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

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.

Integrated IMU

With SPAN GNSS+INS technology, the PwrPak7 can interface with supported IMUs to bridge GNSS outages. With integrated IMU options, the PwrPak7 is a single stop solution to work in difficult environments.

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
- Advanced interference mitigation features
- SPAN GNSS+INS capability with configurable application profiles
- Dedicated Wheel Sensor input
- 16 GB of internal storage
- Built-in Wi-Fi support

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, L1C, 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 Accuracy[8] 20 ns RMS

Velocity Accuracy

< 0.03 m/s RMS

Velocity Limit[9] 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 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
- Support for logging to external USB storage device
- Built-in Wi-Fi support
- Optional integrated Epson IMU
- Web GUI

Firmware Solutions

- ALIGN
- SPAN
- RTK
- RTK ASSIST
- TerraStar PPP
- 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 L3 and 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.

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