

PwrPak7

Compact enclosure delivers scalable positioning performance with internal storage

Future-proofed scalability

Capable of tracking all present and upcoming Global Navigation Satellite System (GNSS) constellations and satellite signals, the PwrPak7 is a robust, high-precision receiver that is software upgradeable in the field to provide the custom performance required for your application.

Base station or rover

Compact and lightweight, the PwrPak7 is well suited for base or rover applications. It has a powerful OEM7 GNSS engine inside and offers built-in Wi-Fi, onboard 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

Our GNSS products were developed for efficient and rapid integration and 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. Our products are backed by a team of highly-skilled design and customer support engineers ready to answer your integration questions.

SPAN GNSS+INS technology

With SPAN GNSS+INS technology from Hexagon | NovAtel, the PwrPak7 can interface with supported IMUs to provide a superior position, velocity and attitude solution and bridge GNSS outages.



Benefits

- Small low-power GNSS enclosure
- Easy integration into space and weight constrained applications
- Rugged design ideal for challenging environments
- Enhanced connection options including serial, USB, CAN and Ethernet
- Future-proof for upcoming GNSS signal support

Features

- TerraStar Correction Services supported over multi-channel L-Band and IP connections
- Spoofing detection, interference detection and mitigation provided by GNSS Resilience and Integrity Technology (GRIT)
- SPAN GNSS+INS capability with configurable application profiles
- Dedicated wheel sensor input
- 16 GB of internal storage
- Built-in Wi-Fi support

Performance¹**Signal tracking**

GPS	L1 C/A, L1C, L2C, L2P, L5
GLONASS ²	L1 C/A, L2 C/A, L2P, L3, L5
Galileo ³	E1, E5 AltBOC, E5a, E5b, E6
BeiDou	B1I, B1C, B2I, B2a, B2b, B3I
QZSS	L1 C/A, L1C, L1S, L2C, L5, L6
NavIC (IRNSS)	L5
SBAS	L1, L5
L-Band	up to 5 channels

Horizontal position accuracy (RMS)

Single point L1	1.5 m
Single point L1/L2	1.2 m
SBAS ⁴	60 cm
DGPS	40 cm
TerraStar-L ⁵	40 cm
TerraStar-C PRO ⁵	2.5 cm
TerraStar-X ⁵	2 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 ⁶	< 39 s (typ)
Hot start ⁷	< 20 s (typ)

Signal reacquisition

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

Time accuracy⁸ 20 ns RMS**Velocity accuracy** < 0.03 m/s RMS**Velocity limit⁹** 515 m/s**Communication ports**

1 RS-232	up to 460,800 bps
2 RS-232/RS-422	selectable up to 460,800 bps
1 USB 2.0 (device)	HS
1 USB 2.0 (host)	HS
1 Ethernet	10/100 Mbps
1 CAN Bus	1 Mbps
1 Wi-Fi	
3 Event inputs	
3 Event outputs	
1 Pulse Per Second (PPS) output	
1 Quadrature wheel sensor input	

Physical and electrical**Dimensions** 147 x 125 x 55 mm**Weight** 500 g**Power**

Input voltage	+9 to +36 VDC
Power consumption ¹⁰	3.25 W

Antenna LNA power output

Output voltage	5 VDC ±5%
Maximum current	200 mA

Connectors

Antenna	TNC
USB device	Micro A/B
USB host	Micro A/B
Serial, CAN, Event I/O	DSUB HD26
Ethernet	RJ45
Data logging	push button
Power	SAL M12, 5 pin, male

Status LEDs

Power	
GNSS	
INS	
Data logging	
USB	

Environmental**Temperature**

Operating	-40°C to +75°C
Storage	-40°C to +85°C

Humidity 95% non-condensing**Ingress protection rating** IP67**Vibration (operating)**

Random	MIL-STD-810H, Method 514.8 (Cat 24, 20 g RMS)
Sinusoidal	IEC 60068-2-6

Acceleration (operating)

MIL-STD-810H, Method 513.8	Procedure II (16 g)
----------------------------	---------------------

Bump (operating)

IEC 60068-2-27 (25 g)

Shock (operating)

MIL-STD-810H, Method 516.8, Procedure 1,	40 g 11 ms terminal sawtooth
--	------------------------------

Compliance

FCC, ISED, CE and Global Type Approvals

Features

- NovAtel OEM7 positioning engine
- Standard 16 GB internal storage
- Built-in Wi-Fi support
- Web GUI

Firmware solutions

- ALIGN
- GNSS Resilience and Integrity Technology (GRIT)
- SPAN GNSS+INS technology
- RTK
- RTK ASSIST
- TerraStar Correction Services
- API

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
- GrafNav/GrafNet
- Inertial Explorer
- NovAtel Application Suite

Hardware options

- PwrPak7-E1 integrated G320 IMU
- PwrPak7-E2 integrated G370 IMU
- PwrPak7M no Wi-Fi, no 16 GB internal storage

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. ² Hardware ready for L5. ³ E1bc and E6bc support only. ⁴ GPS-only. ⁵ Requires a subscription to a TerraStar data service. Subscriptions available from NovAtel. ⁶ Typical value. No almanac or ephemerides and no approximate position or time. ⁷ Typical value. Almanac and recent ephemerides saved and approximate position and time entered. ⁸ Time accuracy does not include biases due to RF or antenna delay. ⁹ Export licensing restricts operation to a maximum of 515 meters per second, message output impacted above 500 m/s. ¹⁰ Typical values using serial port communication without interference mitigation. Consult the OEM7 User Documentation for power supply considerations.

Contact Hexagon | NovAtel

sales.nov.ap@hexagon.com 1-800-NOVATEL (U.S. and Canada) or 403-295-4900 | China: 0086-21-68882300 | Europe: 44-1993-848-736 | SE Asia and Australia: 61-400-883-601. For the most recent details of this product: novatel.com

ALIGN, GrafNav/GrafNet, Inertial Explorer, NovAtel, OEM7, PwrPak7, RTK ASSIST, SPAN, TerraStar and VEXXIS are trademarks of NovAtel, Inc., entities within the Hexagon Autonomy & Positioning division, their affiliated entities, and/or their licensors. All other trademarks are properties of their respective owners.

©2022 NovAtel Inc. All rights reserved. NovAtel is part of Hexagon. NovAtel makes no representation or warranty regarding the accuracy of the information in this publication. This document gives only a general description of the product(s) or service(s) offered by NovAtel, and, except where expressly provided otherwise, shall not form part of any contract. Such information, the products and conditions of supply are subject to change without notice.