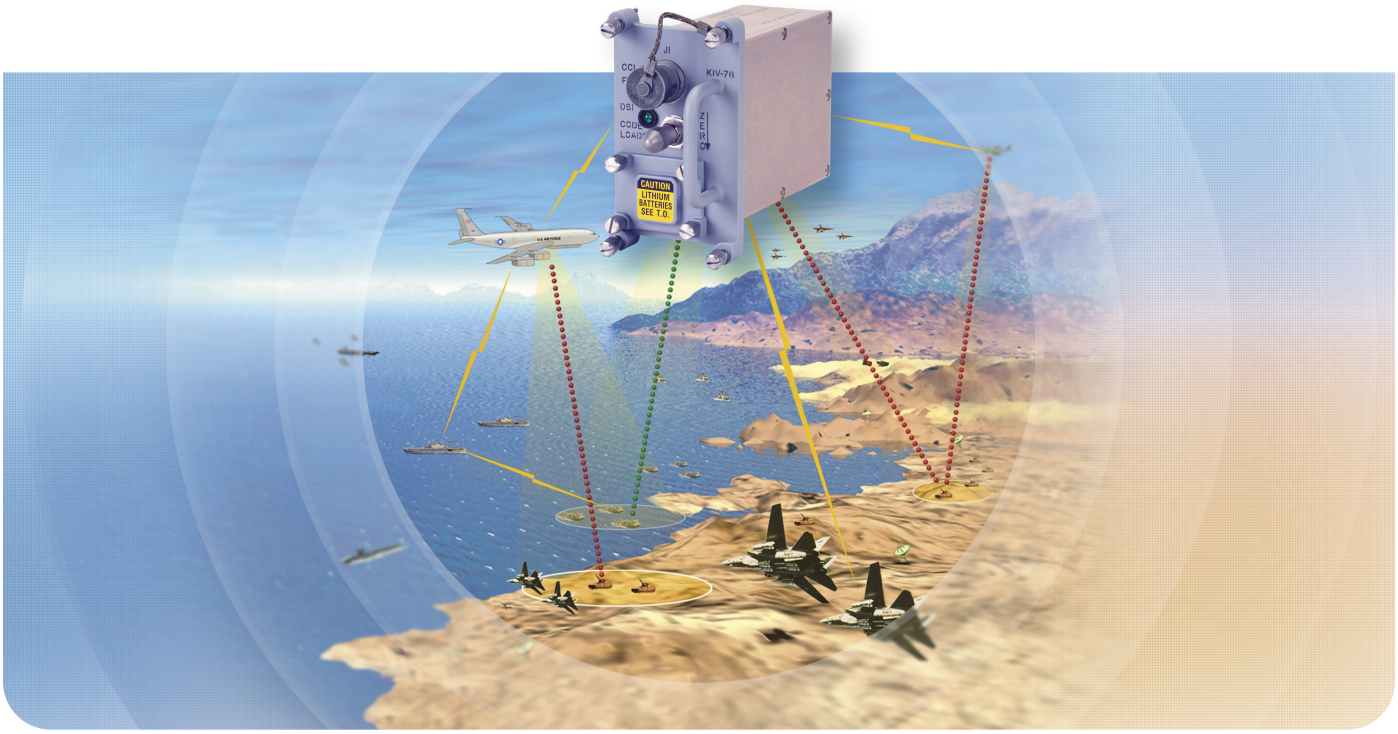
GENERAL DYNAMICS
Mission Systems

KIV-78/KIV-78A Mode 5 IFF Crypto Appliqué



- Identification Friend or Foe (IFF) Crypto for Mark XIIA (Mode 5)
- Appliqué Form-Factor for Easy Removal Storage Without Host Impact
- AIMS 04-900 Compliant, NSA Certified (KIV-78A Certification Planned for 2025)
- Simultaneous Mode 5 Interrogate, Transpond and M5L2B Support
- NSA Crypto Modernization 2.0 (CM2) Features

As a leading supplier of cryptography for avionics systems, General Dynamics has nearly 50 years of High Assurance system development experience. Our avionics systems include some of the most advanced hardware, software and mechanical designs, integrated to meet the community's high standards for security, in lightweight, low-power, ruggedized form factors.

The KIV-78 and KIV-78A provide cryptographic services for Identification Friend or Foe (IFF) systems including Mark XIIA (Mode 5) IFF Combined Interrogator/Transponders (CITs), interrogators and transponders. IFF is part of a cooperative system to identify friendly aircraft and provide aviation safety for the United States and its allies. These products enable M5L2B to secure location information exchange, especially important in congested landing areas.

The KIV-78A uses our latest Advanced INFOSEC Machine (AIM) III cryptographic processor which includes NSA Cryptographic Modernization 2 (CM2) compliant features. These features include new protections of its upgradeable software. KIV-78A replaces the NSA certified and fielded KIV-78 which is pending end-of-life. NSA certification of the KIV-78A is in progress.

The KIV-78/KIV-78A supports concurrent interrogator/transponder operations per AIMS 04-900 Option A. It performs black key management for up to three months of keys and stores them encrypted, enabling black key recovery. The KIV-78/KIV-78A performs both battery powered (Cold Load) and prime powered (Warm Load) key loads via DS-101. KIV-78/KIV-78A are compatible with standard EKMS308/608 compliant DS-101 key load devices. KIV-78/KIV-78A provides IFF system time-of-day services, status reporting, and host key management services.

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General Specifications

- AIMS 03-1000
- AIMS 04-900 Option A
- STANAG 4193
- EKMS 308/608
- MIL-STD-810F
- MIL-STD-461E
- Enables Mode 5 Level 2B Broadcast - In/Out (M5L2B)

Modes of Operation

The KIV-78 supports three power modes of operation:

- Storage Mode — minimum of eight years in benign environments
- Key Retention (Code Hold/Cold Load) Mode — minimum of six months
- Prime Power Mode — IR & XP simultaneously

Why General Dynamics?

Designing any system is difficult, but given the gravity of IFF-based decisions, disciplined system design is even more critical. Our background and experience in cryptographic designs, paired with our strong design processes, result in low-risk, highly reliable systems.

At General Dynamics, we build IFF crypto solutions for every branch of the military. Our AIM III-based IFF crypto solutions provide legacy interoperability and the programmability to adapt to new CM2 cryptographic protocols without hardware modification. With nearly 50 years of overall cryptographic experience and 20 years building IFF systems, General Dynamics has the proven ability to secure IFF systems.

Features

- **Small appliqué design:**
  Removal leaves host equipment unclassified
- **Modes (all simultaneous)**
  Mode 5 . . . . . Encrypt/Decrypt/TRANSEC/M5L2B
- **Size** . . . . . 3.4 in. x 4.7 in. x 2.1 in.
- **Weight** . . . . . 24 oz.
- **Interfaces**
  Mode 5 . . . . . Serial IAW AIMS 04-900
  Keying . . . . . EKMS 308/608, DS-101, cold load

Characteristics	*Specifications*
Environmental Requirements	
Operating Environment	
Temperature	-40°C to +85°C (-40°F to +185°F)
Altitude	78,000 feet (23774.4 meters)
Vibration	5 to 50 Hz (20 g's 90 minutes each axis) 10 to 2000 Hz (0.2 g2/Hz random each axis)
Relative Humidity	0% to 100%
Shock	≥ 40 g's 8 ms each axis
Acceleration	≥ 16 g's
Reliability (MTBF)	≥ 6,556 hours at 91°C
Storage Environment	
Temperature	–54°C to +85°C (–65°F to +185°F)
Relative Humidity	100% (meets the requirements of MIL-E-5400, paragraphs 3.2.17 and 3.2.24.4.)
Power	
Primary Power Input	+15 Vdc ±1.0 Vdc
Max. Continuous Current	200 mA
Max. Surge Current	400 ma (3 sec)
Battery Power	+7.8 Vdc
Normal Code Hold Current	<300 µA
Cold Load Current	<20 mA
Battery Life	>6 months under nominal temperature environment

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