Defense FlexPak–S™ Enclosure

RUGGED ENCLOSURE PROVIDES SAASM RTK FOR SIMPLIFIED INTEGRATION AND QUICKER TIME TO MARKET

DEFENSE AND CIVIL—COMBINING THE BEST OF BOTH WORLDS

System integrators have come to rely on the centimetre-level position accuracy available in Real Time Kinematic (RTK) commercial GPS receivers. Authorized defense customers need access to the Precise Positioning Service (PPS). The FlexPak–S contains the OEM625S™ card with commercial dual–frequency NovAtel receiver and an L–3 XFACTOR Selective Availability Anti Spoofing Module (SAASM).

When keyed, the FlexPak–S provides an RTK PPS solution by taking the raw measurements from an L–3 XFACTOR SAASM and applying them to NovAtel's industry leading RTK algorithm. In the Standard Positioning Service (SPS) fallback mode, the FlexPak–S continues to provide centimetre-level accuracy by utilizing NovAtel's dual frequency civil GNSS positioning engine.

OPTIONAL GPS+GLONASS TRACKING FOR GREATER PERFORMANCE

The SPS fallback mode of the FlexPak–S is configurable for GPS or GPS+GLONASS. Adding GLONASS tracking increases available position in obstructed sky conditions, making it ideal for unmanned ground vehicle applications.

RELIABLE AND RUGGED IN A COMPACT SIZE

Reliability is safeguarded as a result of the rugged and water resistant IP67 FlexPak–S housing combined with its wide operating temperature range. The FlexPak–S is a compact, lightweight enclosure that fits into most applications where small size is critical.

EASY SYSTEM INTEGRATION AND INSTALLATION

NovAtel has assured faster time to market by reducing integration time with standardized software and hardware connections. FlexPak–S provides numerous interfaces including multiple RS-232/RS-422 serial ports. NovAtel's comprehensive set of software commands facilitates simple integration. SAASM security functions are provided over a dedicated interface, while the SAASM RTK position is provided through NovAtel's software command protocol. FlexPak–S uses the same form factor as the popular FlexPak6™ design.

PRECISE THINKING MAKES IT POSSIBLE

NovAtel designs, manufactures and sells high precision OEM Global Navigation Satellite System (GNSS) positioning technology. 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. For unsurpassed quality, product selection and engineering know-how, choose NovAtel.

BENEFITS

+ Offering robust SAASM+GPS position with industry leading precision from NovAtel
+ Simplified integration for quicker time to market
+ Rugged IP67 housing for reliable use in harsh environments
+ Easy installation
+ Security approved for operational use by U.S. and Allied Forces

FEATURES

+ Wide input voltage range
+ 20 Hz SAASM RTK when keyed
+ 20 Hz civil RTK fall back mode
+ ALIGN® relative position and heading
+ SPAN® INS functionality
+ Shock resistant

For more information about NovAtel's FlexPak-S receiver contact defense@novatel.com

FlexPak–S Enclosure

PERFORMANCE[1]

Channel Configuration
120 SPSChannels[2]
24 PPS Channels

Signal Tracking (SPS)

GPS	L1 (C/A), L2 (semi-codeless), L2C
GLONASS	L1, L2
SBAS	

Signal Tracking (PPS)

GPS	L1 (Y), L2 (Y)

Horizontal Position Accuracy (RMS)

Single point L1 PPS	1.5 m
Single point L1/L2 PPS	1.2 m
NovAtel CORRECT™	
» SBAS[3]	0.6 m
» DGPS	0.4 m
» RTK	1 cm + 1 ppm
Initialization time	<10 s
Initialization reliability	>99.9%

Measurement Precision (RMS)
Fully independent code and carrier measurements:

	GPS	GLO
L1 C/A code	4 cm	8 cm
L1 carrier phase	0.5 mm	1.0 mm
L2 P code[4]	8 cm	8 cm
L2 carrier phase[4]	1.0 mm	1.0 mm
L2 Y code	–	–
L2C code[5]	8 cm	8 cm
L2C carrier phase[5]	1.0 mm	1.0 mm

Maximum Data Rate[6]

Measurements	up to 20 Hz
Position	up to 20 Hz

Time to First Fix

Cold start[7]	<50 s
Hot start[8]	<35 s

Signal Reacquisition

L1	<0.5 s (typical)
L2	<1.0 s (typical)
Time Accuracy[9]	20 ns RMS
Velocity Accuracy	0.03 m/s RMS

PHYSICAL AND ELECTRICAL

Dimensions	147 × 113 × 45 mm
Weight	<400 g

Power

Input voltage	+9 to 36 VDC

Power Consumption

GPS Civil	3.8 W
GPS Civil+GLONASS	4.0 W
GPS Civil+GLONASS+SAASM	4.9 W

Antenna LNA Power Output

Output voltage	5 VDC ±5%
Maximum current	100 mA

Connectors

Antenna Input	TNC
Power	4-pin LEMO
COM1	DB9M
COM2	DB9M
I/O Event	DB9F
SAASM	DB15M

COMMUNICATION PORTS

1 RS-232	up to 921,600 bps
1 RS-232 or RS-422	up to 921,600 bps
I/O Port	(PPS, Event1, PV, VARF)
DS-101	for key loading

USER INTERFACE/LEDS
Antenna LED
COM1 LED
COM2 LED
Power LED

ENVIRONMENTAL

Temperature

Operating	–40°C to +65°C
Storage	–50°C to +85°C
Humidity	95% non-condensing
Water Resistant	MIL-STD-810G 512.5 (Proc1) (30 Inch Submersion)
Dust	MIL-STD-810G 510.5 (Proc1)

Vibration (Operating)

Random	MIL-STD-810G 514.6 (7.7 g)
Sinusoidal	SAE J12117 (4 g)
Bump	IEC 60068-2-27 (25 g)
Shock	MIL-STD-810G 516.6 (40 g)
Compliance	FCC

FEATURES

- Field upgradeable software
- Over the air rekeying
- PAC multipath mitigating technology for SPS signals
- Differential GPS positioning
- Differential correction support for RTCM 2.1, 2.3, 3.0, 3.1, RTCA and NovAtelX
- Navigation output support for NMEA 0183 and detailed NovAtel ASCII and binary logs
- External 10 MHz oscillator input (optional)
- 1 Pulse Per Second (PPS) output

FIRMWARE OPTIONS

- GLONASS
- RTK
- ALIGN relative positioning with heading
- SPAN GNSS+INS integration

INCLUDED ACCESSORIES

- 12 VDC power adapter (CLA) with slow blow fuse
- Null modem serial cable

ADDITIONAL ACCESSORIES

- GPS-710 series antennas
- ANT series antennas
- GAJT anti-jam antennas
- Multi I/O cable
- DS-101 key loading cable
- RF cables–5, 10 and 30 m lengths

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1. Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
2. Tracks up to 60 L1/L2 satellites.
3. GPS only (civil).
4. L2 P for GLONASS.
5. L2 C/A for GLONASS.
6. 20 Hz while tracking up to 20 satellites.
7. Typical value. No almanac or ephemerides and no approximate position or time.
8. Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
9. Time accuracy does not include biases due to RF or antenna delay.