MICROPACK
FIRE & GAS

# iVFD prove their worth on RoRo decks

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Fires at sea can be catastrophic. Ferries, tankers and cargo ships all experience harsh environments and extremes of weather, meaning they require the highest levels of safety precautions.

In a paper entitled "Fires on Ro-Ro Decks" dated April 2016, DNV GL reported that 35 fires occurred on RoRo decks between 2005 and 2015. The causes of these fires included shifting cargo and igniting fuel. The report stated many of these were catastrophic, with loss of life and vessel.

History has shown that shipping companies have experienced many fires on their Roll on, Roll off (RoRo) decks and require the most advanced levels of flame detection available. Being open to the elements creates a unique challenge for detecting fires. IR Flame Detectors have been shown to be prone to false alarms due to environmental factors such as hot exhaust emissions. **Micropack's FDS301 has proven a valuable asset to many clients by offering superior performance and reliability.** This detector uses intelligent Visual Flame Detection (iVFD) technology and algorithms to accurately detect flames, giving unrivalled false alarm immunity, comprehensive coverage, and increased levels of safety.

Many other applications such as Helidecks and Hardened Aircraft Hangars (HAH) share similar challenges to the RoRo deck.

## For Example

The US Air Force prohibits the use of IR3 flame detectors in HAH due to false alarms from exhaust emissions and radiant heat sources. Many Oil and Gas Operators use iVFD's on the helidecks of Normally Unattended Installations (NUI's) because they are immune to false alarms from hot exhausts, black body radiation, and extreme weather.

# FDS 301

Sensitive to n-heptane fires of 0.1m2 at up to 44m within a 90° horizontal field of view.


Each FDS301 iVFD records 17 seconds of the alarm video, broken down to 8.5 seconds pre-alarm and 8.5 seconds post-alarm.

# OUR CASE STUDY

Stena Line

Micropack was approached by Stena Line, one of the world's largest ferry operators, to provide flame detection on the RoRo deck of their Jutlandica Ferry. These detectors needed to be highly reliable, immune to false alarms, and able to distinguish flames from environmental stimuli such as exhaust fumes, sea spray, and radiant heat sources.
We needed to provide a technology for the RoRo deck that could quickly and accurately detect small fires while filtering out false alarms from sources such as exhaust fumes or hot engines.

The FDS301 Visual Flame Detection System was installed on the ferry due to its ability to ignore radiant heat sources and exhausts, dramatically reducing false alarms, as well as providing live colour CCTV video feeds.

By being able to automatically detect flames, the FDS301 eliminates the need to send personnel into potentially hazardous situations, greatly improving safety.

During the 6 month trial period, live-fire tests showed the FDS301 to improve safety and response times, responding to flames in less than 5 seconds. Due to this rapid response, it was proven that fires could be extinguished very quickly in the case of a real incident. The FDS301 contains a micro-SD memory card to record all detections - pre, during and post-fire. This allows for detailed analysis post-event by operators to learn lessons and improve future safety.

**The trial period for FDS301 on board the Jutlandica's RoRo deck was such a success that it has been left on the vessel and continues to work 4 years later, with plans to order more in the future.**

**6**

**MONTHS TRIAL**


VS

# OTHER DETECTION SYSTEMS

**Our intelligent Visual Flame Detectors** have inbuilt flame recognition algorithms that process bright pixel clusters for flame flicker pattern, brightness, and shape. The algorithm has been refined over 25 years to ignore common false alarms and only see flames, resulting in high reliability compared to alternative technologies.

The FDS301 iVFD has an onboard alarm record function and full-colour CCTV video output. These features remove the need for human investigation and intervention, resulting in an inherently safer system. The onboard Micro-SD recordings consist of 8.5 seconds pre-alarm and 8.5 seconds post-alarm, providing invaluable data to ship owners, allowing for improved analysis and learning from each incident.

**25 YEARS OF EXPERIENCE**

**RECORD FUNCTION & FULL-COLOUR CCTV VIDEO**

**8.5 SECONDS PRE-ALARM & 8.5 SECONDS POST-ALARM,**

## EASY TO INSTALL & MAINTAIN

## DELIVERED PRE-CONFIGURED

## OPERATES IN ALL ENVIRONMENTS

Micropack's iVFD' are delivered pre-configured, with a single high sensitivity setting, removing any potential errors due to faulty set-up or issues with the onboard software. We designed iVFD's to operate in all environments, including saliferous offshore applications, deserts, and extreme cold. Differing light levels will not affect the performance of an iVFD, whereas other camera-based visual detection systems rely on a constant light level.

The ultra-wide field of view provided by the sensor means fewer units are required to create a complete field of vision covering the whole area required. In comparison, using IR3 flame detectors means you need ~30% more detectors to achieve the same coverage as iVFDs. Raant-based flame detection systems, such as IR3, do not visually identify flames but look for a flame signature in the infrared, resulting in a higher incidence of false alarms.

Alternative 'visual' systems merely have a camera crudely attached to an IR flame detector. While this type of detector offers a live video output of the area, similar to iVFD, it is still subject to the same false alarm problems as a standard IR3.

Certain IR3 manufacturers will claim immunity to hot exhaust emissions, however, this is achieved by covertly lowering the sensitivity of the detector, without reporting a fault. In certain circumstances, this situation could result in the detector failing to danger.

**iVFD technology delivers full sensitivity to flames in the presence of exhaust emissions and radiant heat sources.**

# Sounds Interesting?

Get in touch today to learn more about how Micropack's Visual Flame Detection S ystems can help improve safety for RoRo decks across all forms of shipping.

**Get in Touch!**


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