

# Receivers OEM729™



## MULTI-FREQUENCY, BACKWARD COMPATIBLE GNSS RECEIVER INCLUDES ALL MODERN SIGNALS

### HIGH PRECISION GNSS, BACKWARD COMPATIBLE SIZE

The multi-frequency OEM729 offers future ready precise positioning. Advanced interference mitigation features maintain high performance in challenging environments. Form factor and pin compatible with NovAtel's previous generation OEM628™ receiver, the OEM729 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 OEM729 ensures globally available, high performance positioning without the need for expensive network infrastructure. Anywhere. Anytime.

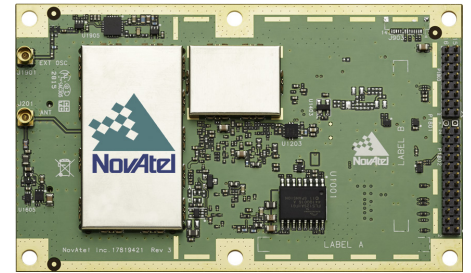
### BUILT-IN FLEXIBILITY

The OEM729 uses a 555 channel architecture and can be configured in multiple ways for maximum flexibility. NovAtel's OEM7® firmware provides users the ability to configure the OEM729 for their unique application needs. The OEM729 is scalable to offer sub-metre to centimetre level positioning, and is field upgradable to all OEM7 family software options. These options include ALIGN® for precise heading and relative positioning, GLIDE® for decimetre level pass-to-pass accuracy and SPAN® GNSS+INS for continuous 3D position, velocity and attitude. NovAtel CORRECT™ with RTK delivers centimetre level real-time positioning, or go base-free for 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 OEM729 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 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, industry common form factor with 20 g vibration performance rating
- + Compatible with existing OEM628 integrations
- + Supports external oscillator input
- + SPAN GNSS+INS functionality

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

## PERFORMANCE<sup>1</sup>

### Channel Count

555 Channels

### Signal Tracking

GPS L1 C/A, L1C, L2C, L2P, L5  
GLONASS<sup>2</sup> L1 C/A, L2 C/A, L2P,  
L3, L5

BeiDou<sup>3</sup> B1, B2, B3  
Galileo<sup>4</sup> E1, E5 AltBOC,  
E5a, E5b, E6

NavIC (IRNSS) L5  
SBAS L1, L5  
QZSS L1 C/A, L1C, L2C, L5, L6  
L-Band up to 5 channels

### Horizontal Position Accuracy (RMS)

Single Point L1 1.5 m  
Single Point L1/L2 1.2 m  
NovAtel CORRECT

» SBAS<sup>5</sup> 60 cm  
» DGPS 40 cm  
» PPP<sup>6</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>7,12</sup> < 40 s (typical)  
Hot start<sup>8,12</sup> < 19 s (typical)

### Signal Reacquisition

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

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 60 × 100 × 9 mm

Weight 48 g

### Power

Input voltage +3.3 VDC ±5%

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

GPS L1 0.9 W (typical)  
GPS/GLONASS L1/L2

1.3 W (typical)

All frequencies/All constellations  
with L-Band 1.8 W (typical)

### Antenna Port Power Output

Output voltage 5.0 VDC ±5%  
Maximum current 200 mA

### Connectors

Main 24-pin dual row male header  
Antenna Input MMCX female

Aux 16-pin dual row male header

External oscillator input  
MMCX female

## COMMUNICATION PORTS

1 RS232/RS422 up to 460,800 bps

2 LVCMOS up to 460,800 bps

2 CAN Bus 1 Mbps

1 USB 2.0 (device) FS

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 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, 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
- 2 Event inputs
- 1 Event output
- Pulse Per Second (PPS) output
- External Oscillator input

## FIRMWARE SOLUTIONS

- ALIGN
- SPAN
- RTK
- RTK ASSIST™
- TerraStar PPP
- API<sup>12</sup>

## OPTIONAL ACCESSORIES

- VEXXIS® GNSS-500 and GNSS-800 series antennas
- ANT series antennas
- OEM7 Development Kit

For the most recent details of this product: [novatel.com/oem7](http://novatel.com/oem7)

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<sup>1</sup> 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 sources.

<sup>2</sup> Hardware ready for L3 and L5.

<sup>3</sup> Designed for BeiDou Phase 2 and 3, B1 and B2 compatibility. B3 conditionally supported and subject to change.

<sup>4</sup> E1bc support only. Hardware ready for E6bc

<sup>5</sup> GPS only.

<sup>6</sup> Requires a 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 metres per second, message output impacted above 500 m/s.

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

<sup>12</sup> Available in Q1 2018