NVS TECHNOLOGIES AG
NV08C Series

- **Embedded Mini PCI Express GNSS Receiver**
- **Very quick and simple integration**
- **GPS, GLONASS, GALILEO, QZSS, COMPASS & SBAS L1**
- **Precise navigation, positioning and timing**
- **32 GNSS tracking channels**
- **200K correlators - Ensuring fast TTFF and high signal sensitivity**
- **Raw Data output - Pseudorange, Carrier phase and Doppler**
- **Individual GLONASS group delay calibration assuring very high accuracy**
- **Assisted GNSS (A-GNSS) support**
- **64 KB EEPROM for firmware upgrade and data storage**
- **NMEA 0183 / IEC 61162-1, binary (BINR) and RTCM SC-104 data protocols**
- **Receiver Autonomous Integrity Monitoring (RAIM)**
- **Industrial operating temperature range -40 to +85°C**

NV08C-MINI PCI-E
GPS/GLONASS/GALILEO/QZSS/COMPASS RECEIVER

The NV08C-Mini PCI-E is a fully integrated GNSS receiver module, optimised for Mini PCI Express (Mini-PCIe) based applications. Its key feature is its full compatibility with GPS, GLONASS, GALILEO, QZSS, COMPASS (GNSS), and EGNOS, WAAS, MSAS and GAGAN (SBAS).

It is specifically designed for use in a wide range of computer-based navigation, positioning and timing equipment enabled with a Mini-PCIe interface, demanding uncompromised GNSS performance.

Applications:
- **Mobile computing, in-vehicle and portable terminals**
- **Rugged notebooks, PCs, tablets and handheld computers**
- **Telematics, fleet management and marine navigation equipment**
- **Surveillance, security and public safety equipment**
- **Precise Positioning - GIS, survey, machine control and agriculture**

The NV08C-Mini PCI-E offers high sensitivity, high performance acquisition and tracking, NMEA and raw data outputs, plus Differential (D-GNSS) and Assisted GNSS (A-GNSS) functions.

Tracking satellites from multiple GNSS constellations ensures much higher availability of navigation signals, when compared to single constellation alternatives, and provides increased performance, accuracy and reliability.

It features 2 RF channels (GPS and GLONASS), 3-stage SAW filtration for high noise immunity, several interfaces, a supply voltage source for an active antenna, and an LNA for a passive antenna. This fully featured embedded Mini PCIe GNSS receiver is the quickest-to-market solution for mobile computing applications.

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Navigation Features

- **Number of channels**   **32**
- **Satellite access mode**   **All-in-view**
- **GPS/GALILEO/QZSS/COMPASS/SBAS**
  L1 1575.42 MHz
- **GLONASS**   **L1 1602.00 MHz**
- **Accuracy (RMS)***

  horizontal
  - autonomous mode   **<1.5 m**
  - SBAS/differential mode   **<1 m**

  height   **<2 m**

  velocity   **0.05 m/s**
- **Time to First Fix (TTFF)***
  - re-acquisition   **<1 s**
  - hot start   **3 s**
  - cold & warm start   **25 s**
- **Sensitivity**
  - tracking and re-acquisition   **–160 dBm**
  - acquisition   **–143 dBm**
- **Supported vehicle dynamics**
  - velocity   **500 m/s**
  - acceleration   **5 g**
  - altitude   **50,000 m**
- **Coordinate systems**   **WGS-84, PZ-90 SK-42, SK-95**

* Typical values

RF Functionalities

- **RF structure**   **2x RF Front End chains:**
  GPS/GALILEO/QZSS/COMPASS/SBAS L1
  GLONASS L1
- **Antenna type**   **Passive or Active[1]**
- **RF Connectors**   **2x U.FL Male**
- **Internal clock**   **26 MHz TCXO**

1 - Recommended active antenna: GPS/GLONASS L1, bandwidth: 35 MHz @ fc=1590 MHz, gain: including cable attenuation 20 to 30 dB, antenna noise figure: <2 dB, out-of-band signal attenuation: min. 35dB @ fc±70 MHz

Environmental Data

- **Operating temperature**   **-40 to +85°C**
- **Maximum operating humidity**   **98% @ 40°C**
- **RoHS compliant**

Data Interfaces

- **Data update/output rate**   **1, 2, 5, 10 Hz**
- **Data output rate in TTTF mode**   **(1-60 s)$^{-1}$**
- **Supported protocols**
  NMEA 0183 / IEC 61162-1
  BINR (proprietary binary)
  RTCM SC 104 v2.3
- **Data interface**
  USB Hardware / PCI-Express Standard Bus
  Virtual COM-port device
- **Data exchange rate**
  4800 to 230 400 bits/s (default – 115 200 bits/s)
- **Operating System Compatibility (with Virtual COM-port drivers):**
  Windows XP
  Windows Vista
  Windows 7
  Windows CE
  Linux
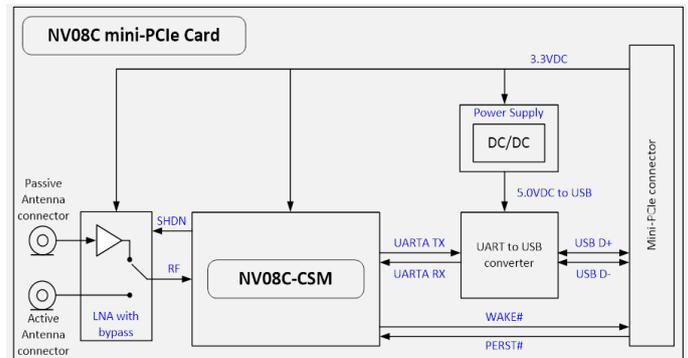
Electrical Specification

- **Power supply voltage**   **3.0 to 3.6V**
- **Power consumption**

  Max current   **120 mA**

  Continuous tracking mode:
  - **GPS only**   **220 mW***
  - **GNSS**   **270 mW***
  - **Sleep mode**   **2 mA***

* Typical values