



## **SASS** **SILENT ACQUISITION AND SURVEILLANCE SYSTEM**

**SASS is a new InfraRed Search and Track (IRST) system developed for the Italian flag ship: the aircraft carrier CAVOUR. SASS has been validated at sea by the Italian Navy and has been selected for the Italian Future European Multi Role Frigates (FREMM).**

### **GENERAL DESCRIPTION**

SASS is a long range, passive IRST for naval applications, operating simultaneously in MWIR (3-5  $\mu\text{m}$ ) and LWIR (8-12  $\mu\text{m}$ ) spectral bands.

It is able to detect and track air and surface targets with full 360° horizontal coverage and to provide InfraRed (IR) maps of the scene around the ship. It supports threat evaluation providing a statistical classification of tracks.

SASS has a modular architecture based on a stabilised panoramic head equipped with IR sensors and an electronic cabinet hosting the processing and control units. Special design care has been devoted to facilitate on-board maintenance.

### **MAIN FEATURES**

- High sensitivity/ high resolution/ dual band IR head
- Accurate stabilisation against sea motion
- Long range passive surveillance
- Automatic target detection and track initialisation
- Multi-target tracking of air and surface targets
- Panoramic and blown up images, in two different bands
- Flexible interface with other on-board systems and with combat management systems
- High reliability and easy maintenance on-board.

## SASS - Silent Acquisition and Surveillance System



SASS installations on-board Euro Maestrale (1) and NUM Cavour (2-3)

### TECHNICAL SPECIFICATIONS

#### Panoramic Sensor Head (above deck)

Field of Regard	360° continuous horizontal / -20° to +45° vertical
Elevation Field of View (FOV)	> 5°
Rotating Frequency	> 1 Hz
IR Bands	MWIR (3-5 μm) and LWIR (8-12 μm)
Optics	Refractive, athermalized, with special filters
Detectors	CMT, LLA with high overscan ratio and 6xTDI
Resolution (horizontal)	0,16 mrad
Stabilisation Accuracy	<1 mrad @1σ
Platform Height	81 cm
Platform Diameter	68 cm
Weight	120 Kg
Power	<400 W (including Platform Electronic Unit)
Size (H x W x D)	51 x 56 x 60 cm
Weight	23 Kg

#### Electronic Cabinet (below deck)

IR Data Interface	FO link
Pre-processing	Spatial filtering for size discrimination
Clutter Suppression	Specific algorithms for sea suppression
Plot Extraction	Algorithms for maritime environment
Real-time Plot to Track Association	False alarm suppression
Track Prediction and Update	Data fusion to form single bi-spectral tracks
Tracker Capacity	100 simultaneous tracks
Panoramic Image Display	4 sub-frames, 768x96 pixel, for each band
Blown up Images	Up to 5 full resolution pictures(768x288 pixels) for each band
Video Outputs	1 panoramic + 5 blown up (MWIR and LWIR), via 2 Ethernet links
Data/ Interface	Command and navigation data via Ethernet link
Size (H x W x D)	181,5 x 60 x 100 cm
Weight	230 Kg
Power	< 1300 W at 220V/50Hz

#### Local Console Unit (optional)

Displays	Two 23" LCD TFT – Resolution 1600x1200 pixels
Control Desk	Keyboard, track ball and others (on demand)
Input/Output	VME Ethernet PCI, SCSI, 2 USB ports
Mission Data Recording	CD/DVD multi standard driver
Self Diagnostics	Built-In Test Equipment (BITE)
Size (H x W x D)	180 x 61 x 88 cm
Weight	160 Kg

#### Environmental Conditions (Above-deck equipment)

	Standard	Levels / notes
Temperature (op)	MIL-STD-2036	-28°C - +55°C
Temperature (storage)	MIL-STD-2036	-40°C - +70°C
Humidity	MIL-STD-810	Meth. 507.4 / 95%
Icing	MIL-STD-2036	20 Kg/m <sup>2</sup>
Salt Spray	MIL-STD-810	Meth 509.4 – 96 h
Vibration	MIL-STD-167-1	2-14 Hz 1mm peak 15-23 Hz 0.8 g peak
Shock	Norm IT 9631	Level 4
Wind	MIL-STD-2036	140 Km/h and 3s gusts of 185 Km/h
Ship motion	DOD-STD-1399-301	+/-10°roll, +/-7.5°pitch
EMI	MIL-STD-461 D	



SASS Panoramic sensor head



Local console unit

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