A cool flame detector for helidecks, aircraft hangars and road tanker loading

Fire & Gas Detection Technologies Inc. (FGD), the true innovators in optical flame detection, focus on the daily challenges that impact productivity, safety and the bottom line with innovative solutions that reduce false alarms in the most challenging of applications.

Dr Eliot Sizeland

Applications that demand heightened immunity to false alarms include helidecks, aircraft hangars for storage and maintenance operations as well as road tanker loading islands.

Triple IR flame detectors

Triple IR detectors are virtually immune to false alarms and can have extremely long detection distances to some fire types. There are, however, wide performance variations from brand to brand as no two triple IR detectors are the same.

A triple IR detector has three sensors, each sensitive to a different IR wavelength. The IR radiation emitted by a typical hydrocarbon fire is more intense at the wavelength accepted by one sensor, usually around 4.5 microns, than the other two. The IR energy detected at 4.5 microns relates to the products of combustion of the hydrocarbon fire – the main component being carbon dioxide (CO_2).

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FGD has developed a special IR3 configuration for applications where the presence of exhaust (combustion) gases from engines and turbines is known to cause false alarms for competing devices. This unit has been named the FlameSpec CO2L (pronounced cool) detector.

The FlameSpec CO2L IR3 and IR3-HD configurations have been independently tested and approved by Factory Mutual (FM). In addition to fire-detection performance FM tested the detector with a wide range of modulated and unmodulated false-alarm sources. The sources used are found widely in industrial applications, e.g. arc welding, electric arcs, sunlight, sunlight with rain droplets, heaters and lights.

Helideck applications

False alarms offshore are a genuine concern for production and safety. Should a helicopter engine downdraft induce a false alarm on approach to a helideck, the firefighting system could activate automatically thereby creating a safety concern for all onboard the aircraft.

The FLS-IR3-HD has an embedded HD camera which can be viewed remotely from a control room or shore-based facility thereby providing live CCTV coverage of the Helideck area. This feature is particularly suited to facilities operating in remote locations, like a NUI.

The live video feed provides real-time incident status and allows a more accurate and informed response to be taken by control-room operators.

A further benefit of this device is that HD colour video and data of events are stored quickly to non-volatile memory within the detector for post-incident investigation. Recordings start one minute before detection and continue for up to four minutes.

Aircraft hangars

In aircraft hangars jet engines and auxiliary power units (APUs) along with maintenance operations (like hot work) present significant sources of false alarm for traditional IR3 detectors.

Aircraft hangars vary in size, utilization and the number of aircraft they house. Each hangar can be classified as of one of four hangar group types, in compliance with NFPA 409. The classification depends on the construction, building dimensions, door height and the types of fire risks present. It's important to therefore understand that fire detection and protection systems must be designed to the unique characteristics and needs of the facility.

Optical flame detectors are used extensively in aircraft hangars as they can cover a large area and respond quickly to a fire. The detectors are usually positioned looking towards the wing tips, thereby providing coverage above and below the aircraft's wings. Where helicopters are housed in a hangar it is more common to direct detection towards the engine area.

Aircraft hangars have fixed automatic fire-suppression systems. Damage to plant and equipment by accidental activation of these systems can cause millions of dollars in damage to property and machinery. As an example, the cost to clean and repair an engine that has been doused with foam has been documented as being around 50% of its replacement. FGD recommends the FlameSpec CO2L IR3 and IR3-HD configurations for aircraft hangar installations.

Road tanker loading

Truck loading or unloading of flammable/combustible liquids is one of the most hazardous operations likely to be undertaken in applications such as refineries, fuel terminals and chemical plants. The main fire risks are spill fires so the whole area surrounding the truck needs to be monitored. Static electricity discharge can be considered the main ignition source, but lightning strikes can occur too.

Optical flame detectors are usually located in the roof of the installation looking over and down the length of the vehicle. Truck loading/unloading facilities are normally protected by sprinklers that pour foam over truck and cargo space from above. Medium expansion foam pipes are used to apply a thicker foam blanket over the surrounding area to protect against pool fires or liquid spills. False alarms must be avoided, but the truck exhaust poses a significant false-alarm risk for regular IR3 flame detectors. Here again the FlameSpec CO2L configuration combines superior false-alarm immunity with outstanding speeds of detection. The HD CCTV capability offers a live video feed for control-room operators to monitor activities in the truck loading area.

FIRE & GAS DETECTION TECHNOLOGIES INC.

FlameSpec CO2L

Flame detection for helidecks & hangars

When Every Second Counts...

Contact FGD now for a demo, brochure or sales information:
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