

~~OPTICAL FLAME DETECTOR FIELD OF VIEW COMPARISON~~

The field of view of an optical flame detector is a conical-shaped area extending out from the detector lens, and is often referred to as the Cone of Vision (COV). Det-Tronics ultraviolet (UV), single frequency infrared (SFIR) and combination UV/IR flame detectors provide a symmetrical COV angle of either 80 or 90 degrees depending upon the detector model.

Some manufacturers claim their flame detectors provide a COV angle up to 120 degrees. At first glance, this characteristic may appear beneficial; however, performance evaluation testing has shown that the actual COV coverage and detection distance claims of “wide-angle” detectors is often inconsistent. Wide-angle COV detectors typically utilize lesser quality optical filters, and optical sensors, resulting in reduced detection range and reduced false alarm rejection capability.

In addition, these detectors are often fuel-specific, meaning the devices are “tuned” for detection of a specific type of fuel such as gasoline, but fall short of their claimed capability in response to different fuel fires such as natural gas or methanol.

Proper flame detector location selection starts with identification of known high-risk fire ignition points within the application. Covering each of these points one or more flame detectors is typically recommended to ensure satisfactory coverage, regardless of detector COV angle. In many applications the wider COV angle is not useful, since obstructions such as girders, beams, supports, hoists, aircraft rudders, air conditioners, scaffolds and other solid objects often block or limit the COV of such wide angle detectors. In other applications, zone voting requirements for deluge actuation require that specific areas of coverage must be maintained to prevent accidental deluge discharge in adjacent deluge zones. At short range, wide-angle detectors are often unable to provide this discrimination.

Det-Tronics recommends the use of the model T2P Laser Aiming Device and Q1201 holder to properly align and define the area covered by Det-Tronics flame detectors. The T2P laser will show the center axis aim point of the detector, and by moving the laser to the off-axis position, the entire perimeter limits of the 80/90 degree COV can be identified. This unique capability provides the ability to precisely identify aim point, area of coverage, and alignment angle for record-keeping purposes.

Total system comparisons for projects utilizing 80/90 degree and 120 degree COV devices shows little or no cost savings benefit from using 120-degree devices. In fact, the costs associated with nuisance alarms and shutdowns initiated by wide angle detectors results in significantly higher life cycle costs than compared to Det-Tronics flame detection systems. By utilizing premium sensors and optical filters within the flame detector design Optimum fire sensitivity and maximum false alarm rejection capability is accomplished. The superior quality, performance, and nuisance alarm rejection capability provided by Det-Tronics optical flame detectors renders any benefit provided by supposed “wide angle” COV devices inconsequential.