DEFENSE AND SECURITY

LWHP53 SONAR

Defense and security in five continents

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Introduction

The resurgence of nuclear and conventional attack submarines has brought home the need to strengthen anti-submarine warfare (ASW) capabilities in many of the world's navies. Despite the evolving threat, the technologies used in many existing ASW systems are outdated, and many programs for new vessels and mid-life upgrades seek to address this issue.

Faced with shrinking defense budgets, it is critical to find affordable ASW solutions that use state-of-the-art technology to meet new threats. A good solution must be capable of being integrated and adapted to both existing and new platforms, and offer flexibility and forward-compatibility through the use of an open architecture.

In order to address this need, Indra and Lockheed Martin have teamed together to create the LWHP53, an active/passive hull-mounted sonar (HMS) suitable for installation in a wide variety of anti-submarine warfare (ASW) capable platforms, including frigates, destroyers and cruiser-type vessels.

It has been designed to detect, locate, classify, track and engage targets in littoral and deep waters, including submarines and torpedoes. The LWHP53 processes acoustic data, sending it to the operator display console and the Combat Direction System (CDS).

Applications

The LWHP53 has been designed for anti-submarine warfare in both littoral and deep waters. It can detect submarines, sea mines and torpedoes, making it suitable for anti-submarine escort, self-defense, and attack.

Key features

Architecture

Open system architecture
Modern X-based architecture
Integration with combat systems

Operational features

Obstacle avoidance
Automatic / manual tracking
Torpedo detection
Record / playback ability
Integrated geographic information
Integrated training capability

Components

The system is made up of the following elements:

Transducer array

Converts electrical to high level acoustic energy during transmission and from low level acoustic to electrical during reception to detect submerged contacts. The baseline configuration is made up of 36 staves formed by 6 transducers each (adaptable to the design of each particular vessel) protected by a neoprene cover. The array does not require dome pressurization, making its installation simpler.

Transmission / reception switching unit

This air-cooled unit houses a switching array connection between the transmitter units and the processing unit, as well as a set of preamplifiers for the signals received, effectively changing between transmission and reception.

Transmitter units

Water-cooled units that contain high power amplifiers.

Processing unit

This unit consists of converters and control electronics for transmitting and receiving, processing resources, an Ethernet network hub, record/playback storage facilities and external interface connections.

Power distribution units

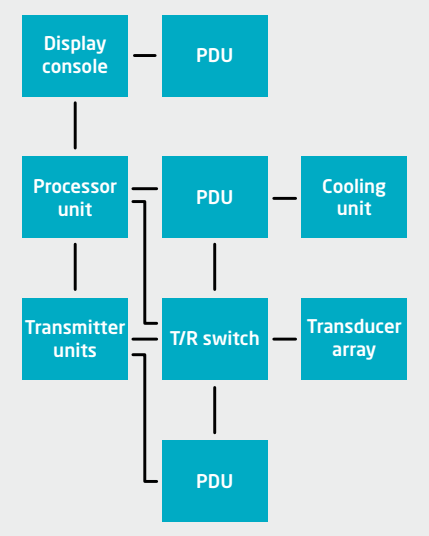
These units distribute the ship's power to the rest of the system. One of the units includes system controls, indicators and loudspeaker to facilitate maintenance.

Cooling units

These units are responsible for cooling the system with bi-distilled water. They consist of a water pump and heat exchanger, dissipating heat from the sonar circuit to the ship's primary sea-water circuit.

Display console

Composed of 2 monitors, 2 touch panels, a trackball, and a range of indicators and controls, allowing a single operator to control the system.



Specifications (Baseline configuration)	
PHYSICAL SPECIFICATIONS	
Transducer array dimensions	Diameter: 261.6 cm Height: 161.7 cm
Transducer array weight	< 10000 kg
Total system weight	14470 kg
SIGNAL TRANSMISSION	
Source level	> 225 dB
Peak response frequency	3.75 kHz
Transmission	Omni-directional / 10, 30 and 60 degree transmission beams
POWER REQUIREMENTS	
Transmission units, water cooling units	440 VAC, 3 Phase, 60 Hz
Data processor, power distribution units, display console	115 VAC, 60 Hz
ADDITIONAL OPTIONS	
	Alternative medium-frequency configuration (7.5 kHz) Hardware and software configuration adaptable to each platform

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Ctra. de Loeches, 9
28850 Torrejón de Ardoz
Madrid (Spain)
T + 34 91 480 60 04
F + 34 91 480 60 41
sonar@indra.es
indracompany.com

Indra reserves the right to modify these specifications without prior notice.