Light Combat Helicopter

ELT/160 PROCESSOR (LIGHT)

PLANAR SPIRAL ANTENNA

ELT/160 RWR SYSTEM
The **ELT/160 family** of light radar warning receivers provides utility and combat aircrafts and helicopters with self-protection capabilities.

Even in operational scenarios characterized by high density electromagnetic environments, the **ELT/160 provides** timely and reliable warning and information on both the most advanced and legacy radars, which can be used equally by either friendly or hostile forces.

All **ELT/160 RWR** can be provided with an EW controller function that coordinates multiple sensors and actuators, operating within a tactical network to contribute to a common operational picture in Net Centric Operations

**SYSTEM HIGHLIGHTS**

- Very High Interception Probability
- Full azimuth coverage
- Wideband radio frequency coverage (E to K)
- Automatic warning of high priority emitters
- Capability to operate also with raw data libraries (mission data)
- Capability to automatically analyse, classify, display and record also unknown emissions (emissions not pre-loaded in the library)
- Capability to operate as an EW Controller that exploits/perform functions for multi-sensor coordination
- Lightweight
- Flight line re-programmable
- Easy field maintainability (LRU philosophy)

All versions can be interfaced with multi-function displays (some versions are provided with their own synthetic display).

**PRODUCT SUPPORT**

The ELT/160 family is fully supported by a complete set of product support equipment that includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading
ELT/572 FIBER-LASER TURRET

ELT/572 DIRCM SYSTEM
The ELT/572 DIRCM (Directional Infrared CounterMeasures) system belongs to the family of Elettronica ir-based ecm systems, designed to provide a reliable and effective protection of rotary and fixed wing aircraft against current and future manpads threats. The system has already been integrated with a wide range of missile warning system (mws), ranging from uw to ir based systems. The system’s flexible architecture enables easy installation into a sps which already includes a mws system, both legacy and modern.

The ELT/572 is able to effectively counter threats up to the third generation of sa ir. Its fiber laser technology enhances dircm effectiveness by improving performance, reliability and efficiency, reducing the installation constraints and the even more critical and complex setting-up, alignment and maintenance operations.

The ELT/572 is composed of three units: the mirrored turret, the laser generator unit and the electronic unit. In dual turret configuration, the two dircm systems are correctly coordinated by means of a specifically designed multi-turret manager (patent pending): a function deployed in each subsystem and activated only in one subsystem at a time (the master subsystem) which is in charge of effectively coordinating the two sub-systems.

SYSTEM HIGHLIGHTS

- Fast, effective and reliable neutralization of present and future manpads (adaptable to threat evolution)
- Prompt and effective reaction to counter multiple and even simultaneous threats
- Integration with mws and other onboard systems (dass) and ew controller
- Rugged design for airborne environment
- Flexible and modular installation
- Low life-cycle costs
- Wide spatial coverage (well beyond the hemispherical sector) also with a single turret
- Compact, light-weight
- Minimum drag of the external unit (only part of the turret), no moving parts exposed to air stream

PRODUCT SUPPORT

The ELT/572 is fully supported by a complete set of product support equipment that includes:

- Logistic Support for through-life maintenance and repair
- User-controlled Operational Support for system set-up and update against new threats
- IR test bed
The **ALR-733 family** of **ESM** systems is designed to provide automatic surveillance, technical signal analysis and data-collection for post-mission analysis. The **ALR-733 family** fulfils the operational requirements of different missions, on board helicopters and aircrafts for maritime patrol applications as well as AEW&C.

This family of airborne ESM systems features solutions that meet the various operational requirements of today's Maritime Patrol Aircraft and Helicopters, Airborne Early Warning (AEW) and Air-to-Ground Surveillance (AGS) aircraft, as well as to manage Situation Awareness needs (for Tactical, SAR and Transport Aircraft) and specific Law Enforcement applications.

**SYSTEM HIGHLIGHTS**

The **ALR-733 family** modular design (different antenna configuration and optional modules) can provide:

- Full RWR capability
- Fully automatic (hands-off) ESM surveillance (situation awareness)
- Computer-aided ELINT-type analysis under operator control
- Data collection capability.
- Real-time extraction, analysis and tracking of radar signals (no need for a priori scanning criteria)
- Automatic identification and warning of high priority emitters
- Very high Probability of Intercept (100% nominal)
- Very wide RF coverage, from UHF to K (C to J) band, optionally extendable to mmW
- Very accurate monopulse DF
- Pulse, intra-pulse and fine analysis ELINT functions that include measurement of frequency, jitter, stagger, PRF and PRI.
- High quality signal analysis in real-time including Modulation on Pulse (MOP)
- Capability to operate in a very high density scenario without performance degradation
- Capability to operate also with raw data libraries (mission data)

**PRODUCT SUPPORT**

The **ALR-733 family** is fully supported by a complete set of product support equipment that includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading
ELT/741
ESM SYSTEM
The ELT/741 family of light Electronic Support Measures provides tactical surveillance and self-protection capabilities for both fixed and rotary wing aircrafts.

Even in operational scenarios characterized by high density electromagnetic environments, the ELT/741 provides timely and reliable information on both the most advanced and legacy radars, which can be equally used by either friendly or hostile forces.

The ELT/741 ESM system can incorporate an EW controller function, coordinating multiple sensors and actuators, thus operating as a node within a tactical network to contribute to a common operational picture in Net Centric Operations.

**SYSTEM HIGHLIGHTS**

- Very High Interception Probability
- Full azimuth coverage
- Wideband radio frequency coverage (C to K bands)
- Automatic warning of high priority emitters
- Dedicated functions for data collection, recording and accurate processing
- Fast and unambiguous threat identification exploiting all of the measured emission parameters (e.g.: FREQ, PW, PRI, TOA, ARP, MOP)
- Capability to operate also with raw data libraries (mission data)
- Automatic analysis, classification, display and recording of even unknown emissions (not pre-loaded in the library)
- Capability to operate as an EW Controller that exploits/perform functions for multi-sensor coordination
- Lightweight
- Flight line re-programmable
- Easy field maintainability (LRU philosophy).

All versions can be interfaced with multi-function displays and integrated with ECM systems and platform data bus.

**PRODUCT SUPPORT**

The ELT/741 family is fully supported by a complete set of product support equipment that includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading

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The ELT/800 is ESM/ELINT equipment designed for Patrol/ISR aircrafts, based on a dual receiver architecture (wide open and wide band SH Digital Receiver) through a new system approach and modern technologies. The system performs both Tactical Surveillance (ESM function) with Warning and Self Protection capability combined with highly accurate data analysis for Intelligence (Technical ELINT function).

**SYSTEM HIGHLIGHTS**

- Very High Interception Probability
- Wideband radio frequency coverage (C to K bands)
- Automatic warning of high priority emitters
- Dedicated functions for data collection, recording and accurate processing (Interpulse and Intrapulse analysis / MOP Analysis)
- Fast and unambiguous threat identification exploiting all of the measured emission parameters (e.g.: FREQ, PW, PRI, TOA, ARP, MOP)
- Capability to operate also with raw data libraries (mission data)
- Automatic analysis, classification, display and recording of even unknown emissions
- Capability of coping with high density environments in presence of all types of emissions both in warfare and law enforcement scenarios
- Accurate Intra-pulse and Inter-pulse characteristic measurements through Digital Receiver for Fingerprinting purposes
- Instantaneous Fine Direction Finding measurement through TDOA techniques and advanced geo-location capability of slow moving targets based on the twin channel Digital Receiver
- Extensive recording capability for intelligence analysis
- High reliability and maintainability
- Reduced packaging and weight to meet even the most demanding installation constraints
- Flight line re-programmable
- Easy field maintainability (LRU philosophy).

All versions can be interfaced with multi-function displays and integrated with ECM systems and platform data bus.

**PRODUCT SUPPORT**

The ELT/800 family is fully supported by a complete set of product support equipment that includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading

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The ELT/819 family is the latest generation of Elettronica's ELINT and Surveillance systems; its modular architecture can be configured to comply with customer requirements. The system can accommodate, in addition to the ELINT functionalities, the COMINT/CESM capabilities. **ELT/819 performs both Tactical Surveillance** (ESM and Tactical ELINT functions) with Warning and Self Protection capability (High POI) and highly accurate data analysis for Intelligence (Technical ELINT function).

### SYSTEM HIGHLIGHTS

All versions can be interfaced with multi-function displays and integrated with ECM systems and data bus platform.

- RF nominal coverage: from C band to J band. As an option, the coverage can be extended down to A band and up to K band
- Dual receiver deal with extremely high sensitivity and high Probability Of Intercept (POI)
- Wide instantaneous IF bandwidth
- Capability to operate in dense, complex and a-priori unknown electromagnetic scenarios; E.O.B. creation/updating and presentation on digital maps
- Very accurate DOA measurements
- Automatic extraction of a very wide range of radar types by exploiting all the radar parameters i.e.:
  - Frequency: Fixed, Agile, Hopping, Burst
  - PRI: CW, Fixed, Jittered, Switching, Staggered, Coded, Sliding, Stepping
  - Pulse: CW, PW, AMOP, PMOP, FMOP
  - ARP: Circular, Sectorial, TWS, Conical, Steady
- Automatic and computer-aided fine analysis both at Interpulse and Intrapulse level
- Digital recording of all the acquired data (PDMs and Intrapulse analysis data)
- Fully automatic BITE
- Capability to be tasked and interrogated (through the on-board communication facilities) by a remote command centre in a Network-Centric Architecture
- User-friendly, Human-Machine Interface
- Recording capability (PDMs, Pre-detected digitised signal)

### PRODUCT SUPPORT

The ELT/819 family is fully supported by a complete set of product support equipment that includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading.
ELT/950

EW MANAGER
ELT 950 a.k.a. EW Manager (EWM) is Elt’s C&C system designed as Combat Management Systems for Electronic Warfare assets. It enables the integration of many Sensors and Actuators (both Elt and 3rd party) installed onto the same platform.

**SYSTEM HIGHLIGHTS**

**Platform Management Suite:**
- Control the Configuration and State; monitor the status of connected subsystems and User Access
- Load and dispatch mission libraries to the connected subsystems
- Record relevant information about the scenario evolution for Post Mission debriefing and analysis

**Data Analysis:**
- Picture Compilation: create a synthetic situation of the surrounding scenario
- Elint Analysis: provide means to perform dedicated technical analysis

**Engagement Plan Management**
- EWM periodically proposes a possible engagement plan

**PRODUCT SUPPORT**

The EWM can manage following families of sensors (both Elt and 3rd party):
- RADAR Electronic Support Measure (ESM)
- Communication ESM (CESM)
- Radar Warning Receivers (RWR)
- Missile Warning System (MWS)
- Laser Warning System (LWS)
- Cooperating RADARs

The EWM can manage following families of actuators (both Elt and 3rd party):
- RADAR Electronic Counter Measure (ECM)
- Communication ECM (CECM)
- Chaff and Flare Dispensers
- DIRCM
The ELT/1000 is a compact and high performance Radar ESM payload designed for Tactical Unmanned Aerial Vehicle on ISR missions. Based on a Modular Architecture, Software Defined Receivers, and Proprietary Interferometric Antennas, ELT/1000 enables operative ISR superiority through Radar emitter detection, identification, measurement and recording in order to dynamically present the full Radar EOB through UAV tactical operations. SWaP characteristics are achieved through compact design and high integration technology, assuring the installability on the majority of tactical unmanned platforms that are currently available on the market.

The ELT/1000 can cooperate with other payloads on board to improve the overall performance and increase mission effectiveness and can operate in a multiplatform mission with the control of a Ground Station to capture information from different sensors to improve the Common Operational Picture.

**KEY TECHNOLOGICAL DRIVERS**

- Open and Modular Multichannel Architecture
- High Rate Direct RF Sampling
- Software Defined Receivers
- Proprietary Phase Interferometer Antennas
- SWaP Characteristics

**FUNCTIONS**

- Wideband Radar Emitters detection, discrimination and identification
- Radar Emitter measurement and technical parameters extraction
- High accuracy Direction of Arrival
- Emitter Geo-Location
- High Recording Capacity

**PERFORMANCES**

- Very wide operative and instantaneous bandwidth
- Wide spatial coverage
- High sensitivity
- High Probability of Intercept
- Low Life-Cycle costs

**PRODUCT SUPPORT**

The ELT/1000 is fully supported by a complete set of product support equipment that includes:

- Logistic Support for through-life maintenance and repair
- User Friendly oriented Operational Support Equipment for system programming and update against new radar emitter
CAMCOPTER-Class

RQ7B SHADOW-Class

RECEIVING PROCESSING UNIT

COMINT PAYLOAD HMI

ELT/1001
COMM/ESM SYSTEM
The ELT/1001 is a compact and high performance Communication ESM payload designed for Tactical Unmanned Aerial Vehicle on ISR mission operating on V/UHF range. Based on a Modular Architecture, State of the Art Software Defined Radio technology and proprietary algorithm, ELT/1001 enables high flexibility and reconfiguration for different targets and operative scenarios assuring operative superiority through communication emitter detection, classification, measurement and recording in order to accomplish surveillance and reconnaissance missions. SWaP characteristics are achieved through compact design and high integration technology assuring the installability on the majority of tactical unmanned platforms available on the market today.

The ELT/1001 is composed of a multichannel digital receiver and a set of innovative and proprietary special design electronically small antenna.

The ELT/1001 is designed to operate in conjunction with a dedicated Ground Control Station to evaluate and to dynamically build up the opponent network reconstruction and to geo locate their nodes. The multichannel configuration enables the Direction of Arrival estimation also for low permanent signal and the sampled data can be stored for a detailed post mission analysis.

**KEY TECHNOLOGICAL DRIVERS**
- Open and Modular Multichannel Architecture
- Fast Tuning Speed
- Software Defined Receivers
- Proprietary Electronically Small Antennas
- SWaP Characteristics

**FUNCTIONS**
- Wideband Communication Emitters detection, discrimination and classification
- High accuracy Direction of Arrival
- Emitter Geo-Location
- Wideband/Narrow Band Recording Capacity
- Downlink Data Stream
- Multi-Platform Operations
- Mission Based Easy Reconfiguration

**PERFORMANCE**
- Wide operative and instantaneous bandwidth
- Selectable narrow band for analysis
- High Dynamic Range
- Wide spatial coverage
- High sensitivity
- High Probability of Intercept
- Low Life-Cycle costs

**PRODUCT SUPPORT**

The ELT/1001 is fully supported by a complete set of product support equipment including:
- Logistic Support for through-life maintenance and repair
- User Friendly oriented Operational Support Equipment for system programming and updating
ADRIAN ANTI-DROONE SYSTEM

Man-Machine Interface

System Status
Cameras
Markers
Geolocator antenna partially obscured

ADRIAN

Warning
Normal
Urgent

Redundant protected area
Geolocator antenna partially obscured

RC Fr Sky ACCST D8 ID 01451

Fr Sky ACCST D8 ID 01451

DL 400MHz
JAM

ACKN
ACKN

ADRIAN
Man-Machine Interface

ADRIAN

ANTI-DROONE

SYSTEM

ELETTRONICA GROUP
ADRIAN (Anti-Drone Interception Acquisition Neutralization) is the state of art Counter-UAV solution designed to Intercept and Neutralize LSS (Low-Small-Slow) UAV in multiple scenarios and environments, including urban and dense-urban environment.

Traditional sensors and countermeasures may be not effective or not applicable in urban warfare. Therefore ADRIAN is based on multispectral sensors (Radar, EO/IR, acoustic and radio link interceptor) performing data fusion for detection and identification. ADRIAN architecture is modular and can be tailored depending on operational, environmental and cost/effectiveness requirements.

High sensitivity and high efficiency receivers enable LSS platforms detection, while the data fusion algorithm in the mission planner station provides a high Probability of Intercept, low false alarm rate and a comprehensive Situational Awareness with the reaction management tool. ADRIAN reactive and smart jammer is capable to deny the remote control link of the platform and the navigation aids signals used to follow the programmed route through proper waypoints. Innovative jamming techniques enhancing the effectiveness of soft kill disruption of hostile platforms maintaining full operational services of active friendly platforms.

**KEY TECHNOLOGICAL DRIVERS**

- Multi-Spectral and Multi-Domain architecture (Communication, Radar, EO/IR, Acoustic)
- Distributed sensors architecture for tailored solution
- Rugged and easily deployable sensors
- Software defined, high sensitivity Receivers
- Fixed or mobile C2 station

**FUNCTIONS**

- Detection of very low power and Frequency Hopping Signals
- Real-time threat analysis (classification, identification, geo-location)
- Post analysis for forensic application
- UAV soft kill by counter measure against Radio Control and GNSS system
- GNSS spoofing to force Drone landing in a safe area
- User friendly HMI, with immediate feedback on alarms and threat features
- External interface to Central Operative Center
- Easy deployable and possibility to integrate on mobile vehicles
- Logistic support for through-life maintenance and repair
- Operational Support for training purpose or set-up updates against new threats
WE DO NOT SIMPLY ANTICIPATE THE FUTURE, WE BUILD IT.

2,700 SYSTEMS SUPPLIED TO OVER 28 NATIONS

ELECTRONIC WARFARE
CYBER EW
INTELLIGENCE
EDUCATION & TRAINING

A 360° PARTNER
AIR, NAVAL, LAND, CYBER

MORE THAN 60 YEARS OF SUCCESSES
Established in 1951, ELETTRONICA is a World Leader in Electronic Warfare with a complete portfolio of state-of-the-art solutions to satisfy the most challenging requirements of modern operational scenarios.

The solutions designed and manufactured by ELETTRONICA cover a wide range of applications and missions:

- ELECTRONIC ATTACK & SELF PROTECTION
- ELECTRO OPTICAL INFRA RED
- CYBER EW & INTELLIGENCE
- INTELLIGENCE SURVEILLANCE & RECONNAISSANCE
- PUBLIC SECURITY & LAW ENFORCEMENT
- CUSTOMER SUPPORT

We anticipate and neutralize continuously evolving threats at the forefront of innovation.

Solutions tailored to the user.

To offer the most innovative solutions guaranteeing the security of people, assets and information in the most complex operational scenarios: this is our sole mission.
EDGE
ESCORT/SUPPORT JAMMER POD
EDGE is Elettronica’s most recent Escort Jamming Pod solution. It is a fully integrated system, intercepting and automatically processing radar signals, managing the power transmitters to effectively jam several radar threats with high Effective Radiated Power (ERP).

The major task of the Escort Jammer is to perform a comprehensive advanced warning and countermeasures cycle against any hostile threats, which engage the attacking forces and adjacent flight formation and to enhance mission success.

To meet such demanding requirements, EDGE is designed to provide both individual and mutual protection to combat aircrafts. System design ensures prompt interception and automatic processing of the radar environment, as well as the implementation of an adaptive power management function to ensure optimized jamming response to the multi-threat environment.

The EJ equipment’s high level performance stems from its highly advanced system design based on state of the art technology (DRFM, Digital Receiver, solid-state RX/TX modules) and phased-array antennas, featuring electronic beam steering.

**SYSTEM HIGHLIGHTS**

- Wide frequency and spatial coverage
- Automatic threat acquisition and emitter location based on the phase DF technique
- Very high ERP
- Automatic power management function to ensure a multiple and simultaneous jamming response
- Advanced “smart” (noise and deception) jamming techniques exploiting digital technology
- Fully solid-state Active RX/TX Phased Array
- Compact transmitters solution, matching the reduced volume constraints of a tactical A/C pod.
- Capability to operate as stand-alone equipment, which during missions overrides the platform’s internal self-protection suite
- Full ELINT capability

**PRODUCT SUPPORT**

EDGE system full product support equipment includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library management

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EXM
AUTOMOTIVE
CONTROL MODULE
The EXM (Electronic control system eXpansion Module) is an automotive electronic device designed to be installed in any kind of vehicle (truck, van, car, ...) and connected to its electronic control system in order to extend its capabilities and flexibility.

The EXM is designed to interface to multiple CAN buses, to act as a central node providing both routing and data exchange capabilities allowing simplification of interconnection topologies. It is provided with flexible analogue/digital ports to interface with any kind of vehicle sensor, perform digital processing and send sensors data over the CAN network. A high bandwidth/capacity internal storage memory allows real-time logging of all data streams. The Wi-Fi and fibre optic interfaces provide high bandwidth telemetry and interconnectivity functions.

The EXM has a scalable configuration allowing the user to select functions and control architecture required for vehicle’s specific electronic control system. It can be operated in several flexible configurations, ranging from a full-featured central control node to a distributed network of inter-operating modules with tailored configuration and functions.

**SYSTEM HIGHLIGHTS**

- Compact light-weight IP65 design
- Flexible and modular installation
- Fibre optic ports for EXM networking or MOST interconnectivity
- Compatible with 12V and 24V systems, with programmable power-up settings
- Up to 24 programmable A/D ports
- Up to 4 configurable CAN ports (CAN2.0A, CAN2.0B and CAN FD)
- Low latency data and CAN message routing and re-encoding allowing real-time processing
- High bandwidth logging and smart triggering functions
- System monitoring (black box function)
- Embedded IMU (3 axes accelerometer and 3 axes gyro)
- 2.0 USB port for on field data-recovery
- Short/long range telemetry (Wi-Fi or legacy RS232 interface)
- High bandwidth control interface (Gigabit Ethernet over cable or Wi-Fi)
LOKI INTERFACE

LOKI COMMAND & CONTROL SYSTEM
**Loki** is the first Italian C&C for net-centric Electronic Warfare and multi-platform coordination that implements a System of Systems integration in IT OPS.

**Loki is Elt’s capability for:**
- Managing complex of the EW missions: coordinating and integrating heterogeneous intelligence sources and operative cells (sensors and actuators; both Elt and 3rd party)
- Achieving situational awareness of own and blue force assets
- Controlling resources assigned to the Commander and dispatching orders to other levels of command

**SYSTEM HIGHLIGHTS**
- Multi-Level Architecture for Sensor Data Fusion, system scalability and Data filtering
- Secure Networking and link Management
- Mission Planning, Tasking and Management
- C&C message handling
- Access to external databases through configurable connectors
- Intuitive and multi user HMI with a powerful cartographic engine
- Recording and Replay of data and messages
- Counter measure management and Tactical Analysis
- EW Libraries Management

**PRODUCT SUPPORT**

Main interface of **Loki C&C** is the Human actor that stay in the loop. Supported standard interfaces are:
- NMEA, NMEA 0183 and ADS/B messages
- all Elt sensors (e.g. ELT-819 A/B/C)
- all Elt actuators (e.g. IEWS family)
- Non-Elt Sensors and Actuators through “Plug & Play” personalization of its modular interfaces architecture
- Formatted Messages (e.g. Adatp3, ASTERIX and VMF on demand)
- Elt framework for library generation (e.g. nEWOSf)
- MIL2525C standard

**SYSTEM INSTALLATION**

**Loki C&C adopts a flexible Client/Server physical Architecture.** The C&C client is installed in fixed centres or mobile Rugged PCs. A complete version of the Loki system is also available for mobile shelters.
NETTUNO-4100 ECM SYSTEM
The **NETTUNO-4100 ECM System** provides naval platforms with an effective Electronic Defence using a powerful Active Phased Array Transmitter and a complete set of dedicated ECM techniques and programs. The techniques are segments of countermeasure programs that are automatically and adaptively selected for system effectiveness against both terminal missile attacks and long range designation radar systems.

A modular design approach permits configuration adaptation to individual ship classes. The **Nettuno 4100 Systems** can be composed of one or two JASS (Jamming Antenna Sub System) depending also on operational requirements. In any case the **Nettuno 4100 Systems** can co-operate with other onboard EW sensors and actuators.

### SYSTEM HIGHLIGHTS

- Frequency Range: H to J bands
- Spatial Coverage: 360° Az, 50° El
- ERP: Very high and adequate to protect large ships
- Sensitivity: Very high and adequate for jamming on radar side-lobes
- ECM Response: multithreat jamming capability (different direction and frequency)
- ECM Programs: complete set of jamming programs exploiting both noise and deception techniques (DRFM), effective also against coded emitters
- Electronic beam steering (electronically stabilized against ship movements)
- High level of readiness (no warm-up)
- Full solid-state design ensuring high ERP and graceful degradation in case of failure
- High reliability and maintainability

### PRODUCT SUPPORT

The Nettuno 4100 family is fully supported by a complete set of product support equipment that includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading
SEAL ESM SYSTEM

BAYNUNAH-CLASS

PROCESSING GROUP CABINET

ANTENNA GROUP
The SEAL Family of naval ESM systems offers a wide range of solutions for various classes of ships, from OPVs (Offshore Patrol Vessels) and Corvettes to Frigates, providing different levels of performance depending on ship role (patrol, task force operations, etc).

The ever-changing requirements of today’s scenarios, especially in peace-keeping, law enforcement and EEZ (Extended Economic Zone) preservation operations, are demanding highly advanced ESM systems tailored to the installation constraints of even small size naval units, while ensuring high performance standards. Present-day scenarios also exhibit a high signal traffic typical of today’s wide use of electronic devices/sensors, as well as extremely lethal weapon systems that can pose a serious threat to platforms lacking the necessary threat intercept and location systems.

**SYSTEM HIGHLIGHTS**

- Very High Probability of Intercept
- Wideband radio frequency coverage
- Automatic warning of high priority emitters
- Dedicated functions for data collection, recording and accurate processing
- Fast and unambiguous threat identification exploiting all of the measured emission parameters (e.g.: FREQ, PW, PRI, TOA, ARP, MOP)
- Capability to operate also with raw data libraries (mission data)
- Automatic analysis, classification, display and recording of even unknown emissions
- Capability of coping with high density environments in presence of all types of emissions both in military and law enforcement scenarios
- Accurate Intra-pulse and Inter-pulse characteristic measurements through Digital Receiver for Fingerprinting purposes
- Instantaneous Fine Direction Finding measurement
- Extensive recording capability for intelligence analysis
- High reliability and maintainability
- Reduced packaging and weight to meet even the most demanding installation constraints
- Easy field maintainability (LRU philosophy).

All versions can be integrated with ship Combat System through platform data bus.

**PRODUCT SUPPORT**

The SEAL family is fully supported by a complete set of product support equipment that includes:

- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading
SEMS
SMART ELT MAINTENANCE SYSTEM
The Smart ELT Maintenance System (Smart EMS) increases equipment availability by drastically reducing the down-time related to maintenance. The SEMS embodies Elettronica’s over 60 years of invaluable experience in the manufacture and servicing of military electronic systems together with today’s modern and commercial handheld devices that consent a new hands-off approach to maintenance procedures. It is the perfect match to Elettronica’s newest Electronic Warfare systems, featuring embedded prognostic hardware for early failure detection and recovery.

**SYSTEM CHARACTERISTICS**

- The System Maintenance Mode activation and Maintenance Procedure are supported by a dedicated Test Plug enabling wireless test functionality (wired as option)
- Fully integrated maintenance system with intuitive touch-screen interface
- Open multi-mobile environment
- Technical Data and Software real-time update
- Secure Wireless Encrypted communication with Device Under Test and Smart EMS Server
- Fully customizable according to Customer requirements and existing infrastructures
- Multi-system capability, enables the same Smart EMS to support several equipment
- Performance Based Logistics (PBL) maintenance options. All versions can be integrated with ECM systems and platform data bus.

**SYSTEM FUNCTIONS**

The Smart EMS main functions, available at both operational and intermediate levels, are:

- System HW & SW Configuration Verifi cation and Status Accounting
- Step-by-step aided system diagnostic and maintenance
- Parts & Tools management
- On-line Helpdesk support
- Interactive technical publications and training support

**SYSTEM ARCHITECTURE**

The Smart EMS interacts with the System/Device Under Test and its architecture is composed of:

- Test plug
- Maintenance Interface Device (tablet or other handheld device)
- Smart EMS Server that can, as option, interface with Elettronica’s Enterprise Resource Planning (ERP) and existing Customer ERP assets
- Data Security devices

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Virgilius is a complete break-through in the traditional approach to the ESM-ECM system architecture taking all the possible advantages from the state-of-the-art technology, stressing the signal processing techniques and market component availability aspects to deliver a superior integrated product.

Virgilius is an advanced, fully integrated Electronic Warfare system for Alarm, Surveillance and Countermeasure functionality. It is conceived to perform emitter detection, classification, identification and to counter a large threat variety including: radar controlled Anti-Aircraft Artillery (AAA), Surface-to-Air Missiles (SAM), Air-to-Air Missiles (AAM), Early Warning, Search and modern Multifunction and LPI Radars.

Virgilius architecture is suitable for any fixed and rotary wing platform, for naval surface/submarine platforms and for ground based assets. A modular design approach makes it possible to tailor the solution to the specific needs of the Customer/Final User.

**SYSTEM PERFORMANCE**

- Multiplatform installation
- Advanced multifunction capability, through simultaneous ESM and ECM operation
- Compact design, thanks to the high level of functional integration and smart resource allocation techniques, guaranteeing light weight and small volume
- Fast and reliable RF emitter recognition in high dense electromagnetic environments and of complex radar waveforms
- Multi-threat capability providing jamming effectiveness against simultaneous threats
- High sensitivity and selectivity
- High Accuracy Direction finding and passive location based on digital measurement system
- Passive Emitter Tracking Capability
- Acquisition and tracking of sidelobe emissions
- Capability to cope with electromagnetic scenario evolution and with stringent maintainability requirements
- Major growth capability, granted by the modular design and software and firmware reprogrammability
- All versions can be interfaced with multi-function displays and integrated with ECM systems and platform data bus.

**EXAMPLE OF SYSTEM COMPOSITION**

A typical system installation consists of:

- Multi Function Unit
- DF Antennas
- Low Band Solid State Transmitters (C-D)
- Medium Band Active Phased Array Transmitters (E-H)
- High Band Active Phased Array Transmitters (H-J)
VIRGILIUS
INTEGRATED ESM/ECM
SYSTEM ARCHITECTURE

SSTRU

SSTRU

MFU

PAU
SYSTEM FEATURES

- Architecture based on reprogrammable digital processing units
- Optimal resource allocation through advanced scheduling approach based on artificial intelligence
- Protected wide open digital receiver with very high sensitivity
- Real-time SH digital receiver tuning permits detection under interference
- Extremely accurate signal parameter measurements and Specific Emitter Identification
- Fast geolocation
- High Accuracy DF (Passive Antenna Unit: PAU)
- High ERP, full band (C to J) ECM based on solid state phased array technology
- Receiving and transmitting Active Electronically Scanned Array (AESA)
- Smart, programmable deception countermeasures based on DRFM

PRODUCT SUPPORT

VIRGILIUS is fully supported by a complete set of equipment including:
- Field test equipment
- Ground support equipment
- Automatic test equipment
- Library programming
- Library loading/unloading

SYSTEM INSTALLATION

The Virgilius is an extremely compact and light solution providing high installation flexibility. Fully compatible, it can be deployed on any legacy and last generation platforms.