



ELECTRONICS DIVISION

ULISSES ULTRA LIGHT SONICS ENHANCED SYSTEM

ULISSES (Ultra Light Sonics Enhanced System) is the new light weight modular Sonics System based on edge technology, to provide an affordable solution for advanced Anti-Submarine Warfare (ASW) operations.

ULISSES fulfills the emerging customer requirements to increase operational effectiveness in Maritime Patrol Aircraft (rotary and fixed wing) in wide area search. ULISSES implements multistatic capabilities as well as concurrent processing on a large sonobuoys inventory, including the latest special purpose sonobuoys developed to detect low noise targets.

Thanks to its optimized weight and size, ULISSES is also suitable for installation in small platforms both manned and unmanned (UAV, USV, RHIB) while remaining backwards compatible with dipping Sonar Sub-Systems, typically installed on medium/heavy class helicopters.

Operator training, mission planning and postprocessing tasks are supported with the ULISSES Ground Station.

KEY FEATURES

- Search, detection, localisation and classification of targets in shallow and blue waters
- Automatic tracking of multiple targets
- Target range, bearing and doppler velocity computation
- Enhanced acoustic performance estimation
- Sound velocity profile and environmental noise measurement
- Classification library management
- Sonobuoy localisation capability
- GPS Sonobuoys capability
- Light weight system
- Multistatic capability
- Management of up to 32 passive and/or active Sonobuoys
- Provision for Dipping Sonar Integration

SYSTEM COMPOSITION

The ULISSES system is composed of:

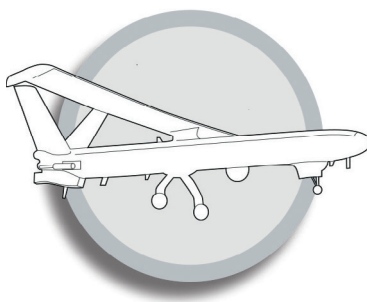
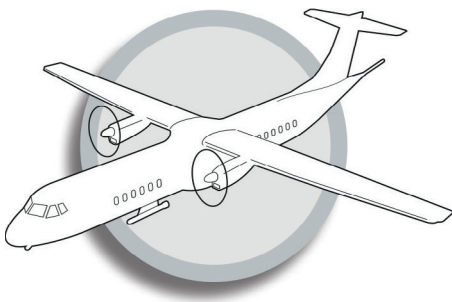
- Sonobuoy Processor to process up to 32 sonobuoys
- VHF receiver
- Common Function Transmitter
- VHF/UHF Antennas

ULISSES can be configured with VHF Receiver with SLS (Sonobuoy Localisation System) to include this capability into the system.

The sonobuoys and antennas, being off-the shelf items, can be provided directly by the Customer or optionally provided by Leonardo.

The following sonobuoys are supported:

- LOFAR, WIDEBAND LOFAR
- DIFAR, VLAD
- BATHY
- HIDAR
- ALFEA
- CAMBS
- LFA
- ANM
- DICASS



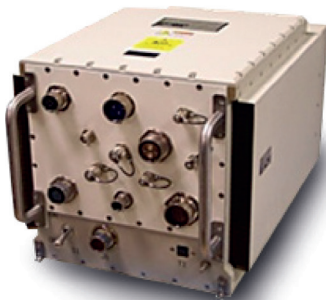


ACOUSTIC PROCESSOR (UAP)

The ULISSES Acoustic Processor performs passive and active processing, audio processing, tracking algorithms, localization and classification of targets.

Acoustic Processor features:

- State-of-the-art CPU
- Embedded Data Recorder
- Video Processing and audio for two operators
- Multiple interfaces with the Mission Computer
- Active and passive Energy Map
- Geographical Map
- Multistatic Processing
- Sonobuoy Operation selectable parameters Management (CFS and CSG)
- Command generator for active sonobuoys
- Autoalert Processing
- Dedicated interface for the management of classified data (classification library).



RECEIVER WITH SLS CAPABILITY (SDSR)

The Receiver is an already qualified item that can include sonobuoy location system capability.

Options are available for sonobuoy homing, and OTPI.

The SDSR provides 99 RF channel coverage and 32 acoustic channel outputs, all via Gigabit Ethernet.

Key features are:

- Robust optimal digital telemetry reception
- Anti-RFI and anti-fading/shading measures
- 136-174 MHz (standard Sonobuoy Band)
- Channelization to any of 99 RF frequencies
- Continuous Signal Strength reporting
- Extremely low Audio Distortion
- GPS Sonobuoy Support
- STANAG 4283 format Ethernet digital output, for replay interoperability
- Supports all NATO sonobuoy type



RECEIVER WITHOUT SLS CAPABILITY (SWAP)

The ULISSES Sonobuoy Receiver without SLS is called SWaP and it is already qualified.

The SWaP provides 99 RF channel coverage and 32 acoustic channel outputs, all via Gigabit Ethernet. The unit is provided with a full downlink command capability. It is compatible with the new NATO STANAG for sonobuoy telemetry.

The main characteristics of the SWaP being part of ULISSES system:

- Single VHF Antenna Input
- Digital Output (Ethernet)
- Built-In-Test Signal Generator
- GPS Sonobuoy support
- Sonobuoy Downlink (requires CFT)



COMMON FUNCTION TRANSMITTER (CFT)

The Command Function Transmitter is a unit devoted to the UHF downlink to buoys.

Its characteristics are the following:

- Software Programmable via Ethernet
- 50dB Linear Power Amplifier
- Output Filtering
- Measures incident and reflected power at output

ULISSES GROUND STATION

The ULISSES Ground Station provides the following features:

- to prepare the ULISSES Target Library to be loaded into the on-board ULISSES Acoustic Processor, through an USB
- to import from the ULISSES removable disk to the ground station the raw Sonobuoy data formatted following the Stanag 4283. The Ground station allows a real time processing (fast time analysis) of the recorded Sonobuoy data
- to provide the operator with a set of Target Library functionalities in order to improve the target identification and classification process.

TECHNICAL SPECIFICATIONS

• Dimension (mm) UAP	179.4 x 169 x 306.5
• SWAP	148.6 x 123.9 x 323.8
• SDSR	293.0 x 450.0 x 269.0 (*)
• CFT	247.0 x 130.0 x 127.0
• Weight (kg) UAP	7.5
• SWAP	6.8
• SDSR	26.0 (*)
• CFT	4.5
• Power Requirements SDSR	115 Vac 400 Hz single phase (*)
• 28 VDC	all other items
• Cooling SDSR	Self-cooled
• Convection/ Conduction	all other items
• Video I/Fs	Two independent DVI and VGA
• Multiple video resolutions	
• Audio I/Fs	Two independent stereo audios

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