CD-F-301 Visual Flame Detector

Designed for hazardous industries where fast optical flame detection is critical and nuisance alarms are not an option.

The CD-F-301 is an explosion proof visual flame detector. The device processes live video images to detect the characteristic properties of flames by means of its digital signal processing and hardcoded software algorithms.

Features and Benefits

Live Video
A live colour video image is available from each detector; this allows information about the protected area to be displayed on a monitor in the control room, providing the operator with a visual feedback of an event, which can reduce response time.

False Alarm Immunity
The CD-F-301 demonstrates superior false alarm immunity with live colour video direct from a specially designed optical detection device. It is the safest and most advanced flame detector on the market today, and its track record on the hundreds of installations where it is utilised has proven the instrument to be robust, even in the harshest of environments.

On-board microSD card
The CD-F-301 incorporates a microSD card capable of recording a video of detected fires pre and post alarm. This recording is invaluable when carrying out an incident investigation and essentially by using the CD-F-301, there will never be an instance of an unknown alarm.

- Visual flame detection principle which ensures maximum false alarm immunity.
- Live colour video output.
- Single sensitivity for ease of mapping and maximum coverage.
- On-board microSD card - pre/post alarm video recording.
- Separate function test device – Flame Simulator 301 (CD-FS-301).
- Advanced optical verification test.
- Multiple Output Options for maximum flexibility and compatibility:
    - Alarm and Fault Relays
    - 0-20mA Current source or sink HART Protocol
    - RS-485
- User Programmable via HART or RS-485.

- Can operate stand alone with or without video.
- Unrivalled MTBF – min 2,000,000 hours
- Certified SIL 2 Capable (Exida)
- Heated Window for operation in harsh weather conditions (snow, ice, condensation)
- Hazardous area zones:
- Zones 1 & 2 with IIC gas group vapors present
- Ex approved to:
    - ATEX & IECEx
    - FM/FMC
- 3rd Party Performance Tested
    - FM 3260 Radiant Energy Sensing Fire-Detectors for Automatic Fire Alarm Signaling
    - EN54-10 (VdS)

Technical specification

Environmental

Operating Temp: -60°C to +85°C (-76°F to +185°F)
Storage Temp: -60°C to +85°C (-76°F to +185°F)
Humidity: 0 to 95% RH non-condensing
Ingress: IP66, NEMA 4X

Operating Voltage

24Vdc Nominal –   (18 to 32 Vdc Range)

Power Consumption

6 watts minimum (no heater), 10 watts typical,
15 watts maximum (with heater)

Speed of Response

<7 seconds (Typical)

Enclosure

Dimensions: 100 Diameter x 200 Length Overall (mm)
Material: LM25 (Red epoxy), 316L stainless steel
Entries: 1 – M25 or ¾''NPT (Variants on Request)
Weight: 2.5kg (HE30) or 6kg (316L)

Outputs

Relay contacts - alarm and fault Current source/sink 4-20mA
RS485, HART (Consult Factory) Live colour video – PAL and
NTSC

Certification

ATEX : II 2 G Ex d IIC T4 (FM07ATEX0033)
Factory Mutual : 3260 Radiant Energy Sensing
Fire-Detectors for Automatic Fire Alarm Signaling (3029978)
IEC 61508 : SIL 2 (MP 080203 C001)
IECEx FME 07.0002
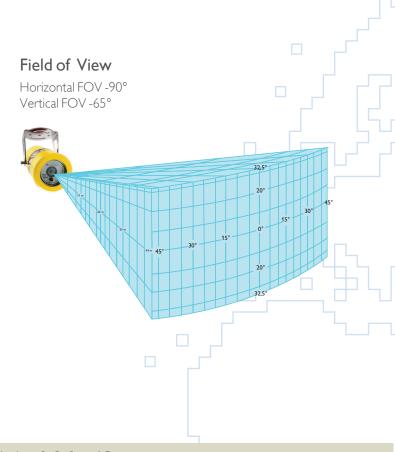Class 1 DIV 1 GROUPS B,C,D,T4
Class 1 Zone 1 AEx/Ex d IIC T4

Flame Sensitivity

Fuel	Fire Size	Distance
Methane Jet Fire	0.9m (3ft) plume	30m (100 ft)
Ethanol	0.1m2 (1sqft) pan	25m (85 ft)
n-Heptane: Pan Fire	0.1m2 (1sqft) pan	44m (144 ft)
n-Heptane: in direct sunlight	0.1m2 (1sqft) pan	44m (144 ft)
n-Heptane: in modulated sunlight	0.1m2 (1sqft) pan	44m (144 ft)
n-Heptane: modulated black body	0.1m2 (1sqft) pan	44m (144 ft)
n-Heptane: Arc welding	0.1m2 (1sqft) pan	44m (144 ft)
n-Heptane: 1000watt lamp	0.1m2 (1sqft) pan	44m (144 ft)
Gasoline Fire	0.1m2 (1sqft) pan	44m (144 ft)
JP4	0.36m2 (3.8sqft)	61m (200 ft)
Ethylene Glycol	0.1m2 (1sqft) pan	15m (50 ft)
Diesel	0.1m2 (1sqft) pan	40m (130 ft)
Crude Oil (heavy fuel oil) Pan Fire	0.25m2 (2.7sqft)	40m (130 ft)
Silane	0.61m (2ft) plume	13m (42ft)

Field of View

Horizontal FOV -90°
Vertical FOV -65°