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Use of lead Sulphide (PbS) Infra-red sensors in Talentum Flame detectors

FFE is a manufacturer of fire detectors. We are not in a position to dictate research into different Infra-red detection technologies; we simply assess what sensors are available on the market and select a type that meets our requirements for both performance and price.

The operation of our Talentum flame detector relies on a spectral analysis of the incident infra-red light in two wavelength bands. The selection of these bands is achieved through the selection of optical filters combined with the spectral response of the sensors.

We have looked at replacing the PbS sensors with InGaAs photodiodes but have found that the spectral response of these sensors would mean that we would have to compromise the selection of wavelength bands, degrading the performance of the product. In addition to this, the InGaAs sensors are considerably more expensive. This issue is amplified because we use multiple sensors in each detector.

Some manufacturers use Pyro-electric infra-red sensors. Detectors of this type work by detecting the 4.3 μ m light emitted from hot CO₂. This limits detection to carbon-based fires. Additionally, 4.3 μ m light is blocked by window glass. This type of detector is not suitable for applications with a non-carbon fire risk or where the monitoring is performed from outside the area of risk, through a window (spray booths, engine test cells, etc.).

Flame detectors are a very fast-response form of fire detection which, in many applications, can provide the earliest warning of a fire, giving valuable extra time to respond or evacuate. Anything that makes this type of detector less competitive or less effective could be adversely impacting life safety. We therefore support an extension to the ROHS exemption for the use of lead in infra-red sensors.

Yours sincerely

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