



# FLAMEVision™

## Array Based Infrared Flame Detectors

### Features:

- Built-in CCTV option to assist with rapid response
- Fast, reliable flame detection using infra red detection
- Simplifies alarm handling for remote control room situations
- Provides immediate visual ID of alarm location
- Robust housing with heated optics
- Automatic monitoring of detector functionality including signal transmission through window status
- 256 infra red sensor array monitoring the field of view to separately identify flame and non flame sources
- Range of integral interface options
- Masking of part of field of view in software configuration tool
- Over 50m detection range with 90° field of view
- Remote video monitoring with fire location and detector information
- Automatic Optical Integrity Monitoring

### FLAMEVision Array Based Infrared Flame Detection

The FlameVision detector utilises infra red array based flame detection combined with integral CCTV to automatically and reliably identify flame incidents and pin point the location on a video image.

By using an array as the sensing component, the FLAMEVision detectors are able to locate the angular position of the fire within the field of view. The detectors use this information to provide superimposed location information on a composite video output from an internal CCTV camera and to signal the coordinates of this location on its data output. This information allows the operator to quickly verify the alarm and implement the necessary actions. It also provides a valuable tool for false alarm control and event audit processes.

The FLAMEVision offers a major improvement in both flame detection capability and immunity to false alarm sources over triple IR detectors. It also includes features designed to reduce maintenance requirements.

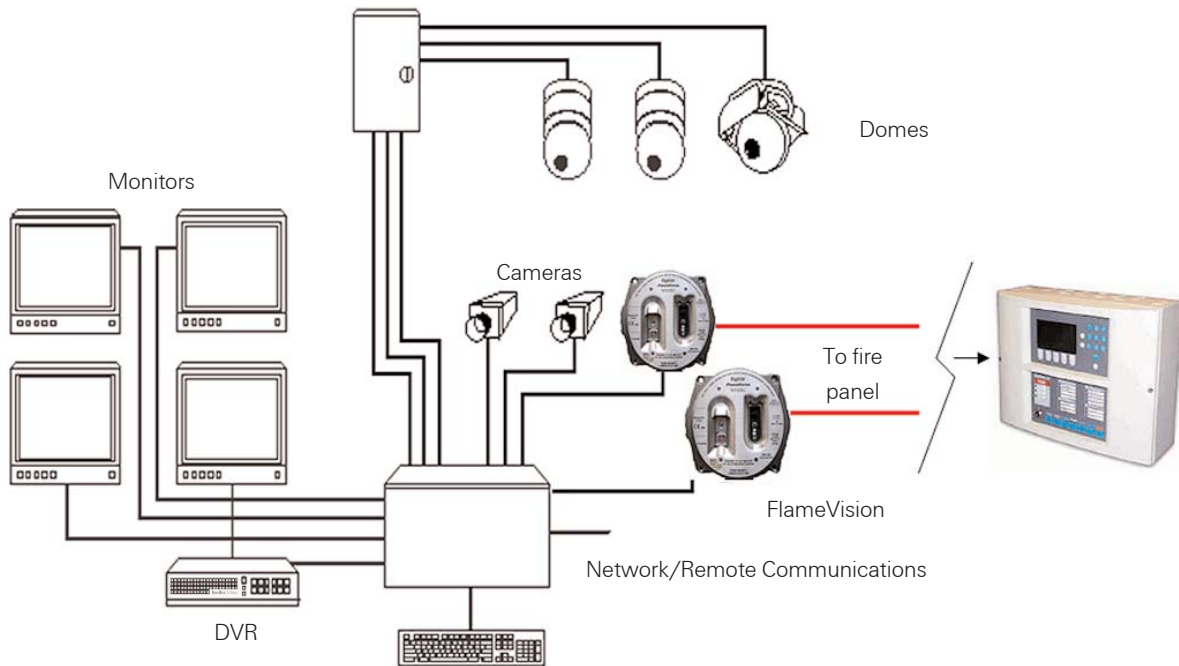
The FLAMEVision range of detectors provide, as standard, the following system interface:

- Volt-free relay contacts for alarm and fault, programmable as normally open or normally closed
- An analogue output current, in the range 4 to 20mA, proportional to the flame detection signal.
- RS485 serial data port suitable for network connection using a MODBUS protocol.
- Video output compatible with twisted pair video cable.

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*Fire & Integrated Solutions*



## Benefits

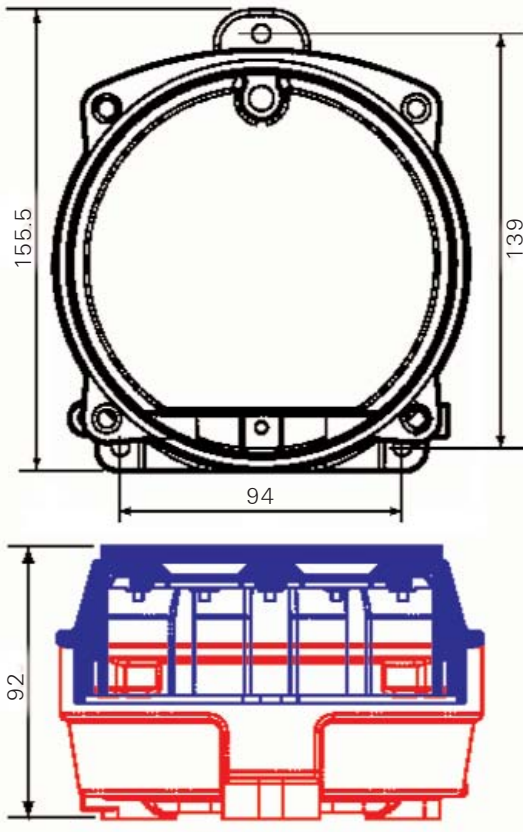
- Highly sensitive to flame, thus increasing probability of early detection of hydrocarbon fires over a longer range.
- Able to see flames through smoke and through high densities of solvent vapours thus increasing the probability of early detection of hydrocarbon fires.
- Insensitive to artificial light sources, such as halogen lights.
- Consistent, high sensitivity, flame detection throughout a 90° field of view due to 256 individual sensors.
- Consistent detection of different types of hydrocarbon fuels from alcohol to aviation fuel with range or size of fire related to calorific value of the fuel.
- Pinpoint location of the fire within the field of view enabling more effective counter measures to be taken.
- Regular self-testing of critical electronic circuits and regular monitoring of the detector window (OIM) reducing the frequency of regular maintenance visits.
- Integral flame simulation for verification of detection path enabling either easy walk-testing of the installation or testing by remote control to ensure continued reliability of the detector operation.
- Options of different system interfaces as standard.
- Sealed to IP66 and IP67 (when suitable cable gland and sealant are used) ensuring long term reliability in harsh environment.
- Software masking of identified unwanted sources of radiation in the detector field of view.



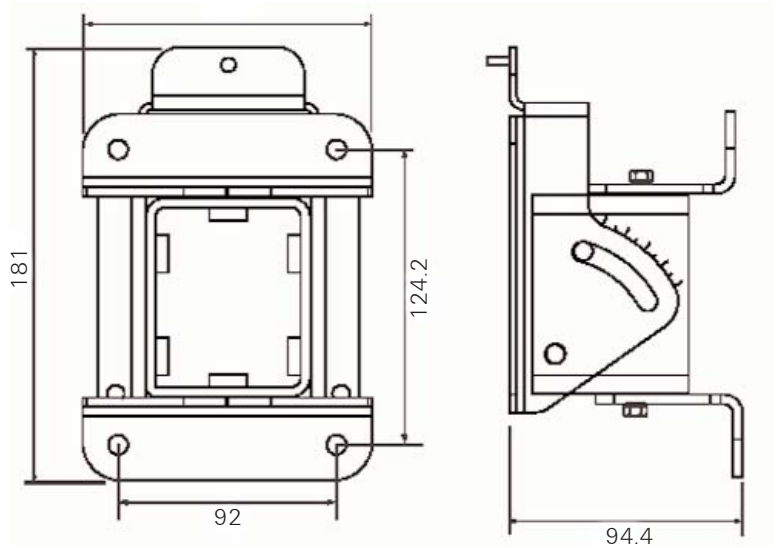
FLAMEVision alarm  
superimposed on the CCTV image  
(Illustration only)



# Array Based Infrared Flame Detectors



**FLAMEVision Dimensions**



**Adjustable Mounting Bracket and Surface Mounting Dimensions**

## Mechanical Characteristics

### Dimensions

Height: 155.5 mm  
 Width: 152.0 mm  
 Depth: 92.0 mm  
 Weight: 4 kg

### Mounting bracket

Weight: 1.54 kg

### Materials

Enclosure: Stainless steel 316L, ANC4BFCLC to BS 3146: Part 2  
 Detection window: Sapphire  
 Camera window: Toughened glass  
 Guard/label plate: Stainless steel 316S16 to BS 1449: Part 2  
 Mounting bracket: Stainless steel 316S16 to BS 1449: Part 2  
 Screws etc. Exposed to the elements: Stainless steel 316 A4

**Electronic modules:** Fibreglass substrate

### Electrical access

FV311 series detectors: Standard M20 gland holes (two)  
 FV312 series detectors: Multi twisted pair screened cable

### Interface outputs

Modbus / 4-20mA / Fire and fault relay / Video Out

## Environmental Characteristics

### Temperature

Operating temperature range without camera: -40°C to +80°C  
 Operating temperature range with camera: -10°C to +55°C  
 Maximum withstand temperature: 120°C (for 10minutes)  
 Storage temperature range: -40°C to +80°C

### Humidity

Relative humidity: Up to 99% (non condensing)

### Enclosure Protection

Enclosure protection: Tested to IP66 and IP67

### Pressure

Normal operating atmospheric pressure: 910 mbar to 1055 mbar

### Heat Radiation

Heat radiation from sun: 0 to 1kWm<sup>2</sup> typical

## Camera Specification

Composite video: (1V p-p) into 75 Ohm  
 Horizontal resolution: Standard 450 TVL  
 Light Sensitivity (-30 IRE): 0.3 Lux  
 Iris / Exposure control: Electronic 1/50 - 1/100,000 sec

## Vibration & Shock

The following maximum levels are applicable:

Operational vibration:	1.24 mm displacement (from 5 Hz to 14.2 Hz)
	1.0 g (from 14.2 Hz to 150 Hz)
Operational shock/impact:	20.0ms <sup>2</sup>

## Electromagnetic Compatibility

### Tested to the following levels:

Radiated radio frequency:
10V/m (from 80MHz to 2GHz)
30V/m (from 415MHz to 466MHz)
30V/m (from 890MHz to 960MHz)
Conducted radio frequency : 10V/m (from 150kHz to 100MHz)
Fast electrical transient burst: ± 2kV (applied for 5 minutes)
Slow high-energy surge: ± 2.4kV
Electrostatic discharge:
± 8kV (air discharge)
± 6 kV (contact discharge)

## Flameproof Certification

All variants of the FLAMEVision detector are designed to comply with EN 50 014 and EN 50 018 for flameproof enclosures.

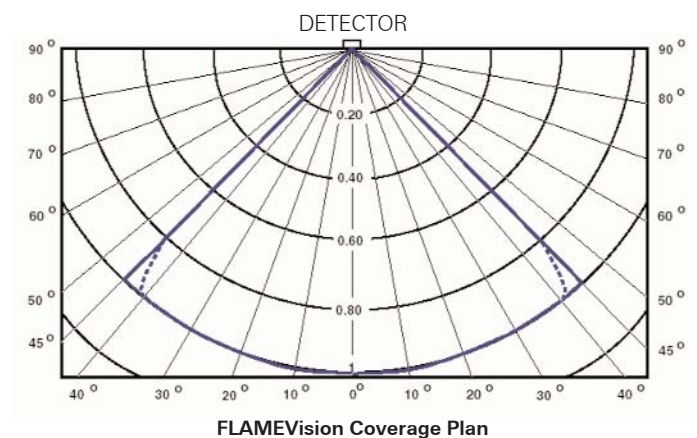
They are certified: ATEX code: II 2 G Cenelec code: EEx d IIC T4 (-40°C to +80°C) and T5 (-40°C to +65°C) Under ATEX certificate number Baseefa04ATEX0176X. This certification shows the FLAMEVision detectors are certified 'flameproof', meeting the requirements of EN 50014 and EN 540018. They are classified as suitable for zones 1 and 2 areas over an ambient temperature range -40°C to +80°C for temperature class T4 gasses, or up to +65°C for temperature classification T5 gasses.

## Ordering Information

FV311S	Stainless Steel flameproof detector - cable gland entries - no camera	5 16.300.006
FV311SC	Stainless Steel flameproof detector - cable gland entries - PAL camera	5 16.300.008
FV311SC-N	Stainless Steel flameproof detector - cable gland entries - NTSC camera	5 16.300.007
FV312S	Stainless Steel flameproof detector - sealed back box - no camera	5 16.300.055
FV312SC	Stainless Steel flameproof detector - sealed back box - PAL camera	5 16.300.057
FV312SC-N	Stainless Steel flameproof detector - sealed back box - NTSC camera	5 16.300.056

### Ancillary equipment

MB300 FlameVision Mounting Bracket:	5 17.300.001
WH300 FlameVision Weather Hood:	5 17.300.002
WT300 FlameVision Walk Test Tool:	5 17.300.021
CTI300 FlameVision Off-line Configuration Tool	5 17.300.022
MK300 FlameVision Field Spares Kit	5 17.300.006



For further information on how we can help you please visit our website at [www.tycofis.com](http://www.tycofis.com) or e-mail us on [tycofis@tycoint.com](mailto:tycofis@tycoint.com). The right is reserved to modify or withdraw any product or service without notice. PSF223TFIS Issue 4 November 2008 © 2008

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