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 positioning engine inside and offers 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 25 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
- Supports Galileo High Accuracy Service (HAS)
- SPAN GNSS+INS capability with configurable application profiles
- Spoofing detection, interference detection, and mitigation provided by GNSS Resilience and Integrity Technology (GRIT)
- Dedicated wheel sensor input
- 16 GB of internal storage
- Supports Precision Time Protocol (PTP) and generalised Precision Time Protocol (gPTP)

Performance[1]

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, L1 C/B, 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

Maximum data rate

Measurements	up to 100 Hz
Position	up to 100 Hz

Time to first fix[6]

Cold start	< 34 s (typ)
Hot start	< 20 s (typ)

Signal reacquisition

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

Time accuracy[7] < 5 ns RMS

Velocity accuracy < 0.03 m/s RMS

Velocity limit[8] 600 m/s

Physical and electrical

Dimensions 147 x 125 x 55 mm

Weight 500 g

Power

Input voltage	+9 to +36 VDC
Power consumption[9]	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
Power	SAL M12, 5 pin, male

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

3 Event inputs
3 Event outputs
1 Pulse Per Second (PPS) output
1 Quadrature wheel sensor input

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
- 16 GB internal storage
- Web GUI

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

1. *Typical values under ideal, open sky conditions.*
2. *Hardware ready for L5.*
3. *E1bc and E6bc support only.*
4. *GPS-only.*
5. *Requires a subscription to TerraStar correction service.*
6. *Cold start: no almanac or ephemerides and no approximate position or time.*
   Hot start: almanac and recent ephemerides saved and approximate position and time entered.
7. *Time accuracy does not include biases due to RF or antenna delay.*
8. *Export licensing restricts operation to a maximum of 600 m/s, message output impacted above 585 m/s.*
9. *Typical values using serial port communication without interference mitigation. See manual 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

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