COMPACT OEM7® ENCLOSURE DELIVERS NOVATEL’S LEADING SPAN® GNSS+INS TECHNOLOGY

SPAN: WORLD LEADING GNSS+INS TECHNOLOGY
Synchronous Position, Attitude and Navigation (SPAN) technology brings together two different but complementary technologies: Global Navigation Satellite System (GNSS) positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (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 ENABLED MEMS RECEIVER
The PwrPak7-E1 contains an Epson G320N MEMS IMU to deliver world class NovAtel® SPAN technology in an integrated, single box solution. This product is commercially exportable and provides an excellent price/performance/size GNSS+INS solution.

FUTURE PROOFED SCALABILITY
Capable of tracking all present and upcoming GNSS constellations and satellite signals, the PwrPak7-E1 is a robust, high precision receiver that is software upgradeable in the field to provide the custom performance required for your application demands.

The PwrPak7-E1 has a powerful OEM7 GNSS engine, integrated MEMS IMU, built in Wi-Fi, on board NTRIP client and server support, and 16 GB of internal storage. It also has enhanced connection options including serial, USB, CAN and Ethernet.

PRECISE THINKING MAKES IT POSSIBLE
Developed for efficient and rapid integration, our GNSS products have set the standard in quality and performance for over 20 years. State-of-the-art, lean manufacturing facilities in our North American headquarters produce the industry’s most extensive line of OEM receivers, antennas and subsystems. All of our products are backed by a team of highly skilled design and customer support engineers, ready to answer your integration questions.

If you require more information about our enclosures, visit www.novatel.com/products/span-gnss-inertial-systems/span-combined-systems/
PERFORMANCE

Channel Configuration
555 Channels

Signal Tracking
GPS: L1 C/A, L1C, L2C, L2P, L5
GLONASS: L1 C/A, L2C, L2P,
Galileo: E1, E5 AltBOC, E5a, E5b, E6
BeiDou: B1I, B1C, B2I, B2a, B3I
QZSS: L1 C/A, L1C, L2C, L5, L6
NavIC (IRNSS): L5
SBAS: L1, L5
L-Band up to 5 channels

GNSS Horizontal Position Accuracy (RMS)
Single point L1: 1.5 m
Single point L1/L2: 1.2 m
SBAS: 60 cm
DGPS: 40 cm
TerraStar-L™: 40 cm
TerraStar-C PRO™: 2.5 cm
TerraStar-X™: 2 cm
RTK: 1 cm + 1 ppm

IMU PERFORMANCE

Gyroscope Performance
Input range: ±150 deg/s
Rate bias stability: 3.5 deg/hr
Angular random walk: 0.1 deg/√hr

Accelerometer Performance
Range: ±5 g
Bias stability: 0.1 mg
Velocity random walk: 0.05 m/s/√hr

COMMUNICATION PORTS
1 RS-232 up to 460,800 bps
2 RS-232/RS-422 selectable
3.4 W

ENVIRONMENTAL
Temperature
Operating: -40°C to +75°C
Storage: -40°C to +85°C
Humidity
95% non-condensing

PHYSICAL AND ELECTRICAL
Dimensions: 147 x 125 x 55 mm
Weight: 510 g
Power: 3.4 W
Input voltage: +9 to +36 VDC
Power consumption: 3.4 W

PERFORMANCE DURING GNSS OUTAGES

Outage Duration Positioning Mode POSITION ACCURACY (M) RMS VELOCITY ACCURACY (M/S RMS) ATTITUDE ACCURACY (DEGREES) RMS

0 s
RTK
0.02 0.03 0.020 0.015 0.020 0.020 0.090
pp
1.00 0.60 0.020 0.015 0.020 0.020 0.090
10 s
RTK
0.25 0.15 0.025 0.025 0.040 0.040 0.130
pp
1.25 0.70 0.025 0.025 0.040 0.040 0.130

1 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.
2 Hardware ready for L3 and L5.
3 E1b and E6b support only.
4 GPS only.
5 Requires a subscription to a Terrastar data service. Subscriptions available from NovAtel.
6 Typical value. No almanacs or ephemerides and no approximate position or time.
7 Typical value. Almanacs and recent ephemerides saved and approximate position and time entered.
8 Time accuracy does not include biases due to RT or antenna delay.
9 Export licensing restricts operation to a maximum of 515 meters per second, message output impacted above 500 m/s.
10 Provided by IMU manufacturer.
11 Typical value. Consult the ODM7 User Documentation for power supply considerations.
12 GNSS only. IMU measurements may not be valid.
13 GNSS only. Additional power required to account for additional error due to baseline length.
14 Post-processing results using Inertial Explorer Software. The survey data used to generate these statistics had frequent changes in azimuth.

COMPLIANCE
FCC, ISED, CE and Global Type Approvals

INCLUDED ACCESSORIES
- Power cable
- USB cable
- DSUB HD26 to DB9 RS-232 cable

OPTIONAL ACCESSORIES
- Full breakout cable for DSUB HD26 connector
- DSUB HD26 to M12 IMU cable
- RJ45 Ethernet cable
- VEXXIS® GNSS-500 and GNSS-800 series antennas
- Compact GNSS antennas
- GrafixGrafNet
- Inertial Explorer
- NovAtel Connect

HARDWARE OPTIONS

PwrPak7M-E1 no Wi-Fi, no 16 GB internal storage

For the most recent details of this product: www.novatel.com/products/span-gnss-inertial-systems/span-combined-systems/pwrpak7-e1/

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