FLAMEVISION™

SERIES 300 INFRARED ARRAY FLAME DETECTORS

SCOTT® HEALTH & SAFETY

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Array Based Infrared Flame Detection

The FlameVision detector utilizes infrared 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.

Features

- Built-in CCTV option to assist with rapid response
- Fast, reliable flame detection using infrared 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 infrared 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

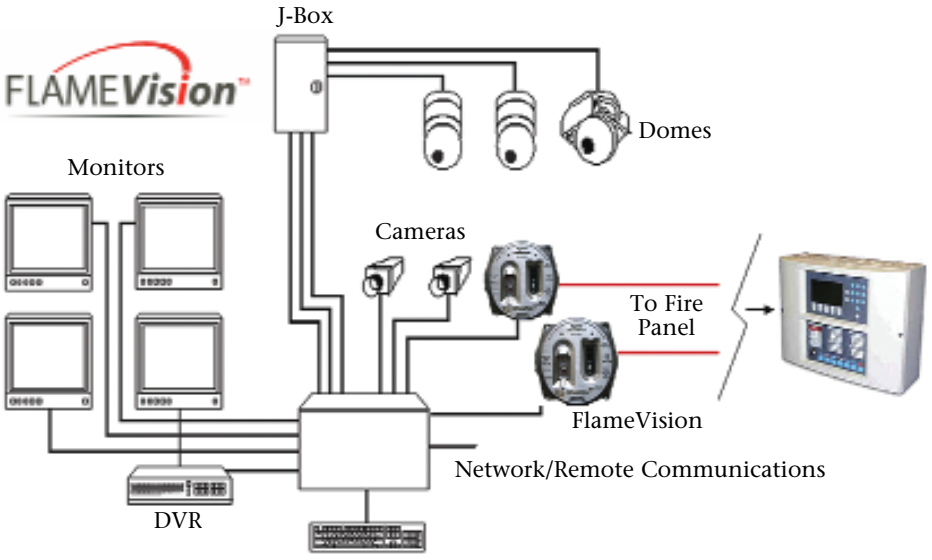
The FlameVision offers a major improvement in both flame detection capability and immunity to false alarm sources over triple IR detectors. It also includes features designed to reduce maintenance requirements.

E C T O R S

FlameVision 300 alarm simulated on a CCTV screen

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 analogoutput 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.



Array Based Sensor Technology Versus Traditional Sensor Technology

Technology	Range	Sensitivity	Speed	False Alarm	Application
Infrared (IR)	30 Ft.	Moderate	High	Sun, Black body	Indoor
Ultraviolet (UV)	50 Ft.	High, Oil-Mist, Fog	High	Welding, Lighting, X-ray	Indoor
Dual (UV/IR)	50 Ft.	High, Oil-Mist, Fog	High	High UV Low IR High IR Low UV	Indoor, Outdoor, Metal Fires
Dual IR	50 Ft.	Moderate	Mod	Branching, Radio-Frequency	Indoor, Outdoor
Triple (IR)	100 Ft.	Moderate	High	Low*	Indoor, Outdoor, Organic Fires
IR Array	165 Ft.	Highest	High	256 Redundant IR Sensors†	Indoor, Outdoor

* Note: Sometimes multiple detectors are required.
† Note: Software mask allows user to mask causes of false alarms.

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 vapors thus increasing the probability of early detection 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 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 inter-faces 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.

SPECIFICATIONS

SERIES 300 INFRARED ARRAY FLAME DETECTORS

MECHANICAL CHARACTERISTICS

Dimensions:
Height: . . . . . .155.5 mm (6.12 inches)
Width: . . . . . .152.0 mm (6.0 inches)
Depth: . . . . . .92.0 mm (3.62 inches)
Weight: . . . . . .4 kg (3.4 lbs.)

Mounting bracket
Weight: . . . . . .1.54 kg

Materials:
Enclosure: . . . . . .Stainless steel 316
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

Electrical Access:
FV311 series detectors: . . .Standard M20 gland holes (two)

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
Operating temperature range with camera:.....120°C (for 10 min.)
Storage temperature range:.....-40°C to + 80°C

Humidity:
Relative humidity:.....Up to 99% (non condensing)

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 1kWm2 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)
Operationalshock/impact: .....20.0ms^2

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)

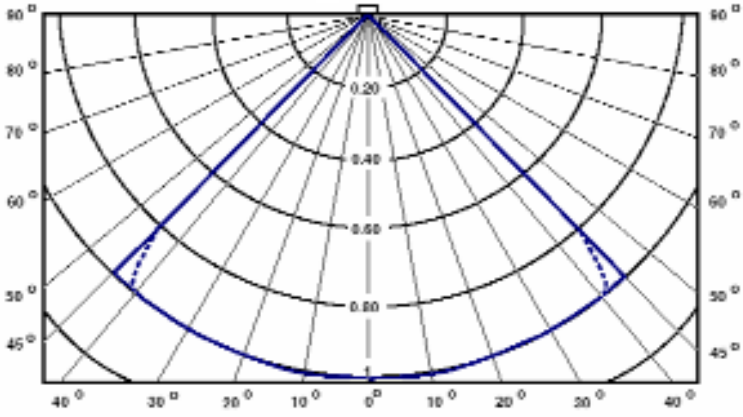
Conducted radio frequency:..10V/m (from 150kHz to100MHz)
Fast electrical transient burst:..... ± 2kV (applied for 5 min.)
Slow high-energy surge:.....± 2.4kV
Electrostatic discharge:.....± 8kV (air discharge)
± 6 kV (contact discharge)

FLAMEPROOF CERTIFICATION

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

Approvals: 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.

DETECTOR



FlameVision Coverage Plan

FlameVision 300 Stainless Steel Flameproof Detector Ordering Information	
Part Number	Description
516.300.006	Cable Gland Entries - No Camera
516.300.008	Cable Gland Entries - PAL Camera
516.300.007	Cable Gland Entries - NTSC Camera

FlameVision 300 Accessories	
Part Number	Description
517.300.001	FlameVision Mounting Bracket
517.300.002	FlameVision Weather Hood
517.300.021	FlameVision Walk Test Tool
517.300.022	FlameVision Off-line Configuration Tool

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