

VESDA Provides Dependable Smoke Detection in Marine Vessels

- ❖ Passenger Ships
- ❖ Ferries
- ❖ Cargo Vessels
- ❖ Container Ships
- ❖ FPSO
- ❖ Petrochemical Ships
- ❖ Defence vessels
- ❖ Submarines

VESDA®



Due to the unique nature of fire protection on marine vessels and facilities, the use of VESDA very early warning smoke detection is perfectly lined up with the protection of the vessel, facility, passengers and crew. The ability to detect a fire at its incipient stage will provide additional time to investigate the fire and extinguish it before it escalates causing loss of life or major damage.

The impact of fire on a Marine vessel goes far beyond financial loss incurred from damaged equipment. Loss of life, consequential losses and downtime may lead to negative publicity, lost business and possible bankruptcy.

*82% of marine vessel fires originate in engine rooms
57% of fires are caused by electrical malfunction.*

ELECTRICAL

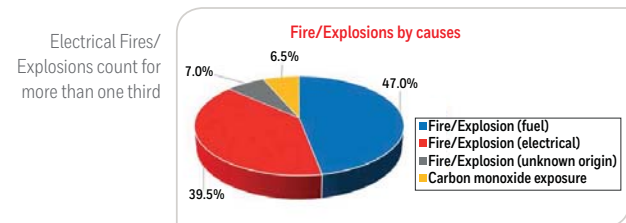
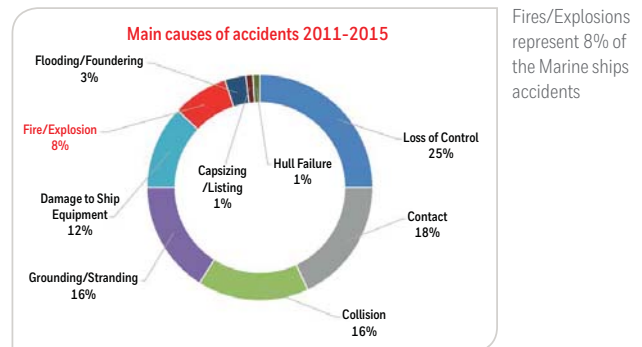
By their very nature, fires caused by an electrical fault are slow-growth incipient fires, fuelled by a relatively low energy but a constant source. The level of smoke generated by such fires is initially low and may persist for a long time. A VESDA 'Very Early Warning' smoke detection system provides excellent value in such circumstance because there is a good window of opportunity to investigate and address the cause. In addition, during the early stages of fire development, there are many options for addressing the problem, including simply removing current from the circuit.

ENGINE ROOMS

Engine Rooms are difficult environments for traditional smoke detection technologies to effectively detect an incipient fire. There is often a relatively high background level of 'normal' exhaust and vapours from the engines which mask the growth of a fire in the early stages of development. VESDA Very Early Warning Smoke Detection Systems are better able to distinguish between normal and abnormal smoke levels and therefore, can report alarm conditions more reliably, while traditional systems simply have less resolution to differentiate changes in the environment.

Humidity and high airflows also make detection difficult and only VESDA Very Early Warning smoke detection systems can be applied to reliably detect early growth fires.

A FEW STATISTICS (source EMSA (European Maritime Safety Agency))



It is very difficult to prevent ship fires, and minimising the risk and subsequent consequences also pose great challenges. Approximately 6% of fires on Roll-on/Roll-off (Ro-Ro) passenger ships have resulted in loss of life or serious injury and occur every year according to IUMI (International Union of Marine Insurance).

A FIRE DISASTER MAY ALWAYS OCCUR

On 22 February 2007, the Levina 1 was en route from the Indonesian capital, Jakarta, to the island of Bangka. Several hours into the journey and approximately



110 km (70 miles) from port, the vessel caught fire. Hundreds of passengers escaped the burning ship by jumping into the Java Sea and over 290 people had to be rescued. At least 51 people lost their lives in the disaster.



RISKS AND CHALLENGES

The most common causes of marine vessel fires are electrical malfunctions, leaking fuels, oil lube sprayed on hot engine parts and welding fires.

Traditional point type detectors, typically used in land based applications can become easily **contaminated** and result in nuisance alarms and/or **reduced sensitivity in these marine environments**. The normally **smoky** environments of engine rooms **mask the detection** of slow-growth fires where **humidity and high airflows dilute smoke** and make detection difficult.

Applying the right detection technology for the environment is paramount where reliance on system performance and safety is critical at sea.

CONSEQUENCES OF SMOKE OR FIRE ON A MARINE VESSEL

- **Endangers lives**
- **Significant damage to equipment** including smoke contamination within electrical equipment
- **Environmental pollution** caused by the release of ship bunkers and other pollutants
- **Delays** to services & timetables
- **Service penalties** for not meeting contractual service agreements
- **Negative publicity** which may affect sales and profits



VESDA DETECTORS APPROVED FOR MARINE APPLICATIONS

VESDA is protecting ships across the globe by offering an actively monitored air sampling system with superior detection performance, reliability and sensitivity consistency over time. A range of VESDA detectors have been approved by DNV and USCG. The VESDA VLC - Marine has been tested and certified to provide all the benefits of ASD, including very early warning, in Marine Environments.

<p>VLC-MRN</p>   	<p>Area coverage of 800m²</p> <p>Absolute smoke detection</p> <p>Clean air barrier for optics protection</p> <p>Air flow monitoring</p> <p>Auto learn smoke</p> <p>IP30 ABS enclosure (IP66 optional enclosure available)</p> <p>DNV Type approval</p> <p>USCG approval (pending)</p> <p>NEC 500 Class I Division II</p> <p>Class A, B, & C fires</p>
<p>VLC-500/505-EX</p>  	<p>Area coverage of 800m²</p> <p>Absolute smoke detection</p> <p>Clean air barrier for optics protection</p> <p>Air flow monitoring</p> <p>Auto learn smoke</p> <p>Rugged industrial IP54 high impact resistance design</p> <p>Corrosion resistant stainless steel 304 enclosure</p> <p>DNV Type approval</p> <p>ATEX/IECEX approval for Zone 2</p> <p>Gas group IIA & IIB</p> <p>NEC 500 Class I Division II</p> <p>Class A, B, & C fires</p>



WHY USE A VESDA ASPIRATING SMOKE DETECTION SYSTEM?

VESDA detectors buy “TIME”, time to respond to a fire threat, minimizing damage and business downtime. They provide:

- Detection of both **small incipient smouldering fires and large flaming fires**
- Superior **performance in harsh environments** and **high resistance to contamination** through the use of our **clean air barrier** technology that protects the detection chamber
- **Flexibility in design** on ceilings, underfloor voids, cable ducts and across return air intakes, as well as in targeted equipment sampling such as electrical cabinets
- **Multiple configurable settings** provide very early warning for investigation, and subsequent warnings to initiate a fire response plan, evacuation and suppression if necessary.

Applications	Causes	Consequences	Detection Challenges
Bridges & Communication rooms	Electronics, electrical circuits, power supplies	Critical impact on operational function, loss of high value assets, long time to replacement	Incipient slow-growth fires, low smoke levels, diluted at source by electronics cooling systems
Engine rooms	Electrical malfunction, spraying of electrical equipment or overheated equipment with fuels and solvents	Injury, loss of propulsion, missed schedules	High level background fumes and vapours, humidity and high airflows, reliability, high maintenance
Cargo holds	Electrical wiring, unknown and potentially high and fast growth-rate fire loads	Third-party losses and risk of litigation, potentially high-value assets	Unattended, large volume areas (dilution of smoke) and/or confined spaces (detection far from source, transport time of smoke), difficulty of maintenance
Large open areas	Numerous	Injury and loss of life from panic	Large volume areas and air movement causing dilution of smoke
Refrigerated storages	Electrical wiring cooling equipment.	Loss of stock, impact on operational function	Highly condensing environment, harsh temperature for electronics
Pump rooms	Mechanical and electrical malfunction, overheating equipment	Loss of cargo, loss of life, risk of litigation	Large volume areas, high airflow
Air handling & Filtering systems	Filter fires, general area fires	Injury and loss of life from smoke exposure and panic	High airflow causing dilution and high maintenance

ABOUT XTRALIS

Xtralis® is the leading global provider of converged solutions for the early detection and remote visual verification of fire, gas and perimeter threats. Our technologies prevent disasters by giving users time to respond before life, critical infrastructure or business continuity is compromised. We protect high-value and irreplaceable assets belonging to the world's top governments and businesses. Our brands include the VESDA-E – the next generation of aspirating smoke detection technology; VESDA® – the world's leading very early warning aspirating smoke detection (ASD) systems; ICAM™ for flexible ASD; ECO™ – Gas detection and environmental monitoring modules for VESDA & ICAM systems; and, OSID™ – easy to use smoke detection for open areas;

To learn more, please visit us at www.xtralis.com

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UK and Europe +44 1442 242 330 The Americas +1 800 229 4434 Middle East +962 6 588 5622

Asia +86 21 5240 0077 Australia and New Zealand +61 3 9936 7000

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