

Airborne Secure Receiver M-code (ASR™-M)

Delivering satellite-based encrypted GPS to those who need it most

The ASR-M is BAE Systems' most advanced airborne M-Code GPS receiver ever built

ASR-M delivers a M-code based airborne receiver built from the tried-and-true lineage of our airborne secure receivers. Next-generation military airborne navigation systems must address the demand for increased accuracy, integrity, and capability from domestic and international aviation communities to ensure mission execution while operating in a GPS contested battlespace. The receiver implements 32 channels of L1/L2 tracking that support All-In-View M-code and Y-code operation.

Evolving capabilities

The ASR-M gives users the capability to interface with the BAE Systems' DIGAR to provide unmatched anti-jamming performance including M-code beamforming for warfighters who must operate in the most challenging environments.

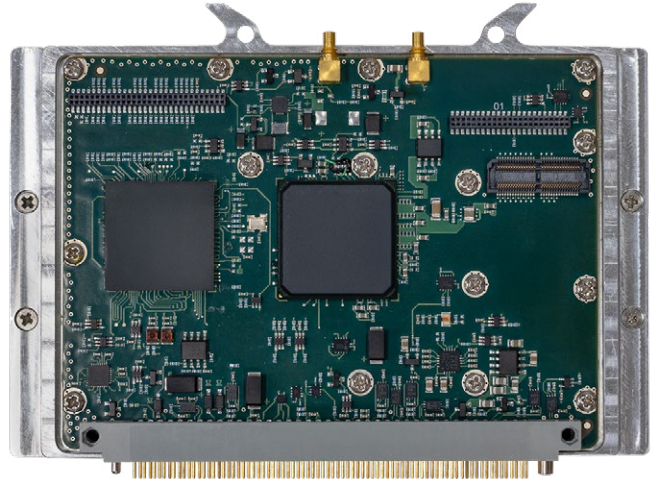
As part of our long GPS legacy, the new ASR-M is specifically designed to meet small package requirements. The ASR-M form factor is a ½ Standard Electronic Module-Size E (SEM-E) receiver. The ASR-M is form and fit compatible with the legacy ASR 3.7.



The ASR-M supports open systems architectures and industry-standard interfaces. Building upon the airborne GPS legacy that began in 1990, the ASR-M incorporates numerous advanced features with additional functions that are continually being added to its vast list of capabilities and user-configurable software options. ASR-M is a reliable low-cost upgrade for our Airborne Secure Receiver (ASR) operators as they assess navigation systems changes. BAE Systems plans to support the ASR-M product line well beyond 2040.

Features

- SS-US-800 compliant
- Space Force security certified and approved, unclassified when keyed
- Standard ½ SEM-E form factor
- All-in-view satellite tracking for optimized geometry and satellite drop-out immunity
- Fault Detection and Exclusion (FDE) per DO-229 providing navigation solution integrity
- ASR-M is field programmable, enabling easy updates on the fly
- Simultaneous L1 and L2 dual-frequency GPS protection maintains receiver capability
- Fast direct-M/direct-Y code acquisition offers higher tolerance to both jamming and spoofing
- ASR-M contains a security-certified Common GPS Module (CGM), providing the highest confidence level
- Ultra-low-power time maintenance enhances ability for mission execution
- Stand-alone (unaided) or integrated (aided) operation provides the user with highly accurate positioning
- Superior performance in the presence of Red and Blue jamming
- LOS outputs unclassified even when keyed
- MST compatible with BAE Systems' DIGAR
- Greater than 120+ dB J/S (with the BAE Systems' DIGAR anti-jam) for industry-leading jamming protection



Unmatched performance in the most demanding GPS challenged environments

Performance

Receiver	L1 frequency, C/A and Y code, M-Code L2 frequency, Y code, M-Code
Dynamics	Velocity 1,200 m/s Acceleration 100 m/s ² maximum
Hot start	Direct-M
Time accuracy	PPS <30 nanoseconds RMS
Position accuracy	PPS 5.6m RMS (Horizontal)
Altitude	> 80,000 feet
Position update rate	Unaided: once-per-second pseudorange based, 5 Hz delta range based, 10 Hz propagated; INS-aided: 1 Hz pseudorange based, Nav solution 4-25 Hz dependent on aiding rate
MTBF	>20,000 hours @ 45°C (MIL-HDBK-217)

Interfaces

- 1 PPS time input and output
- Have Quick output IAW ICD-GPS-060A
- RF input support L1/L2 from a Fixed Reception Pattern Antenna (FRPA), an amplified FRPA or the GAS-1 and ADAP and their CRPA antennas.
- Digital Antenna electronics input to support beam forming with DIGAR and a CRPA antenna
- ICD-GPS-177A compatible interface (high-speed serial)
- DS 101 key loading interface
- ICD-GEM-DAE, DIGAR

Physical characteristics

Power	<3.0W
Weight	<0.5 lb
Size / Volume	4.9 W x 3.2 H x 0.8 D in.
Temperature range	-54°C to +85°C (continuous) -62°C to +95°C (storage)

For more information contact:

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