G015307

Visual Flame Detector
CD-F-300

Part no. 5100797, 5100799

System: Salwico Cargo, Salwico Cruise, Salwico Ro/Pax, Salwico Workboat, Salwico Yacht, CFD5000

About the Datasheet

This data sheet contains product information for the following detectors:

Product name	Product no.
CD-F-300 Flame detector AL SB M25	5100797-00A
CD-F-300 Flame detector AL MB M25	5100797-10A
CD-F-300 Flame detector SS SB M25	5100799-00A
CD-F-300 Flame detector SS MB M25	5100799-10A

SS = Stainless Steel
AL = Aluminum (copper free)
SB = Standard Bracket (thickness 3 mm)
MB = Marine Bracket (thickness 8 mm). Shall be used in applications requiring DNV GL type approval.

Cable glands not included with unit.

WARNING!
For further information about the detectors, and when installing in Hazardous areas, see the FDS300 Visual Flame Detector Safety & Technical Manual, 2401.6000 (Micropack).

General Description

The CD-F-300 is an explosion proof visual flame detector designed for hazardous industries where fast optical flame detection is critical and nuisance alarms are not an option. It processes live video images to detect the characteristic properties of flames, by means of its flame detection algorithms and on-board digital signal processing.

Features and Benefits

The CD-F-300 utilises the same flame detection algorithms which have been refined over 20 years, giving it unparalleled false alarm immunity.

Unrivalled False Alarm Immunity

The unique flame detection algorithm in the CD-F-300 is capable of discriminating between genuine fire conditions and other radiant sources that may cause blinding of conventional flame detectors or produce unwanted alarms.

The detector is immune to common sources of unwanted alarms such as hot work, hot CO_2 emissions, and flare reflections. This makes it perfect for application in hazardous and industrial applications where downtime can be very costly.

Field of View

The CD-F-300 has an unrivalled 120° horizontal and 80° vertical Field of View with an increased range of 60 m to an n-heptane 0.1 m^2 pan fire. The vast coverage provided from this detector will optimise the number of units required, resulting in reduced maintenance and installation costs. The Field of View is a rectangular pyramid shape and represents a radial projection of the sensing element; therefore, giving it the largest coverage area of any flame detector currently available. This unique Field of View does not reduce at the outer limits unlike conventional flame detectors.

Functional Testing

The CD-FS-301 Flame Simulator can dependably activate a CD-F-300 from a distance of up to 8 m. The electronics are housed in an Exd enclosure which is designed for Zone 1 hazardous areas. Again, this further reduces maintenance costs by eliminating the need for scaffolds or ladders when testing the device and allows more freedom in the placement of these detectors to optimise the coverage achieved. This rugged design also meets the market's high safety demand.

Detector Flexibility

The CD-F-300 can be operated as a stand-alone unit. It can also be integrated with a control system or fire panel to provide fault and fire signalling. This is achieved using a 0 to 20 mA output and/or a relay output.

Advanced Optical Verification

The CD-F-300 incorporates an advanced optical verification test which ensures that the internal and external surfaces of the window are free of obscurants. This test provides peace of mind that the detector is ready to respond in the event of a fire.

Spare parts

Part name	Part no.
Marine bracket SS316	5101032-00A
Standard mounting bracket	5101033-00A

Data

Nominal supply voltage	24 V DC
Operating voltage range	18-32 V DC
Relay outputs	Alarm and fault
Current output	4-20 mA (source)
Power consumption	2.8 W (nominal at 24 V DC)
Response time	<5 seconds (typical)
Operating temperature range	-60 °C to +85 °C (-76 °F to +185 °F)
Storage temperature range	-60 °C to +85 °C (-76 °F to +185 °F)
Ambient humidity	0 to 90% RH (non-condensing)
Ingress protection	IP66, NEMA 4X
Dimensions	Ø 100 mm, L = 200 mm
Material	Copper free aluminum or 316 stainless steel
Colour	Yellow
Entries	1×M25
Weight	Al 2.5 kg (5.5 lbs) ± 5% SS 6 kg (13.2 lbs) ± 5%

Certified according to:

ATEX : Ex II 2 G Ex db II C T4 IP66 (FM07 ATEX0033)

Factory Mutual: FM 3260, FM 3600, FM3615, FM3810

IECEx Ex II 2 G Ex db II C T4 (FME07.0002)

Class 1 Div 1 Groups B, C, D

Class 1 Zone 1 AEx/Ex db II C T4

Flame Sensitivity

Table 1. Flame Sensitivity

Fuel	Fire Size	Distance
n-Heptane: Pan Fire	0.1m^2 (1sqft) pan	60m (200 ft)
n-Heptane: in direct sunlight	0.1m^2 (1sqft) pan	60m (200 ft)
n-Heptane: in modulated sunlight	0.1m^2 (1sqft) pan	60m (200 ft)
n-Heptane: modulated black body	0.1m^2 (1sqft) pan	60m (200 ft)
n-Heptane: Arc welding	0.1m^2 (1sqft) pan	60m (200 ft)
n-Heptane: 1000watt lamp	0.1m^2 (1sqft) pan	60m (200 ft)
Ethanol: Pan Fire	0.1m^2 (1sqft) pan	30m (100 ft)
Methane Jet Fire	0.9m (3ft) plume	26m (86 ft)
Gasoline Fire	0.1m^2 (1sqft) pan	60m (200 ft)
JP4	0.4m^2 (4sqft) pan	90m (300 ft)
Ethylene Glycol	0.1m^2 (1sqft) pan	20m (65 ft)
Diesel	0.1m^2 (1sqft) pan	20m (65 ft)
Crude Oil (heavy fuel oil) Pan Fire	0.25m^2 (2.7sqft)	50m (165 ft)
Silane	0.61m (2ft) plume	17m (56ft)

Field of View

Horizontal FOV -120°
Vertical FOV - 80°

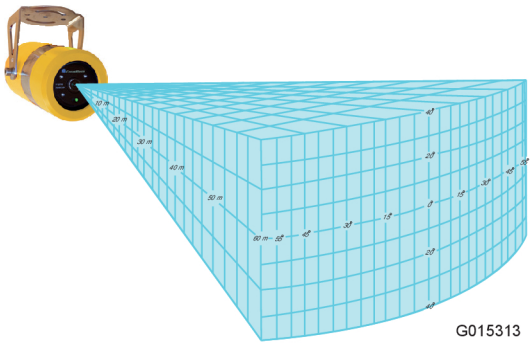
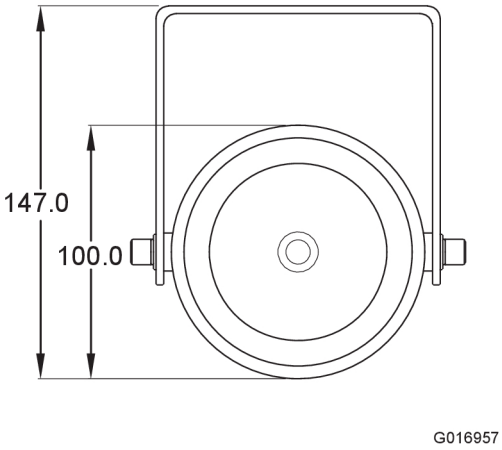
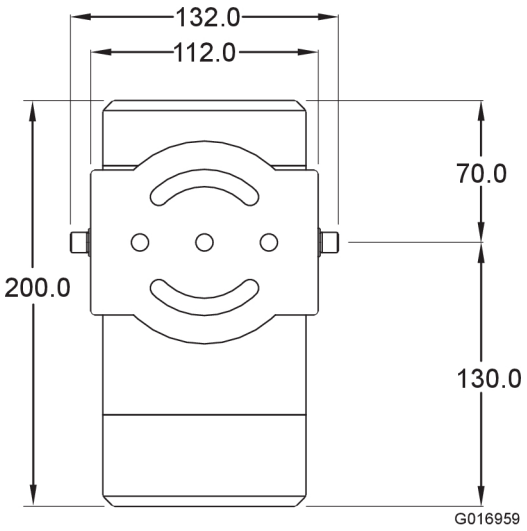


Figure 1. Field of View

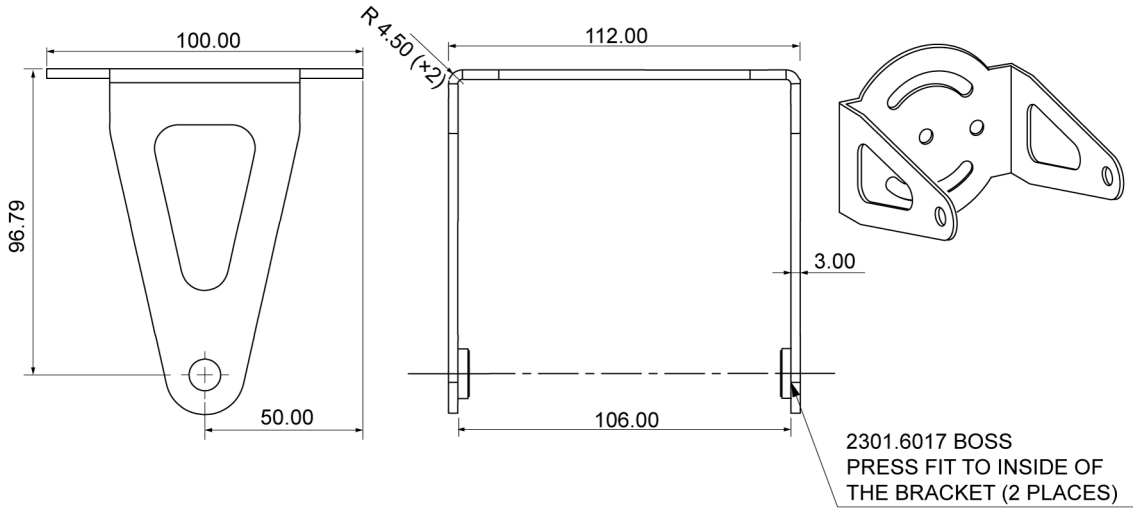
Dimensions (mm)

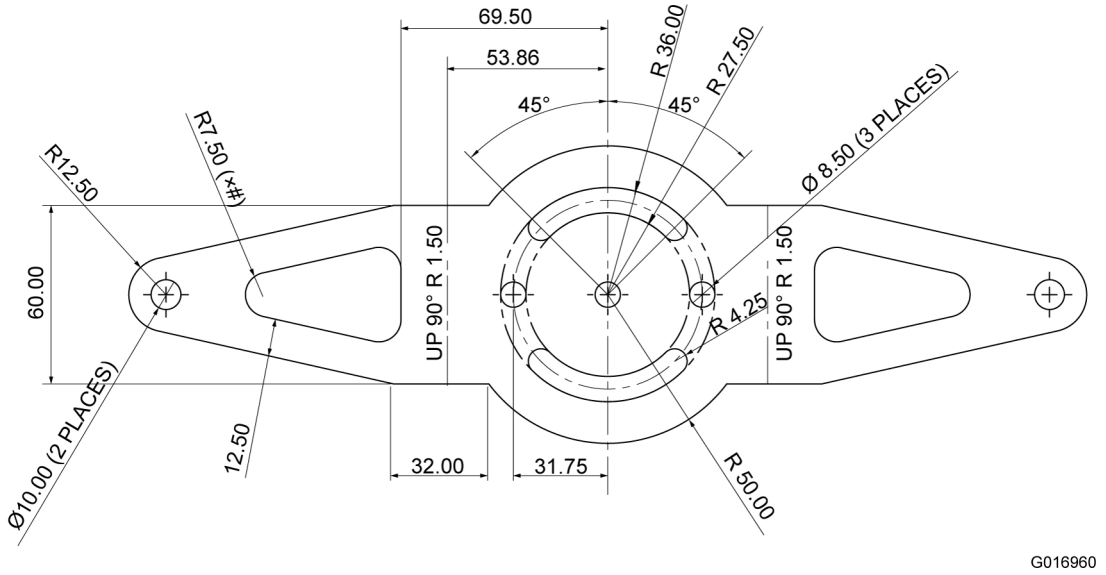
Visual flame detector, shown with standard bracket



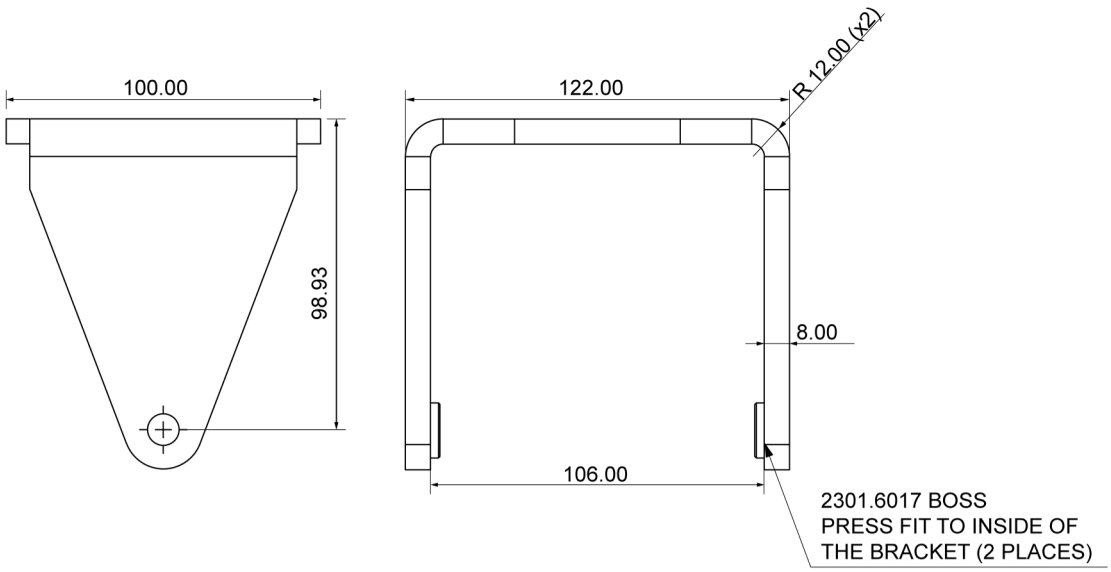


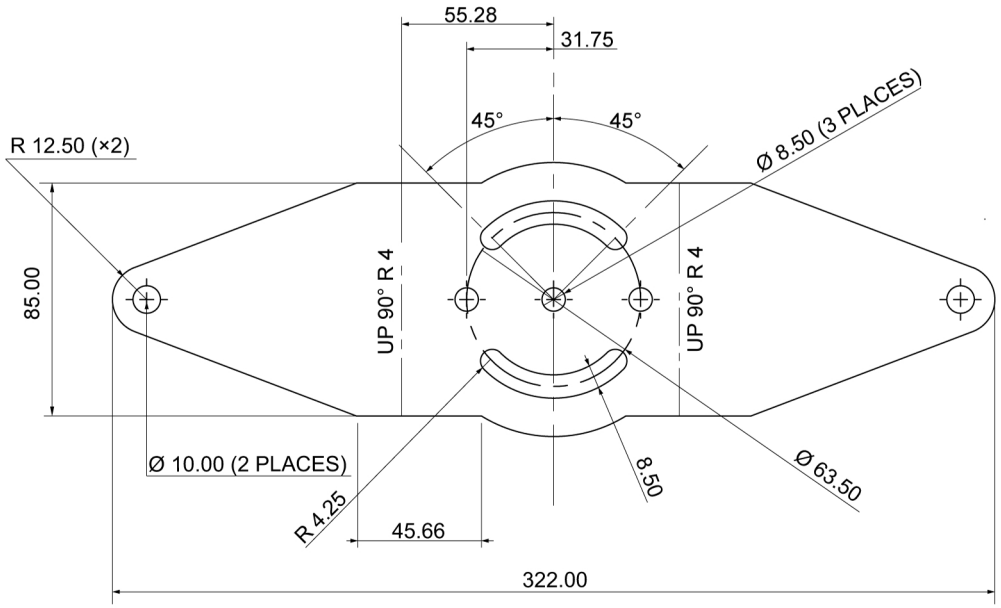
Standard bracket





Marine bracket





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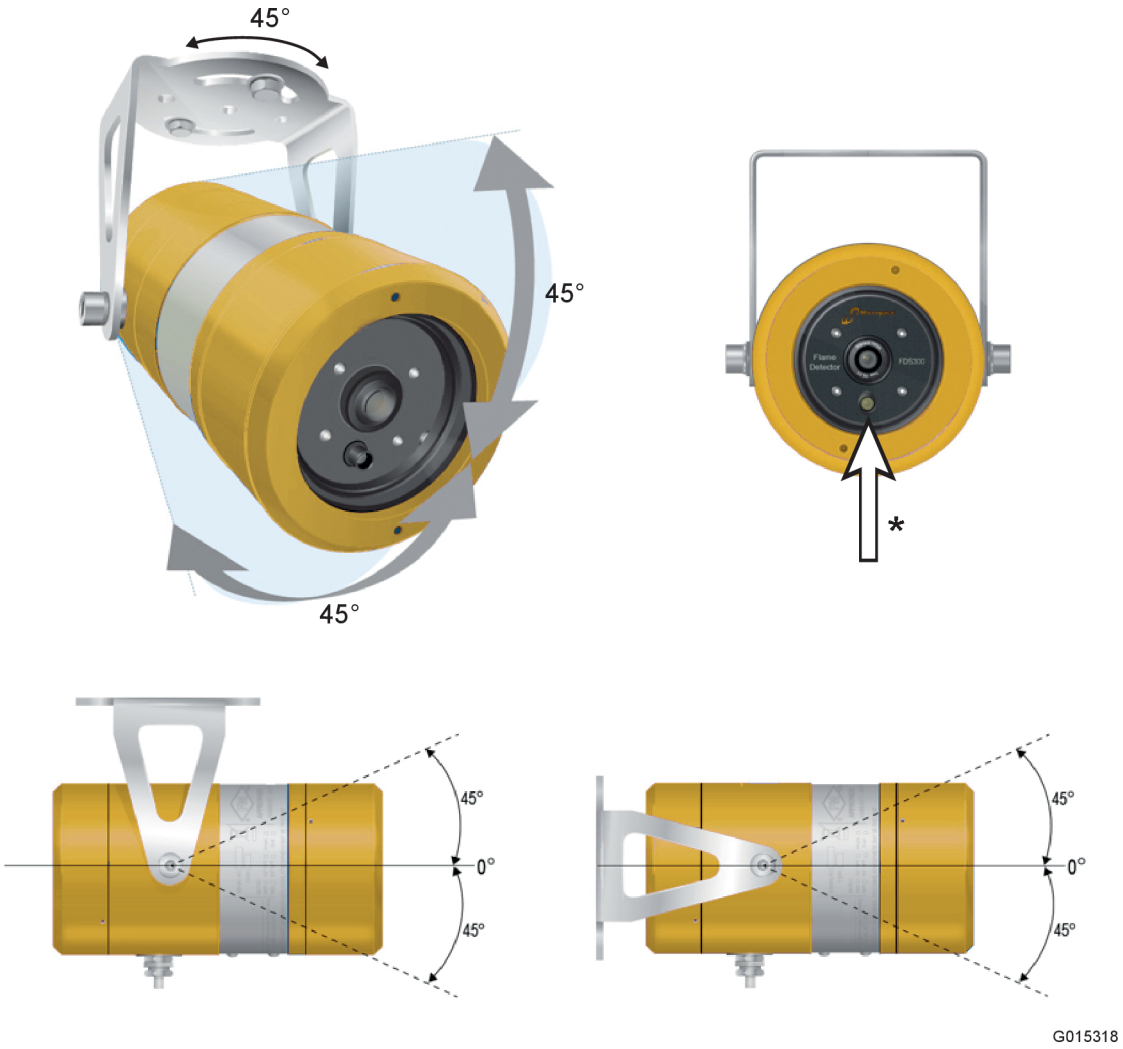
Mounting

The mounting bracket can be mounted in the ceiling or on the wall. The bracket allows the detector's vertical orientation to be adjusted from 0° to 45°, and allows a horizontal rotation of +/-45°.

NOTE!
Allow space for cable gland and cable, as these may otherwise restrict the rotation of the detector.



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The arrow (*) indicates the position of the status LED that must be below the lens.

Connections

4-20 mA output

The following wiring connection diagram shows wiring of the detector when a 4-20 mA output is required.

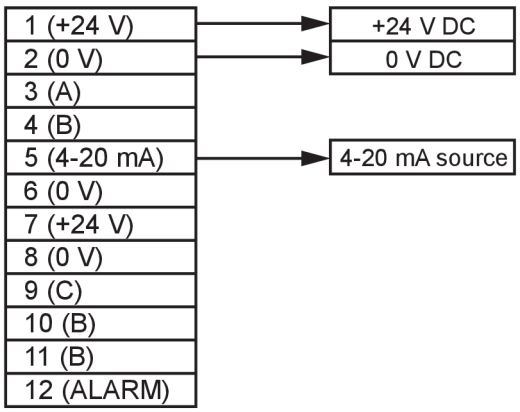

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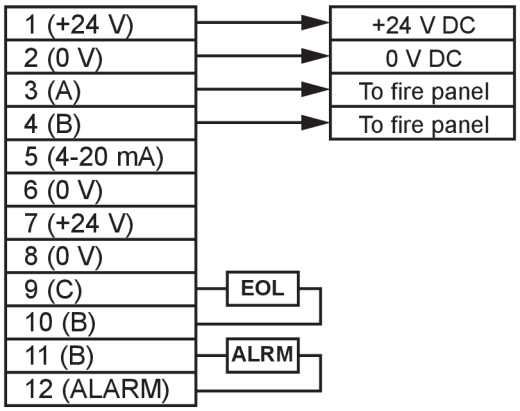
Table 2. Current level output indicators - default factory values with a tolerance of ±1 mA.

Current Output	**Event**
0 mA	Power/detector fault
2 mA	Optical fault
4 mA	Healthy
18 mA	Alarm
21 mA	Over-range

Relay output

The following wiring connection diagram shows options for wiring the detector when configured in relay mode.



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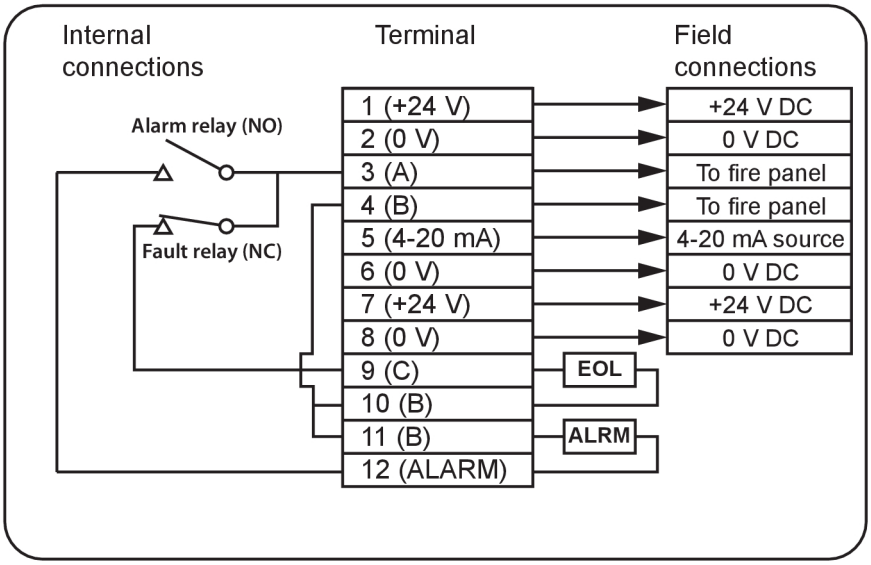
NOTE!
EOL and alarm resistor values are defined by the client and the control system which the detectors are being integrated into.

Internal interconnections

The following diagram shows the internal inter-connections of the alarm and fault relay contacts and jumpers. Each field connection is listed on this diagram for clarity.



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NOTE!
If further details are required, full wiring details are found in the CD-F-300 Visual Flame Detector Safety and Technical Manual.