AN/UPX-41(C) Digital Interrogator with Mode 5

The AN/UPX-41(C) digital Identification Friend or Foe (IFF) interrogator is the U.S. Navy’s standard Mode 5 Level 1 and Level 2 interrogator.

Description

It is an upgrade to the AN/UPX-37, which replaces all AN/UPX-27 IFF interrogators in the fleet, and has been selected by the U.S. Marines and U.S. Air Force for multiple applications. It is used for Mark XII and Mark XIIA IFF processing, including Mode 5, with growth to Mode S.

The AN/UPX-41(C) conforms to U.S. DoD, NATO, ICAO, and U.S. FAA requirements. Its modular and digital architecture affords customized configurations and performance optimization for most applications: air defense, weapon systems, air traffic control, and range instrumentation. Digital target reports can be provided in addition to wideband video for subsequent passive and active decoding. The digital interrogator also provides amplitude monopulse for significant improvement in azimuth accuracy over conventional systems. It operates autonomously, or in conjunction with a host radar.

Features and/or benefits

- Open-architecture, VME-based modular design
- Embedded M4/M5 NSA-certified crypto
- Extensive BIT, 98 percent fault detection
- Growth provided for Mode S and target data extractor
- More than 90 percent processing and memory reserves
- MTBF exceeds 4,000 hours
- MTTR less than 20 minutes
- MIL-STD-461D-compliant
- Compliant with DoD AIMS 03-1000A and STANAG 4193
Specifications

Characteristics

- Peak power output at antenna ports:
  - Dual outputs: 33 dBm
  - Single combined output: 36 dBm
  - Adjustable by -9 dB in 1-dB steps
- Duty cycle: 2.0 percent maximum
- Receiver center frequency: 1090 ±0.5 megahertz
- Receiver bandwidth: -3 dB, 8 megahertz nominal
- Sensitivity:
  - -84 dBm minimum (Mark XII)
  - -90 dBm minimum (Mark XIIs)
- Extractor instrumented range: >300 nautical miles
- Power input configuration: 115 or 230 Vac, <1100 VA, 47 to 440 hertz
- Dimensions: 10.56” height x 14.75” width x 18” depth
- Weight: 80 pounds maximum

Environmental

- Altitude:
  - Operating: Up to 12,000 feet
  - Non-operating: Up to 50,000 feet
- Temperature:
  - Operating: -28 degrees celcius to +65 degrees celcius
  - Non-operating: -40 degrees celcius to +75 degrees celcius
- Shock: MIL-S-901C lightweight equipment
- Salt fog: 48-hour exposure
- Humidity: 90 percent relative
- EMC: MIL-STD-461D

Performance Parameters

- Capacity: 1,000 targets per scan
  - 100 in-beam targets
- Reliability (naval sheltered):
  - Basic system: >4,000 hours
  - Maintainability: 19-minute MTTR
- Range accuracy: 0.03 nautical mile
- Range resolution: 0.05 nautical mile
- Azimuth resolution: Effective beamwidth plus seven PRPs (all modes responding)

Support Services Available

- Full support to field units available for life of system
- Two-level performance-based logistics support available

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