ICS TECHNOLOGIES

YOUR MISSION, OUR TARGET

DEFENCE Naval

SILENTGARD

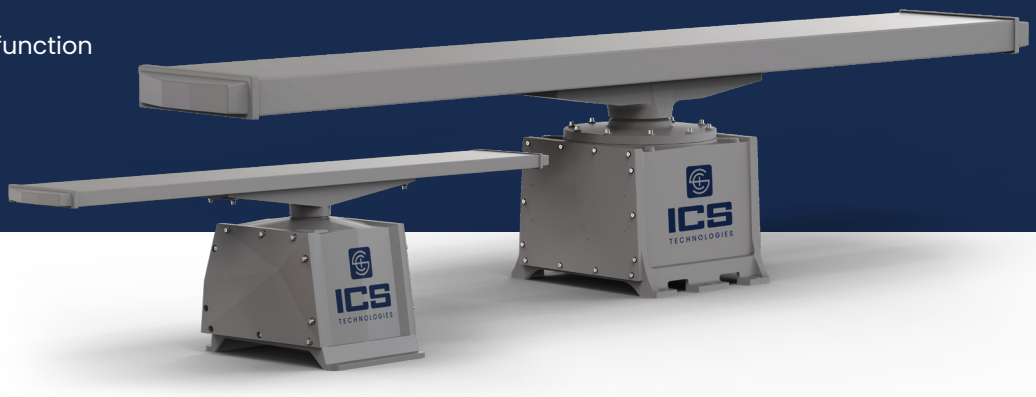
LOW PROBABILITY INTERCEPT NAVIGATION RADAR

The **SILENTGARD family**, with advanced **Low Probability of Intercept (LPI) technology**, excels in **stealth and efficacy** for marine navigation. **LPI ensures** these radar systems emit signals difficult for enemy detectors to identify, making SILENTGARD critical for covert operations by using **frequency hopping** and **low signal power** to reduce radar visibility. Ideal for **stealth missions**, LPI securely monitors illegal activities like drug trafficking, smuggling, illegal immigration, piracy, illicit fishing, and terrorism without alerting adversaries, making the radar invaluable for navies and authorities needing discretion. SILENTGARD radar systems excel in **challenging weather**, **noise rejection**, **advanced signal processing**, and effective electronic interfacing. Enhanced with **solid-state technology**, they optimize performance and ensure minimal maintenance. The SILENTGARD family with LPI technology is the pinnacle of modern maritime radar systems, offering unparalleled **stealth** and **reliability** for demanding naval operations.

KEY STRENGHTS

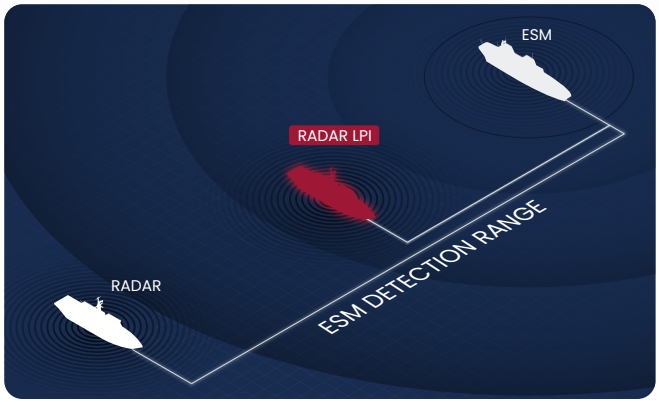
Navies, Coast Guards, Maritime Police Forces cannot negotiate on the system's performance and reliability. For this reason, among the other characteristics, SILENTGARD key strengths to be highlighted are:

- Enhanced Doppler processing
- Advanced digital signal processing and automatic environmental adaptation
- Time and frequency diversity techniques
- Native SNMP
- Unbeatable reliability
- Embedded tracking over 1000 simultaneous tracks
- Helicopter approach sector function
- Low Probability of Intercept (LPI) technology
- Pre-trigger for 3rd party systems
- Full self-diagnosis (BITE)
- High-end radar arrays
- EMCON managment
- Full ASTERIX interface



LOW PROBABILITY OF INTERCEPT

Low Probability of Intercept (LPI) technology enhances radar stealth by **emitting low power signals** that **rapidly change frequencies** and use **complex pulse patterns.** This makes the radar **difficult to detect against background noise**, significantly increasing the effectiveness of **stealth operations** in military and **surveillance activities**.



MAIN FEATURES

Zero Attenuation

This innovative concept integrates **transceiver into the turning unit**, eliminating the need for waveguide paths. This **reduces installation time** and **costs** significantly while enhancing **short-range radar visibility** and **echo strength**.

Plug & Play

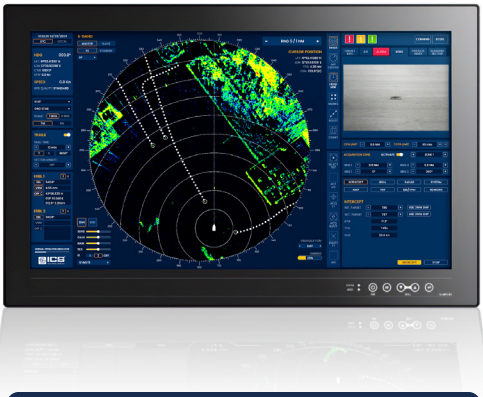
This radar series uses **advanced fiber optic** connections to simplify installation with a **"Plug & Play" design**, ensuring fast data transmission and strong signal integrity. The reduction in onsite wiring decreases human error and eliminates the need for special tools, streamlining setup and enhancing performance.

Easy Maintenance

We prioritize preventive maintenance over corrective measures, focusing on **proactive strategies**. Our commitment to quality extends to **reliability** through technical measures aimed at reducing the need for preventive maintenance tasks and **minimizing total life-cycle costs**.

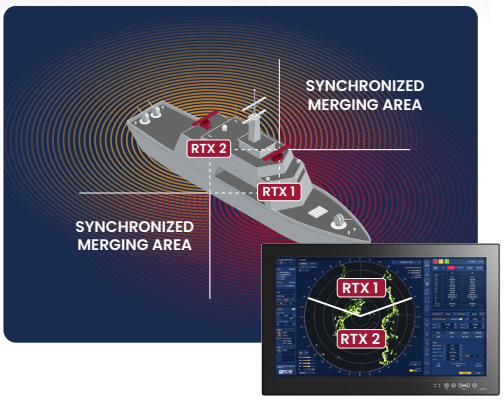
RADAR DISPLAY

The standard radar navigation display **simplifies bridge navigation** and operations, enhancing safety. It can **track over 1000 targets** and offers advanced features such as **Full Chart Radar, multi-radar option, multi-sensor target fusion** (radar and AIS), and **Picture-in-Picture** (PIP) display of real-time video from the onboard EOS. It can scale up to a **Multi-Function Display** (MFD) version with **ECDIS** and **CONNING** software or be integrated into an **Integrated Bridge System** (IBS).



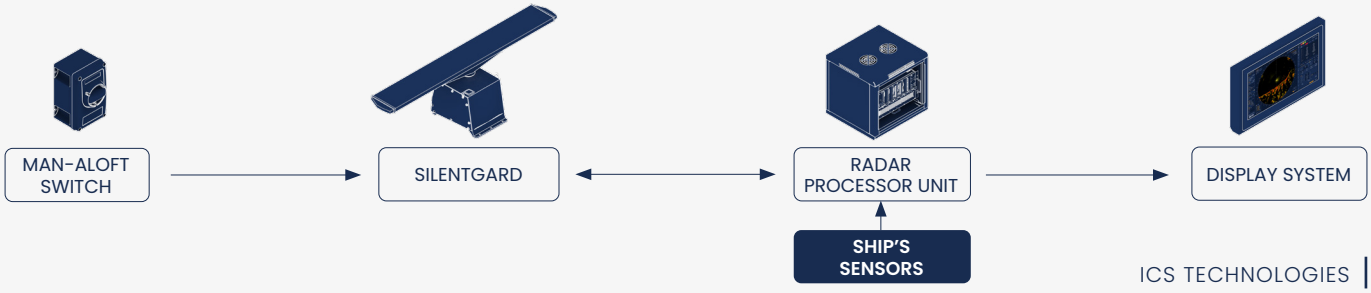
SYNCHRONIZED MULTI-RADAR OPTION

Traditional navigation radars are effective on most commercial ships, but modern vessel features like **cranes, helicopter pads, passenger areas, masts,** and **funnels** can create blind spots, necessitating uninterrupted **360-degree radar coverage**. The **MULTI-RADAR** concept addresses this with a **network radar structure**, distributing radar video feeds from sensors to a **Radar Processor Unit**. This unit synchronizes the radar sensors, ensuring continuous operation even if one radar fails. The radar video streams are merged, **corrected for paraxial errors**, and **synchronized before integration** into the navigation network, ensuring comprehensive coverage.



SPECIFICATION	SILENTGARD X-BAND	SILENTGARD S-BAND
Operating Frequency	9300 ÷ 9500 MHz	2700 ÷ 3100 MHz
SSPA RF peak	400W	500W
Instrumented range	96 nmi	
Sector blanking	16 simultaneous sectors	
Power sector mode	16 individual sectors where the transmitted power can be reduced up to 16dB	
Advanced power management	Linear power reduction over a range of at least 23 dB, (i.e. 400W —> 2.0W in 1 dB steps)	
Frequency agility	Change of channels with a pseudo-random pattern of adjustable length	
Coded pulses (coherent detection)	Change technique with a pseudo-random pattern of adjustable length	
Electronic Counter-Countermeasure	ECCM, and jamming immunity, ensured by power sector mode, frequency diversity, stagger and enhanced pulse compression technique	
Cell size	Down to 1.2 m	
Dynamic range	≥140dB *(According to the MODE of OPERATION in use)*	
External interfaces	Asterix CAT-253; Asterix CAT-48; Asterix CAT-240	
Extractor-tracker module	Single or dual *(embedded into Radar Processor Unit)*	
Doppler processing	This option enables best target separation taking into consideration additional info from doppler processing	
Antenna size and weight	6ft - 9ft	12ft

SYSTEM CONFIGURATION



INTEGRATED LOGISTIC SUPPORT

Longevity, Reliability, Remote Support

To **enhance efficiency** and **reduce costs**, our systems offer **full remote access** for **direct transmission of diagnostic logs**, **minimizing onsite visits**, **reducing operational expenses**, and improving turnaround times. Our Service Level Agreement **(SLA)** ensures this **efficient support**. Each Line Replaceable Unit **(LRU)** has a **QR code for quick information access**, improving communication and service responsiveness.

Client-Centric Support

We prioritize client support throughout the entire process. Our technical team conducts **on-site system commissioning**, including **standalone** and **live tests** in various environmental conditions alongside cooperating vessels. Comprehensive **technical documentation**, structured with DataModules following the **S1000D standard**, accompanies our systems.

After-Sales Services & SLA Options

We offer **after-sales services** such as **installation and maintenance courses**, along with an advanced **ticketing platform** for streamlined communication. Our maintenance services, including preventive, corrective, and **SLA options**, are tailored to meet the specific operational needs of our customers. We have **service centers** strategically located across the globe.

ICS TECHNOLOGIES

Via California 32, 63066, Grottammare, AP, ITALY
Tel. +39 0735 61621
Fax +39 0735 616284
sales@icstechnologies.it
www.icstechnologies.it

NCAGE Code **AS545**

Member of CISQ Federation
CERTIFIED MANAGEMENT SYSTEM
ISO 9001 - ISO 14001

© Sept 2024 - rev 0