



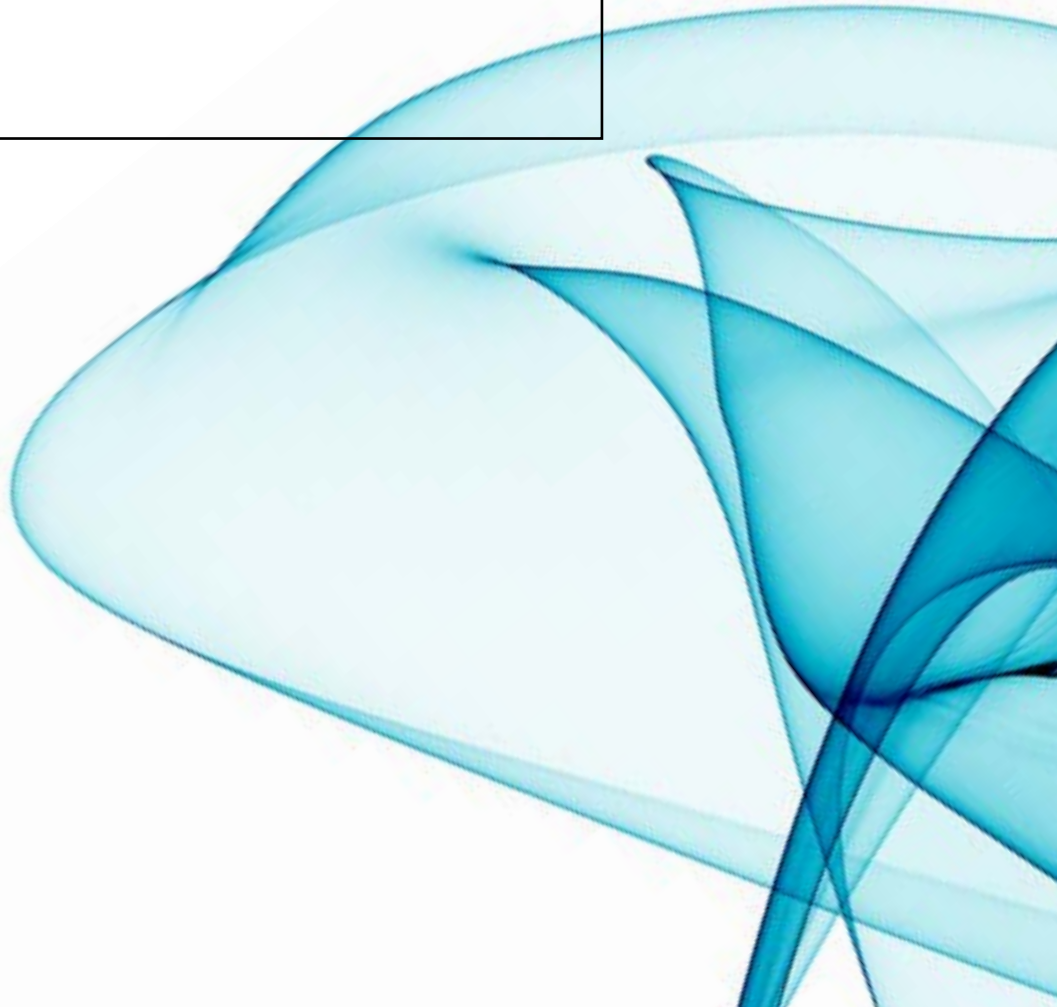
**indra**

DEFENSE AND SECURITY

# **RIGEL RECM SYSTEM NAVAL**

Defense and security systems in five continents

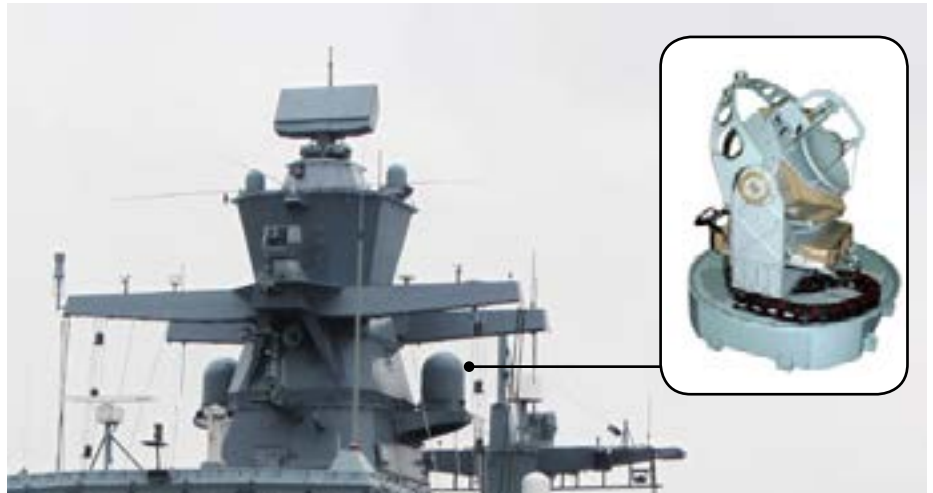
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# RIGEL RECM SYSTEM NAVAL



Field proven Radar Electronic Attack Subsystem  
based on Mechanical Pointing transmitter antennas

## MISSION

RIGEL RECM System provides a platform with self-protection by means of jamming and deception countermeasure techniques against either single or multiple threats that are active on the 6-18 GHz frequency band.

For signals detection, classification and identification, RIGEL RECM system is fully integrated with Indra's RIGEL RES system family, which incorporates wide band digital reception covering the required frequency band.

## CAPABILITIES

- Evaluation of the availability of the suggested countermeasure power management.
- Radiation inhibition in bearing and frequency combination ranges.
- Immediate CM response against pre-fitted threats.
- BITE initialization, operator initiated and continuous.
- Interoperability blanking with onboard systems.
- Audio Swept for jamming techniques.
- Multi-threat capability time sharing.
- Advanced multi-bit DRFM techniques.
- Threeaxes mechanical stabilization
- Transmitter Power Amplitude modulation capability.
- Several operation modes (automatic, supervised, manual, imposed).

## TECHNOLOGICAL ADVANTAGES

- Direct synchronization between RES and RECM subsystems what guarantees a fast and accurate threat parameters update for an optimum CM deployment.
- Very short reaction times for Immediate Response.
- Indras in-house advanced multi-Gigabit DRFM technology expansion possibilities based on the use of DSPs and FPGAs.
- Signal simulation environment simulation capabilities.
- Multi-threat capability.
- Dedicated RECM receivers for a fast signal validation.
- Audio-Swept capability for jamming techniques.
- Modular design, flexible HW Architecture.
- BITE resources which allows to monitorize the system status and locate failures.
- Transmitter Power Amplitude modulation capability.

## CONFIGURATION

The RIGEL RECM is physically composed by the following elements.

### RECM Antenna Assembly (x2)

It groups both the RF resources (antenna elements, receiving channels and power stages) and processing (signal processing and validation) allowing the system to generate and transmit the right countermeasure. Each assembly covers 180 degrees azimuth range.

### RECM Processing Module

The RECM Processor performs the power management, distributing both the resources and processing time among all detected threats according to their priority and all the available resources of the RECM Subsystem.

### Rotor Control Module

It implements the needed resources for the correct stabilization of the platform movements and azimuth, elevation and polarization control.

### Cooling Unit

Transmitters have to be refrigerated using one heat exchanger or refrigeration unit enough to refrigerate the RECM Antennas.

### Air Dryer Unit

The RECM antenna is housed in a radome that must be pressurized with dry air to isolate the antenna from the environment.

### Display Set

Composed by the emitter data base and the Human-Machine Interface HMI. If needed, a stand-alone console may be provided.



## TECHNICAL FEATURES

### Electronic Attack

RIGEL RECM can perform the following countermeasure techniques.

### Deception

- RGPO/VGPO.
- RGPI/VGPI.
- AGPO/AGPI.
- High Duty Technique.
- High Density Confusion.
- Count Down.
- Cross Polarization.

### Noise Jamming

- Spot Jamming (SJAM).
- Barrage Noise (BJAM) (with or without AUDIO SWEPT).
- Noise Cover Pulse (NCP).

### Possible jamming modulations

- Non-coherent either continuous or cover pulse jamming.
- Coherent burst cover pulse.
- Synchronous Jamming or bursted.
- False Targets.
- Audio Modulation Audio swept.
- Amplitude Modulation Pulse to Pulse.
- Amplitude Modulation Burst to Burst.
- Synchronous Amplitude Modulation.
- Polarization modulated jamming.

## PHYSICAL CHARACTERISTICS

EXTERNAL EQUIPMENT	x H	WEIGHT
RECM Antenna Assembly (each unit)	1350x1800 mm	470 Kg
INTERNAL EQUIPMENT	W x H x D	WEIGHT
Equipment Rack	628x800x916.5 mm	180 Kg
Cooling Unit	628x800x916.5 mm	165 Kg
Air Dryer Unit	628x600x650 mm	71 Kg

## OPTIONAL EXTENSIONS

### Frequency band extensions

There are available different frequency band extensions, with the corresponding impact on system architecture.

- 0.4-2 GHz band.
- 2-18 GHz band.

### Electronically Pointed Antenna

This technology has been developed for naval platforms.

## TECHNICAL SPECIFICATION

### RECM Process

- Frequency Range from 6 to 18 GHz.
- Very fast RECM Command Response.
- High sensitivity receivers.
- Threedimensional signal validation.

### Jamming & Deception operation

- Extremely low transponder time.
- Both jamming and deception techniques deployment capability.
- Several operating modes (automatic, supervised, manual, imposed).

### RECM Power & Antenna System

- Mechanical steering and 3-axes platform stabilization.
- 360 degrees azimuth range.
- Different power configurations available (up to 500W).



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