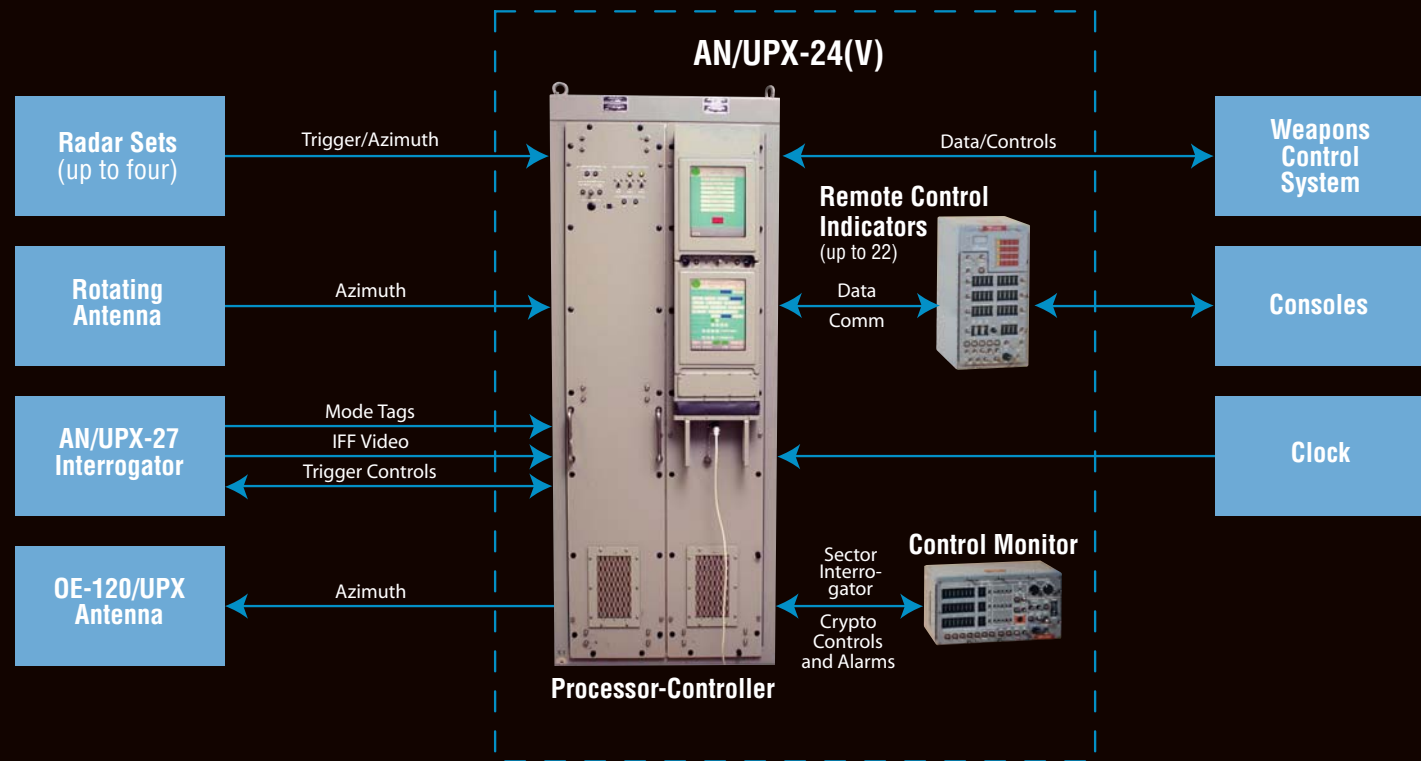


Central IFF System AN/UPX-24(V)



Integrated AN/UPX-29 System



Central IFF System AN/UPX-24(V)

OVERVIEW

Northrop Grumman's Interrogator Set AN/UPX-24(V) is the core Identification Friend or Foe (IFF) processor of the shipboard Interrogator System AN/UPX-29(V), a technologically sophisticated cooperative identification system for naval shipboard use.

The AN/UPX-24(V) identifies aircraft and surface platforms equipped with Selective Identification Feature (SIF) Modes 1, 2, 3A, and C, and provides secure, positive identification of cooperative Mode 4 targets. The IFF data from one AN/UPX-24(V) can be synchronized with up to four individual radars, eliminating the expense of separate, dedicated IFF systems for each radar and reducing problems caused by over-interrogation. It provides the operator with synthetic IFF symbology, which aids in target recognition and tracking.

The AN/UPX-24(V) operates with an Electronically Steerable Antenna (ESA), the OE-120()/UPX, which can instantaneously be redirected to interrogate a target at any azimuth in less than 50 microseconds. The system operates with radar rotation rates of up to 60 RPM and can also be configured to operate with a mechanically rotating IFF antenna.

Since 1979, Northrop Grumman has been supplying the AN/UPX-24(V) for the CG 47 "Ticonderoga" Class Aegis cruisers, the DDG 51 "Arleigh Burke" Class Aegis destroyers, the LHD I "Wasp" Class, the LPD 17 "San Antonio" Class amphibious assault ships, and the CVN 68 "Nimitz" Class carriers.

SYSTEM EQUIPMENT

The AN/UPX-24(V) consists of a Processor-Controller (PC), a Control Monitor (CM), and up to 22 Control Indicators (CIs).

Processor-Controller

The PC receives mode selection and interrogation commands from both operator actions at the CIs and via the Naval Tactical Data System (NTDS) MIL-STD-1397 combat system interface. The PC sends steering commands to the OE-120()/UPX ESA antenna and interrogation commands to the AN/UPX-27 or the AN/UPX-37 interrogator. It receives IFF video and mode tags from the AN/UPX-27 or the AN/UPX-37 and performs target detection, decoding, code validation, defruiting, and degarbling, using established criteria for target start, continuation, end, verification, and code validation.

Control Monitor

The CM allows the user to define up to three manually entered azimuth sectors with individual control of interrogation modes, pulse repetition frequency, and radio frequency power. It also provides remote alarms, PC master reset, NTDS minimum/maximum range control, and Mode 4 control and crypto zeroize.

Control Indicators

The CIs are colocated with Planned Position Indicators or NTDS consoles. They enable the console operators to interrogate selected modes and to request active and popup evaluation of both SIF and Mode 4 targets. They allow passive decode of operator selected targets, which provides unique target symbology to be displayed for targets of operator interest.

FUNCTIONAL DESCRIPTION

The shipboard weapon system can request modes of interrogation and all target information from full scans or in specified sectors of a scan, test targets at specified range and azimuth, and popup target information in a range-azimuth window centered at a specified point. The AN/UPX-24(V) provides target reports to the combat data system.

The AN/UPX-24(V) operates in two modes: popup or sector. Popup and sector mode processing can be performed simultaneously without degradation.

In response to a popup request, when using the ESA, the PC immediately redirects to interrogate an area of interest. This permits immediate acquisition of IFF data relative to a specified target or area.

Sector mode operates with either antenna type. In response to a sector request, the AN/UPX-24(V) waits until the antenna rotates the ESA to the area of interest before data is required.

In fruit environments of 5000/second and greater, the AN/UPX-24(V) performs defruiting, degarbling, and decoding significantly better than any other available system. The AN/UPX-24(V) has online fault detection, self-fault isolation, and a fully redundant unit with automatic switchover capability.

AN/UPX-24(V) SYSTEM FEATURES

- 40k steady-state defruiter
- 100k peak defruiter
- 100 target simultaneous processing capability during any sweep
- Separate processing files for active and popup processing
- Jittered pulse-repetition-time capability
- Full sweep and window-gated Mode 4 evaluation in override and interface modes
- Targets-per-antenna scan limited to 1024 targets-per-sweep
- Detection and recombination of target splits in range and/or azimuth
- Effective separation of targets at the same range which overlap in azimuth
- Centroided azimuth
- High-resolution range
- Indication-of-position and military/civilian emergency detection
- Primary power: 115 Vac 10%
60-400 HZ
1500 W max
- Weight: 868 lb appx. (393.7 kg)
- Dimensions: height 72 in. (182.9 cm)
width 36 in. (91.4 cm)
depth 29 in. (73.7 cm)
- Military specifications: Shock: MIL-S-901
General: MIL-E-16400
Vibration: MIL-STD-167
EMI: MIL-STD-461
Noise: MIL-STD-740
- Distributed processing architecture

