

AN/SQQ-32 Minehunting Sonar System



The **AN/SQQ-32** is the key minehunting component of the U.S. Navy's Mine Countermeasures Ships.

Benefits

- Computer-aided detection reduces operator workload
- Multiple operating frequencies provide maximum detection capability
- Two independent acoustic search and classification arrays provide maximum volumetric coverage and ship safety during maneuvers
- High resolution view of ocean bottom and contact evaluation of mine-like objects provide high confidence classification and identification

The seafloor of the Persian Gulf was littered with more than 1,000 magnetically and acoustically influenced mines.

The challenge of detecting and clearing them was met by the AN/SQQ-32 variable depth minehunting sonar system developed by Raytheon and Thales of France.

At work in the Gulf, it exceeded all expectations. Deployed aboard the USS Avenger, this was the first sonar to locate and identify live influence-type bottom mines in combat.

It delivers superior performance for ship safety, area coverage, detection and classification range, and mine localization.

The AN/SQQ-32 has multiple operating frequencies and gathers sonar data from two independent acoustic search and classification arrays. Both arrays are located in a hydro-dynamically stable, variable depth towed body.

Today, this minehunting capability is in service with the U.S. Navy, Japanese Maritime Self-Defense Force and the Spanish ARMADA. It's the latest in over 250 sonar systems that Raytheon has pioneered, developed and delivered to nations around the world.



AN/SQQ-32 Minehunting Sonar System

Towed Body

Specifications:

| | |
|------------------|----------|
| Height: | 246 cm |
| Diameter: | 109 cm |
| Weight: | 3,123 kg |

Towed Body

Specifications:

| | |
|----------------|----------|
| Length: | 500 m |
| Weight: | 1,577 kg |

Total System

Specifications:

| | |
|---------------------|---|
| Input Power: | 440 VAC, 3 Phase, 60 Hz, 35 A |
| Reliability: | 750 hours MTBF (Mean Time Before Failure) |
| Weight: | 17,000 kg |

Detection

Multiple-ping processing detects mine-like objects against high reverberation background. Longer detection ranges achieved in both deep and shallow water operations through use of lower operating frequency. Computer-aided detection enhances search by marking any mine-like sonar contacts with "track buckets."

Provides high-resolution view of ocean bottom and contact evaluation information of mine-like objects on or near the bottom or tethered in the water column. Presents data in B-scan format from two azimuth search sectors on left side of screen. At selected times, display shows terrain features, mine-like objects, and computer-generated symbols for identification of potential targets and other data of interest.

Classification

Very narrow acoustic beams produce high resolution imagery for both echo and shadow mode displays. Image storage and contact measurement techniques permit operator to accurately determine nature and dimensions of detected objects.

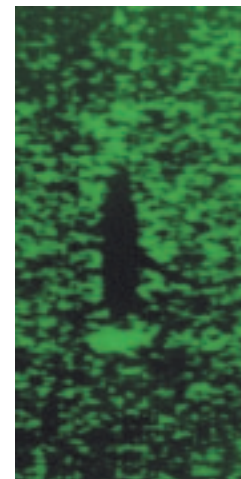
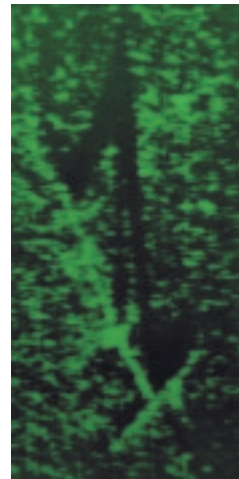
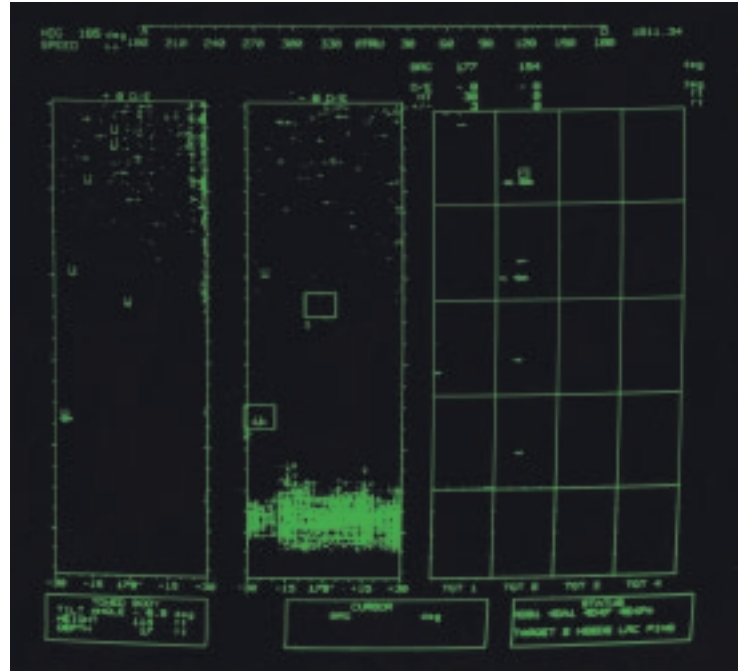
Provides visual information based on physical appearance of echo or shadow which can be used to identify a mine. Echo and shadow modes are complementary. Classification display designed to accommodate full range of system's target resolution capabilities.

Shipboard Electronics Upgrade: (V)3 Configuration

The AN/SQQ-32 (V)3 configuration was introduced into the U.S. Fleet in 1999. The (V)3 configuration is an upgrade to the below-deck electronics, featuring new color displays and an open system architecture with COTS processors. In addition to enhancements to the Man Machine Interface, the (V)3 system architecture supports wide band processing. Additional performance enhancements are currently being developed.

Route Survey Capability

As an option, Raytheon provides Side Scan Sonar Processing to support Route Survey. The Side Scan Unit includes low frequency and high frequency Side Scan processing, video display and the magnetic recording.



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