BAE SYSTEMS

NavFire™ GPS Receiver

Essential accuracy

Trusted military GPS for weapons and artillery

In today's unpredictable battlespace, launching weapons safely and accurately is critical to mission success. NavFire™ is the smallest integrated military Global Positioning System (GPS) and anti-jamming system in the proven family of BAE Systems' gun-hardened receivers for weapons.

Leveraging over 45 years of military GPS experience and advanced technical expertise in anti-jamming and high-g microelectronics, BAE Systems provides you with a 40 mm 25,000 g-hardened GPS receiver for your military needs.

NavFire is a 24-channel, dual-frequency, all-in-view receiver capable either as a stand-alone system or integrated with an Inertial Navigation System (INS). Powered by state-of-the-art technology, NavFire provides enhanced direct-Y acquisition, built-in digital nulling for high-jamming immunity, and fast initial acquisition.

Key features and benefits

- Military encrypted GPS for weapons
- <2 m position accuracy (typical with aiding)
- Small form factor (40 mm)
- Artillery/gun hardened up to 25,000 g-shock
- Single die SAASM with KDP (GPS directorate approved)
- 24 channels with all-in-view, dual-frequency (L1/L2) track, and navigation (software upgradeable to 48 channels)
- Fully integrated digital anti-jamming electronics with dual RF inputs (>86 dB J/S while tracking)
- Fast direct-Y code acquisition (<6 sec, nominal)
- High-speed serial interfaces
- Low-cost flexible applications (artillery/UAV)

Small size, high accuracy

Small in size yet high in accuracy and reliability, the NavFire is a cost-effective system specifically designed to meet the mission needs of gun-hardened applications. The NavFire delivers precise GPS navigation either as a stand-alone system or when integrated with an INS.

Precise

This integrated receiver offers full Precise Positioning Service (PPS) accuracy. Simultaneous L1/L2 operation provides real-time ionosphere corrections for further accuracy enhancements. Its primary communication interface is a high-speed LVCMOS serial port. The integrated anti-jamming solution utilizes two-element digital nulling for improved jamming immunity. Additionally, this system has an Ultra Tight Coupling (UTC) unit interface option that improves both anti-jamming performance and navigation accuracy.

Growth path

Scalable RF design (one or two channels) and field-programmable software eases maintenance, provides a growth path, and reduces life-cycle cost for use in ever-changing jamming environments. Delivery is assured by using common critical components, processes, and manufacturing lines that deliver over 100,000 Selective Availability Anti-Spoofing (SAASM)-based GPS receivers per year.

Delivers precise GPS navigation

System characteristics

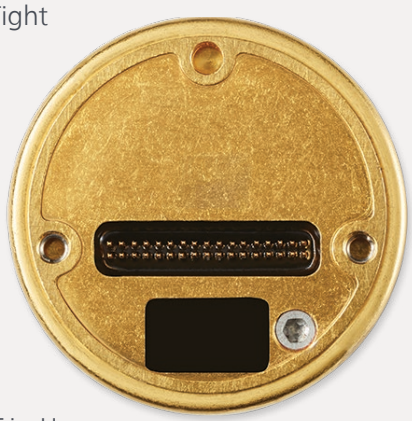
Receiver	L1 frequency, C/A and P or Y code* L2 frequency, P or Y code* SAASM architecture Field-reprogrammable software
Dynamics	>10 g acceleration Supports spinning applications
TTFF	<6 sec (conditions apply)
Time accuracy	< ±30 nanoseconds RMS
Position accuracy	<3 m CEP* <2 m typical with aiding* Up to 25 Hz PVT solution update rate 1 Hz pseudo range, delta range update rate
Velocity accuracy	<0.07 m/sec RMS typical
Crypto key	Serial port, SKL, CYZ-10

Reliability

- Comprehensive built-in-test
- Supports data hold (up to 8 min)
- Field clock recalibration for extended storage
- Storage life >20 years

Interfaces

- One or two RF antenna inputs (L1/L2)
- Primary power, auxiliary power
- Serial host control – LVCMOS (RS-232), up to 230 Kbaud
- Host controlled Ultra Tight Coupling (UTC)
- DS-101
- 1/10 PPS CPS or UTC
- Discretes for GPS programming
- KDP programming, key zeroization



Physical characteristics

Power	<2.8 W
Weight	2.8 oz (80 g)
Size	1.64 D x 0.95 in. H (41.3 x 24.13 mm)
Temp range	-45°C to +85°C (operating) -54°C to +85°C (storage)
Shock	Up to 25,000 g

* Export of Precise Positioning Service (PPS) units is authorized for GPS Memorandum of Understanding countries only. PPS security modules must be obtained through Foreign Military Sales (FMS) procurement.

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