If you require more information about our SPAN products, visit novatel.com/products/span-gnss-inertial-systems

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**SPAN™**

Rugged GNSS/INS Receiver
Delivers 3D Position, Velocity
and Attitude Solution

**Benefits**
Continuous, stable navigation
Supports IMUs from a variety of suppliers
Available as fully enclosed product or as board stack
Proven OEMV® technology

**Features**
SD card data logging
GPS or GPS+GLONASS options
Single antenna and dual antenna support
Wheel sensor input for ground systems
Real time Heave filter for marine applications

**SPAN: World-Leading GNSS+INS Technology**
SPAN (Synchronous Position, Attitude and Navigation) technology brings together two different, but complementary technologies: GNSS positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of IMU gyro and accelerometer measurements are tightly coupled to provide an exceptional 3D navigation solution that is stable and continuously available, even through periods when satellite signals are blocked.

**SPAN-SE Overview**
The SPAN-SE receiver enclosure provides the user interface to SPAN. It outputs raw measurement data or solution data over several communication protocols or to a removable SD card. Multiple GPS-synchronous strobes and event input lines offer easy integration into a larger system. Combining SPAN-SE with a SPAN-supported IMU creates a complete GNSS/INS system. For applications requiring an external heading reference, a dual antenna version of SPAN-SE is available.

**SPAN-SE Advantages**
Tight coupling of the GPS and IMU measurements provides more satellite observations and the most accurate, continuous solution possible. Utilizing NovAtel’s world-class GNSS receiver technology, the SPAN-SE delivers many powerful features including GPS+GLONASS capability and AdvVance® RTK performance. A dedicated CPU for real-time GNSS/INS processing results in fast data rates and low raw data and solution latency for highly dynamic or time-critical applications.

**Improve SPAN-SE Accuracy**
Take advantage of our Advance RTK as well as support for satellite-based augmentation systems such as OmniSTAR® or SBAS to improve real-time performance and accuracy. For more demanding applications, Inertial Explorer® (IE) post processing software from our Waypoint® product group can be used to post process SPAN-SE data and offers the highest level of accuracy with the system.

Dual Antenna option provides users with faster initial alignments in difficult low dynamics applications such as marine survey.
### SPAN System Performance

**Horizontal Position Accuracy (RMS)**
- Single Point L1: 1.5 m
- Single Point L1/L2: 1.2 m
- SBAS: 0.6 m
- CDGPS: 0.6 m
- DGPS: 0.4 m
- OmniSTAR VBS: 0.6 m
- XP: 0.15 m
- HP: 0.1 m
- RT-20®: 0.2 m
- RT-2™: 1 cm+1 ppm

**Measurement Precision**
- L1 C/A Code: 4 cm RMS
- L1 Carrier Phase: 0.5 mm RMS (differential channel)
- L2 P(Y) Code: 8 cm RMS
- L2 Carrier Phase: 1 mm RMS (differential channel)

**Data Rates**
- GPS Measurement: 50 Hz
- GPS Position: 20 Hz
- IMU Measurement: Up to 200 Hz
- INS Solution: Up to 200 Hz
- Time Accuracy: 50 ns RMS

**Maximum Velocity**: 515 m/s

**Physical and Electrical**
- Dimensions: 200 x 248 x 76 mm
- Weight: 3.4 kg
- Power Consumption (single antenna): 10 W (typical)
- Power Consumption (dual antenna): 12 W (typical)
- Input Voltage: +9 to +28 VDC
- Output Voltage: +5 VDC
- Maximum Current: 100 mA
- Maximum Current: 1.5 A
- Connectors:
  - Primary RF: ODU Mini Snap, Series K, 4 pin
  - Secondary RF: ODU Mini Snap, Series K, 30 pin
  - I/O 1: ODU Mini Snap, Series K, 30 pin
  - I/O 2: ODU Mini Snap, Series K, 30 pin
  - Ethernet: RJ-45
  - USB Device: TNC Female
  - USB Host: Type B
  - COM Port: Type A

**Environmental**
- Temperature Operating: -40°C to +65°C
- Storage: -50°C to +80°C
- Humidity: 95% non-condensing
- Waterproof: IEC 60529 IPX7
- Dust: IEC 60529 IP6X
- Vibration (operating): Random: RTCA DO-160D, curve C
- Shock (operating): IEC 68-2-27, 25 g

**Communication Ports**
- RS232: configurable UART COM Port
- USB 2.0 Host: 1
- USB 2.0 Device: 1
- Ethernet: 1
- Removable SD Card: 1
- Event Input Triggers: 4
- Configurable Output Strobes: 3

**Features**
- Field-upgradable firmware
- Supports RTCM SC-104 version 3.0, CMR version 3.0, CMR+, NMEA 0183 version 3.01, and RTCA DO-217 message types

**Included Accessories**
- VDC power cable
- Two serial cables
- SD card
- Mounting brackets
- CD
- USB 2.0 cable

**Optional Accessories**
- GPS-700 series antennas
- ANT series antennas
- RF cables – 5, 10 and 30 m lengths
- Easy post-processing using Inertial Explorer

**Optional Dual Antenna**
- ALIGN® Heading Accuracy:
  - 0.5 m Baseline: 0.40°
  - 1.0 m Baseline: 0.20°
  - 2.0 m Baseline: 0.10°

**Supported SPAN IMUs**
- UIMU-LCI
- UIMU-LN200
- UIMU-HG58/62
- IMU-FSAS
- IMU-CPT
- IMU-HG1900
- IMU-HG1930

**Statements related to the export of products are based solely on NovAtel’s experience in Canada, are not binding in any way and exportability may be different with respect to the export regulations in effect in another country. The responsibility for re-export of product from a Customer’s facility is solely the responsibility of the Customer.**