DESCRIPTION
The AN/UPX-25(V)K12 Shipboard IFF Interrogator-Transponder System provides a complete, turn-key IFF solution for naval ships. The IFF System is comprised of AIMS-certified equipment (AN/UPX-43 IFF Interrogator, AN/APX-119 IFF Transponder, and APM-424(V)5 IFF Test Set) integrated into a ruggedized cabinet to ensure survival in harsh shipboard environments. The IFF System can either operate under remote control from the ship’s Combat System via Fast Ethernet interface or as a stand-alone system under local operator control via the cabinet’s integrated touch sensitive monitor. Remote vs. local control of the Interrogator and Transponder functions are independently selectable, allowing for emergency back-up in case of Combat System failure and minimal disruption of ship’s operations during servicing. An optional Operator Interface Panel is offered as an alternate for ships lacking a Combat System, allowing for both remote operator control and IFF target report interface to an external display system.

The IFF System is capable of interrogating in Mode 1, Mode 2, Mode 3/A, Mode C, Mode S, Mode 4, and Mode 5. User can select varying combination of interrogation modes in up to 8 differing sectors. Detected IFF targets are tracked and reported to the Combat System.

The IFF System is capable of transponding in Mode 1, Mode 2, Mode 3/A, Mode C, Mode S, Mode 4, and Mode 5. Full antenna diversity is supported.

The IFF System includes blanking input/output interfaces to reduce co-located interference with external L-Band equipment, Multiple Unit for Transmission Elimination (MUTE) interface to support ship’s EMCON function, and Man Aloft safety feature to support radar/interrogator antenna maintenance.

The IFF System includes a high resolution touch sensitive monitor with virtual keyboard for ease of local operator control/display.
SPECIFICATIONS

- Electric Power: 110 VAC, 60 Hz, single phase at 14 Ampere steady-state, 25 Ampere surge maximum in accordance with MIL-STD-1399 Section 300A, Type I
- Cooling: No external cooling required (passive air convection with internal blower for Interrogator only).
- Heat Dissipation: 730 Watts (typical), 960 Watts (maximum)
- Dimensions (h x w x d): 155.58 cm (61.25 in) x 58.08 cm (22.90 in) x 66.05 cm (26.00 in)
- Weight: 260 kg (574 lbs.)
- Mounting: four (4) shock-isolated floor mounts with shock-isolated rear-stabilizer
- MTBF: 3,814 Hours per MIL-HDBK217F, Notice 2 for Naval Sheltered (NS) environment
- MTTR: 25 Minutes

ENVIRONMENTAL QUALIFICATION

- Weather Environment: MIL-STD-1399, Section 302, 0 °C to +50 °C, 95% RH non-condensing.
- Shipboard Shock: MIL-S-901D, Grade A, Class II, Type A, Medium-weight
- Shipboard Vibration: MIL-STD-167-1A, Type I.
- Ship Attitude/Motion: MIL-STD-1399, Section 301, +/-45° trim/list, +/-45° roll/pitch
- Airborne Noise: MIL-STD-740-1, Equipment Grade D
- Structureborne Noise: MIL-STD-740-2, Type III Electrical Equipment

CAPABILITIES

Interrogator

- DoD AIMS-certified.
- Supports Interrogator Side Lobe Suppression (ISLS) when interfaced to Sum-Difference or Sum-Omni antenna system
- Uses monopulse techniques to reduce interrogation rates and improve azimuth accuracy.
- The IFF System has an instrumented range capability of 250 nmi (actual range is based upon gain of the external IFF Interrogator Antenna).

The operator can select a combination of interrogation modes that can be enabled for 360° of operation as well as up to 8 independent azimuth sectors.
- Interrogation mode interlacing and interrogation rate is determined automatically based upon specific operator mode selection.
- Tracks up to 2000 IFF targets within the surveillance volume and reports the target’s position, reply codes, and related characteristics to the Combat System using standard ASTERIX protocol.
- Accommodates customer-provided KIV-77 IFF Mode 4/5 Cryptographic Applique.

Transponder

- DoD AIMS-certified.
- Supports both single-antenna and dual-antenna configurations for flexibility in antenna placement vs. azimuthal coverage and cost.
- Support both Mode S Elementary Surveillance (ELS) and Enhanced Surveillance (EHS) operation.
- Accommodates customer-provided KIV-77 IFF Mode 4/5 Cryptographic Applique.

Blanking/EMCON

- Accepts up to three blanking video input gates and three blanking video input triggers to dynamically suppress interrogator and transponder RF transmissions.
- Provides up to two video-format blanking outputs and two digital format blanking outputs to dynamically suppress external L-Band receivers.
- Interfaces to system AN/SSQ-82(V)2 Multiple Unit for Transmission Elimination (MUTE) system to instantaneously inhibit interrogator and transponder RF transmissions.
- Accepts antenna Man Aloft input to inhibit interrogator RF transmissions during antenna maintenance.

Test Set

- DoD AIMS-certified.
- Supports both interrogator and transponder testing.
- Accommodates customer-provided KIV-77 IFF Mode 4/5 Cryptographic Applique.

Antenna Options

- Transponder interfaces to shipboard standard AS-177B/UPX IFF Transponder Omni Antenna included with IFF System. Up to two antennas per system are provided dependent on user installation needs.
- Interrogator interfaces to customer’s IFF SUMM-DIFF antenna typically included as part of Radar system.
- Separate stand-alone IFF interrogator antenna system available (consult manufacturer).

Logistics

- Via the embedded IFF Test Set, the IFF System has semi-automated self-test capability in Mode 1, Mode 2, Mode 3/A, Mode C, Mode 5, Mode 4, and Mode 5 to quickly verify system integrity and isolate faults.
- Open access design of the cabinet allows for ease of removal/replacement of key assemblies.
- Convenience storage drawer is provided for storage of test accessories, basic issue items, and related ancillaries.
- Technical manuals available via local user’s monitor.