DET-TRONICS

Technical Bulletin

X3301 Microprocessor-Controlled Heated Optics

Detector Electronics announces a new breakthrough in optical flame detector design with the introduction of microprocessor-controlled heated optics and calibrated optical integrity features. Traditional flame detectors were plagued with problems due to harsh environmental conditions in outdoor and/or offshore or coastal installations. These detectors would become blinded with snow or ice build up resulting in an inability to detect fires. The Protect•IR® X3301 is the first of a series of detectors utilizing microprocessor controlled heated optics to reverse unwanted environmental condition limitations.

The microprocessor controlled heated optics are designed to break the cohesive bond of ice or snow by increasing heat to the optics, allowing the detectors optics to return to optimal performance levels. Other detectors on the market would be blinded and incapable of detecting a fire until the ice or snow is removed manually. In severe weather locations a fault condition can occur and may require a short time to clear depending on the ambient temperature.

The factory-configured setting of the heated optics is 'automatic mode'. This allows the microprocessor to control the heater from 0% to 100%. In cold environments such as –55°C, the heaters will operate at 100% until the detector warms to the temperature set point. In hot environments like turbine enclosures the heater will automatically turn off reducing internal temperatures. The heater can also be set from 0% to 100% by a laptop running the Det-Tronics Inspector software.

The X3301 optical integrity test is built on the existing design concepts of Oi and new test features. The X3301 flame detector's factory default setting for the optical integrity is one test on each sensor once per minute, and will generate a fault with 3 consecutive failures. The detector evaluates the calibrated optical test parameters and compares the values to the other sensors verifying detection capability. The fault level is set for a loss of more than 50% of the detection range. The optical integrity test also evaluates each sensors present sensitivity level and compares this to the other sensor's values for an over sensitivity drift and will generate a fault when above default values. The X3301 optical integrity provides fast identification of all possible fault conditions leaving no undisclosed failure modes.

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