel.com/oem7.

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

To learn more about how our firmware solutions can enhance your positioning, please visit novatel.com/products/firmware-options.
OEM7720

Perfomance

Channel Count
555 Channels

Signal Tracking

Primary RF1
GPS L1 C/A, L1C, L2C, L2P, L5
GLONASS3 L1 C/A, L2 C/A, L2P, L3, L5
Galileo E1, E5 AltBOC, E5a, E5b
BeiDou4 B1I, B1C, B2I, B2a
QZSS L1 C/A, L1C, L2C, L5
NavIC (IRNSS) L5
SBAS L1, 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
Galileo E1, E5 AltBOC, E5a, E5b
BeiDou4 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
SBAS3 60 cm
DGPS 40 cm
TerraStar-L6 40 cm
TerraStar-C PRO6 2.5 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 start7,8 < 40 s (typ)
Hot start6,8 < 19 s (typ)

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

Time Accuracy10 20 ns RMS

Velocity Accuracy
< 0.03 m/s RMS

Velocity Limit11 515 m/s

Physical and Electrical

Dimensions
46 × 71 × 8 mm
Weight
29 g

Power
Input voltage 3.0 to 5.0 VDC

Power Consumption2
GPS/GLONASS L1 1.8 W (typ)
GPS/GLONASS L1/L2 2.3 W (typ)
All frequencies/All constellations

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 LVCMS up to 460,800 bps
2 CAN Bus 1 Mbps
1 USB 2.0 (host) 500 MHz
1 Ethernet 10/100 Mbps

Environmental
Temperature
Operating13 -40°C to +85°C
Storage -55°C to +95°C

Humidity
95% non-condensing

Vibration
Random14 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
Non-operating MIL-STD-810G

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 ASSISTTM
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

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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, B1and B2 compatibility (where applicable).
5 GPS only.
6 Requires subscription to TerraStar data service. Subscriptions available from NovAtel.
7 Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
8 Available in Q2 2019.
9 Typical value. No almanac or ephemerides and no approximate position or time entered.
10 Requires subscription to TerraStar data service. Subscriptions available from NovAtel.
11 Requires mechanical mounting rails to meet 20 g; meets 7.7 g without rails.
12 Typical values using serial port communication without interference mitigation and Ethernet disabled. Consult the OEM7 User Documentation for power supply considerations.
13 May require an optional heat spreader in high current configurations. Consult the OEM7 User Documentation (docs.novatel.com/OEM7) for further details.
14 Typical values using serial port communication without interference mitigation and Ethernet disabled. Consult the OEM7 User Documentation (docs.novatel.com/OEM7) for further details.