BAE SYSTEMS

Digital interrogator product family

AN/UPX-37 | AN/UPX-41 | AN/UPX-42 | AN/UPX-45 | AN/UPX-50

The **AN/UPX-37**, **AN/UPX-41(C)**, and **AN/UPX-45(C) digital interrogators** are the U.S. Navy's standard interrogators.

The **AN/UPX-42(C) digital interrogator** has been selected as the interrogator of choice for the U.S. Navy's next-generation destroyer.

The **AN/UPX-50(C) digital interrogator** is a tech refresh upgrade to the AN/UPX-41(C) and AN/UPX-45(C) and adds a third receive channel for passive acquisition capability for the U.S. Navy.

The AN/UPX-37 replaces all AN/UPX-27 IFF interrogators in the fleet and has been selected by the U.S. Marine Corps. and U.S. Air Force for multiple applications. The AN/UPX-41(C) is an upgrade to the AN/UPX-37, adding Mode 5 Level 1 and Level 2 capability. The AN/UPX-45(C) adds Mode S capability to the AN/UPX-41(C). The AN/UPX-50(C) adds passive reception capability to the AN/UPX-45(C).

Upgrades are available to add target data extraction for digital target reports and Mode S Level 1 and Level 2.

The systems conform with U.S. DoD AIMS, NATO, ICAO, and FAA requirements. 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. They operate autonomously or in conjunction with a host radar.

Features and benefits

- VME- based modular design facilitates technology insertion and additional capabilities
- Maintainability features provide the following benefits to users and maintainers:
  - Extensive BIT, 98 percent fault detection
  - Mean time between failures exceeds 5,000 hours for AN/UPX-37
  - Mean time between failures exceeds 4,000 hours for AN/UPX-41(C) and AN/UPX-42(C), AN/UPX-45(C), and AN/UPX-50(C)
  - Mean time to repair less than 20 minutes
- More than 90 percent processing and memory reserve enables future growth
- DoD AIMS certified and STANAG 4193 compliant configurations ensure ease of use for U.S. Navy

Interrogator	Standard interchange format	Mode 4 evaluator	Mode 5	Mode S	Target data extractor	Comments
AN/UPX-37	✓	Available*	Upgrade kit available	Upgrade kit available	Available	U.S. Navy replacement for AN/UPX-27
AN/UPX-41(C)	✓	Available	✓	Available	Available	Standard U.S. Navy Mode 5 interrogator
AN/UPX-42(C)	✓	✓	✓	Growth	✓	U.S. Navy DDG 1000 interrogator
AN/UPX-45(C)	✓	Available	✓	✓	Available	Standard U.S. Navy Mode 5/S interrogator
AN/UPX-50(C)	✓	Available	✓	✓	Available	Future US Navy Mode 5/S interrogator with 3rd receive channel for passive acquisition capability

*Requires external crypto computer

Specifications

Characteristics	Peak power output at antenna ports - AN/UPX-37 and AN/UPX-41(C), AN/UPX-45(C), AN/UPX-50(C) Dual outputs Single combined output Adjustable by -9 dB in 1-dB steps	 63 dBm 66 dBm, excludes AN/UPX-50(C)
	Peak power output at antenna ports – AN/UPX-42(C) Dual outputs Adjustable by -6 dB	 65 dBm
	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 XIIA) 90 percent decode measured at antenna port
	Extractor instrumented range	>300 nautical miles
	Power input configuration	115 or 230 VAC, <1100 VA, 47 to 440 hertz
	Dimensions	14.75 inches width, 10.56 inches height, 18 inches depth
	Weight	85 pounds maximum
Environmental	Altitude Operating Non-operating	 Up to 12,000 feet Up to 50,000 feet
	Temperature Operating Non-operating	 -28 degrees Celsius to +65 degrees Celsius -40 degrees Celsius to +75 degrees Celsius
	Shock	MIL-S-901D 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 Maintainability	 >4,000 hours AN/UPX-41(C), 42(C), 45(C), and 50(C) >5,000 hours AN/UPX-37 <20 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	
Interfaces	Ethernet, RS-232, RS-422	
	Support services available	

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