



# NVS TECHNOLOGIES AG

## NV08C Series

- GPS, GLONASS, GALILEO, QZSS, COMPASS & SBAS L1
- Compact 20x26x2.5 mm LGA SMT package
- Precise navigation, positioning and time synchronization
- 32 GNSS tracking channels
- 200K correlators ensures 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) interface and Dead Reckoning option
- 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)
- Low Power - 24 mW in Time-to-Time Fix (TTTF) mode
- Industrial operating temperature range -40 to +85°C



## NV08C-CSM

### GPS/GLONASS/GALILEO/QZSS/COMPASS RECEIVER

The NV08C-CSM is a fully integrated multi-constellation satellite navigation receiver. Its key feature is its full compatibility with GPS, GLONASS, GALILEO, QZSS, COMPASS (GNSS), and EGNOS, WAAS and MSAS (SBAS).

It is specifically designed for use in a wide range of navigation, positioning and time synchronisation applications, demanding low cost, low power consumption, small form factor and uncompromised performance.

#### Applications:

- Telematics, fleet management , marine navigation and asset tracking
- In-car, personal navigation and hand portable devices
- Surveillance, security and antitheft systems
- Time Synchronization - Satcom, wireless and telecom networks
- Precise Positioning - GIS, survey, machine control and agriculture

The NV08C-CSM offers high sensitivity and high performance acquisition and tracking, combined with group delay calibrated raw data output, plus Assisted GNSS (A-GNSS), low power consumption, and advanced power saving functionalities.

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, as well as various interfaces, flexible power supply options and a supply voltage source for an active antenna. This very compact and fully featured GNSS receiver can be integrated on a low cost 2 or 4 layer PCB with minimum additional passive components.



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# CompoTEK

[WWW.NVS-GNSS.COM](http://WWW.NVS-GNSS.COM)



**Navigation Features**

- Number of channels **32**
- Satellite access mode **All-in-view**
- GPS/GALILEO/QZSS/COMPASS/SBAS
  - L1 1575.42 MHz
  - L1 1602.00 MHz
- GLONASS
- Accuracy (RMS)\*
  - horizontal
    - autonomous mode **<1.5 m**
    - SBAS/differential mode **<1 m**
  - height **<2 m**
  - velocity **0.05 m/s**
  - time (1PPS) **15 ns**
- 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**

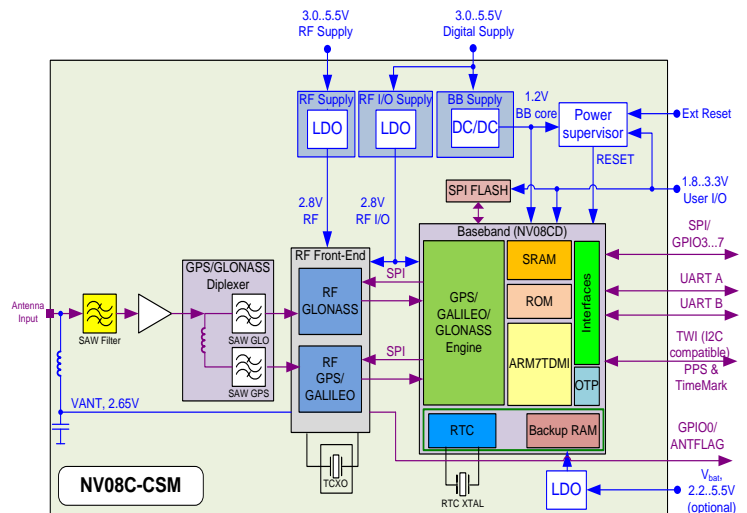
- LNA **Built-In (SW controlled for power saving)**
- RF structure **2x RF Front End chains:**  
GPS/GALILEO/QZSS/COMPASS/SBAS L1  
GLONASS L1
- Antenna type **Active<sup>1</sup>**
- Internal clock **26 MHz TCXO**  
1 - Recommended active antenna: GPS/GLONASS L1, bandwidth: 35 MHz @ fc=1590 MHz, gain: including cable attenuation 20-30 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 TTFF mode **(1-60 s)<sup>-1</sup>**
- Supported protocols **NMEA 0183 / IEC 61162-1  
BINR (proprietary binary)  
RTCM SC 104 v2.2**
- Host data interfaces
  - 2x UART (1.8 to 3.3V CMOS-level)**
  - SPI**
  - TWI (I<sup>2</sup>C compatible)**
  - 1PPS output (CMOS levels)**
- Data exchange rate **Up to 230,400 bit/s**



**Electrical specification**

- Power supply voltage **3.0 to 5.5V**
- Digital I/O voltage level (nominal) **1.8 to 3.3V**
- Backup supply **2.2 to 5.5V, 4 μA**
- Power consumption
  - GPS only time-to-time fix mode @ 1s\* **18 mW**
  - GNSS time-to-time fix mode @ 1s\* **24 mW**
  - GPS only tracking&navigation mode\* **<120 mW**
  - GNSS tracking&navigation mode\* **<180 mW**

\* Average values