BAE SYSTEMS

Strategic Anti-jam Beamforming Receiver (SABR-Y)

Superior beamforming GPS anti-jamming for weapons

Designed to provide highly accurate, hardened GPS data in high-threat environments

As the battlespace continues to evolve, peer competitor-developed threat systems are increasingly capable of jamming and spoofing GPS signals. U.S. and allied forces require significantly hardened GPS receivers for weapons to operate within this highly-contested environment.

Leveraging over 45 years of military GPS experience and advanced technical expertise in anti-jamming, BAE Systems' SABR-Y is the most advanced GPS receiver that incorporates digitally integrated beamforming anti-jamming technology designed for weapons applications.

Designed to provide highly accurate position, velocity, altitude, and time data in extremely high-threat environments, SABR-Y has demonstrated exceptional performance in integrated weapons tests, raising the bar for hardened GPS operations.

SABR-Y's original design builds upon the field-proven Integrated GPS Anti-jam System (IGAS) and incorporates the DIGAR-300 airborne digital AJ antenna electronics. This latest version repackages those capabilities into a smaller form factor that is forward-fit compatible with the under-development military Code SABR-M.

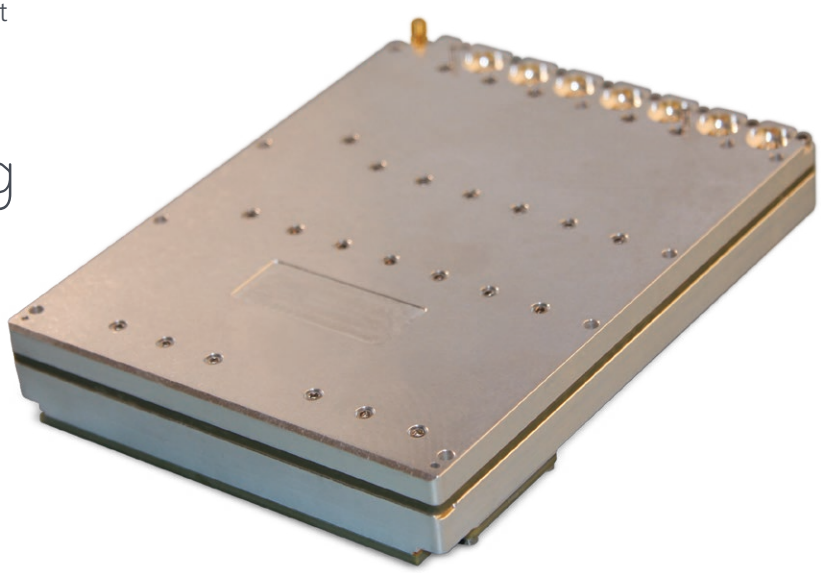
Key features

- GPS / anti-jamming embedded module
- 24-channel Selective Availability Anti-Spoofing Module
- Fast direct Y acquisition
- Simultaneous L1 / L2 protection
- 100+ dB J/S performance *
- Seven-element controlled radiation pattern antenna compatible
- Lightweight and field-programmable
- High g vibration design
- High rate aiding support

Ruggedized for extreme conditions

- Designed and qualified for MIL-STD-810F and MIL-STD-464 to survive the harsh operating environment.
- Designed and qualified for MIL-STD-461 Rev E to meet EMI requirements.

Proven GPS anti-jamming performance



Interfaces

- 7 MMBX RF connectors
- 1 SSMB RF connector
- Main I/O nonproprietary 80-pin dual row
  - Serial I/O – RS422/CMOS
  - Power input
  - Timing interfaces
  - Key load interfaces

System characteristics

Receiver	L1 frequency, C/A and P or Y code** L2 frequency, P or Y code** SAASM architecture All-in-view tracking and navigation Supports all SAASM extended functions Field-reprogrammable software
Dynamics	>10 g acceleration
Time to first fix	<10 sec (conditions apply)
Time accuracy	<±100 nanoseconds RMS
Position accuracy	<3 m Circular error probability**
Velocity accuracy	<0.07 m/sec RMS typical
Crypto key	Serial port, DS-101 and DS-102 Unclassified when keyed Black and Red key operation
AJ performance	100+ dB J/S***
Antenna inputs	1 Element – non-AJ capable (active antenna) 7 Element – AJ capable (passive antenna)
MTBF	>3,000 hours
Aiding	22-channel UTC/DI

Physical characteristics

Power input	5 VDC @ 4A max 5 VDC @ 6A max 3 VDC battery backup support
Power consumption	35 watts (typical)
Weight	4 lb max; 2.6 lb nominal
Size	4.6 W x 6 L x .95 D in.
Temp. range	-54° C to +80° C (operating) -54° C to +90° C (storage)
Shock	Up to 150 g (1 msec half sine pulse)

* Includes GPS inherent anti-jamming of 55 dB J/S. Dependent on jammer type, number, geometry, and inertial integration. Actual performance is classified.

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

*** Beamsteering mode. Actual performance is classified.

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