Integrated Flame Scanner with Internal Flame Relay

Addendum to CU-105 - reduced temperature operation

The Fireye Phoenix flame scanners are microprocessor based flame scanners utilizing solid state infrared (IR) or ultraviolet (UV) sensors.

Fireye's engineering department performed a test confirming the ability of our model "PHOENIX" flame scanner to perform at reduced operating temperatures. Testing was carried out on a Fireye PHOENIX model 85UVF1-1, although results would apply to all models and versions of the product

The unit was placed in a thermal chamber set for –46 C and left overnight with no power applied to the scanner. The following morning the scanner was powered up and began operating correctly. A flame was simulated outside of the cold-box through an eight-inch sight-tube and the unit functioned properly.

The unit was placed in the thermal chamber and further reduced to -49°C. The units were left to soak overnight with no power applied. The following morning the scanner was powered up. The scanner showed an error condition / blinking with 4 LEDs lit from the bottom (TEMP FAULT Error Code).

After applying power to the scanner after 14 minutes the scanner inside temperature was –44 C, after 23 minutes –37 C and after 2 hours it seemed to have stabilized at –32 C although the ambient remained at –60 C throughout (internal heat rise)

Conclusion:

The Phoenix scanner software is designed to detect internal operating conditions more than 6 degrees lower than the published low level ambient (-40 DegC) We have successfully completed the PHOENIX cold start test to –46 DegC from a no power situation. If the unit remains powered it will operate below the required –50 DegC condition due to internal temperature rise (approximately 12 to 15 Degrees C).