Direction Finding and Monitoring Antennas for Naval Applications

Introduction

A global shift in naval capabilities between the Major Superpowers continues to increase the importance of expansion of naval fleets to compete for Naval superiority. Electronic Warfare Systems are crucial wfor the effectiveness of the navy.

UAS Threat: A New Challenge

The new use of unmanned aerial systems (UASs) poses a similar threat to that of IEDs to maritime vessels. The vessels can be vulnerable to all aerial threats, UASs in particular, because most of the vessels' surveillance and countermeasures are not designed to defeat the UAS threat or not active during visits to port.

Alaris Antennas: Leading Naval Innovation

As one of the world's leading suppliers of EW antenna systems, for over 2 decades Alaris Antennas has developed a range of naval COMINT DF and monitoring products to support such evolving challenges being faced, in today's maritime environment.

Alaris Antennas' naval solutions are electrically hardened, allowing the antennas to safely co-locate with third-party high-power transmitters. The capability to safely collocate with various 3rd party systems allows topside design flexibility to the user. Solutions offered by Alaris Antennas cater for various deployment strategies and are highly customisable.

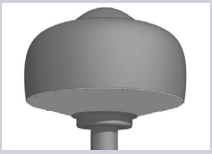
Some of the more unique solutions offered by Alaris Antennas allows for 3rd party solutions to locate on top of the COMINT sensor provided by Alaris Antennas, hence allowing more sensitive equipment to collocate on top of our sensor.

To withstand the relentless environmental conditions encountered, such as salt spray, vibration profiles,

high winds and solar radiation, Alaris Antennas inhouse Engineering team designs for and, formally qualifies the antennas and antenna systems.

Alaris Antennas takes pride in successfully supplying high quality naval products to various naval clients and shipyards, across the globe.

The central range of products is shown in the table below:

Product code	DF-A0037	DF-A0088	DF-A0098	DF-A0263
Frequency / MHz	1 – 3,600	1 – 6,000	20 – 3,000	20 – 6,000
DF method	Correlative interferometer	Correlative interferometer	Correlative interferometer	Correlative interferometer
DF accuracy (RMS - typical)	< 3° (1 - 90 MHz) < 2°	< 2° < 3° (3000 – 6000 MHz)	< 1.5° Improved sensitivity	< 1.0° Improved sensitivity
Size	2m x 1.1m 80 kg	2m x 1.1m 85 kg	2.7m x 2.6m 80 kg	3.6m x 2.7m 90 kg
Form factor				
Operational Application	Meduim sized COMINT Sensor	Weight optimised COMINT Sensor	COMINT sensor allowing 3rd party payload	Large aperture COMINT Sensor

Monitoring Antenna Solutions

Alaris Antennas also manufactures naval-rated monitoring antennas, both directional and omni directional. Moreover, SYST-A0013 is a directional antenna with a rotator, providing directional coverage throughout full azimuthal positioning.

Product code	LPDA-A0134	MONO-A0025-10	OMNI-A0205	SYST-A0013
Frequency / MHz	100 – 1,000	1 – 30	20 – 6,000	80 – 18,000
Polarisation	L (V or H) - adjustable	V	V	V
Gain / dBi	6.5 to 8.5	0 (ground-plane dependent)	Different for active and passive variants	5.5 to 10
Size	2.3m x 1.7m 15 kg	6m x 0.3m 30 kg	730mm x 350mm 12 kg	4.6m x 2m 150 kg
Form factor