



Multi Spectrum IR Flame Detector **FDS303**

Part no. 5101030, 5101031, 5101225

G017663

System: All Consilium fire alarm systems

About the Datasheet

This data sheet contains product information for the following detectors:

Product name	Product no.
FDS303 IR3 FLAME DET SS SB 2xM20	5101225-00A
FDS303 IR3 FLAME DET SS SB 1xM25	5101030-40A
FDS303 IR3 FLAME DET SS SB 2xM25	5101030-00A
FDS303 IR3 FLAME DET SS MB 2xM25	5101030-10A
FDS303 IR3 FLAME DET AL SB 2xM25	5101031-00A
FDS303 IR3 FLAME DET AL MB 2xM25	5101031-10A

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 FDS303 Multi Spectrum IR Flame Detector Safety & Technical Manual, 3303.0001 (Micropack).

General Description

The MICROPACK FDS303 is an explosion proof multi spectrum IR flame detector. The device delivers superior performance, responding to hydrocarbon liquid fuel and gas fires at long distances.

The FDS303 complements the CD-F-301 and CD-F-300 Visual Flame Detectors by delivering superior performance in the detection of hydrocarbon fires which are not detectable in the visible spectrum. The FDS303 utilizes the latest IR flame detection algorithms to ensure maximum false alarm immunity.

Applications

Typical applications include:

- On/Offshore Oil and Gas processing facilities
- Refineries
- Petrochemical plants
- Chemical facilities
- Pharmaceutical
- Aircraft hangars
- Road tunnels
- Power generation
- Tank farms
- Road and rail loading racks
- LNG / LPG
- Warehouses/storage areas
- Waste recycling/biomass Plants
- Printing industry

Features and Benefits

- Multi spectrum IR design delivers long detection distances and enhanced false alarm immunity
- Continuous optical test, without a reflector
 - Verifies operation and improves device up-time

- Microprocessor controlled heated optics
 - Maintains operation in harsh weather conditions (snow, ice, condensation)
- International hazardous area approvals
 - FM / ATEX / IECEx
- Certified performance testing to multiple fuels
 - FM 3260
 - EN 54-10
- External testing with a long-range flame simulator
 - Minimises the need for scaffolding
- Easy integration using industry standard outputs:
 - Alarm and fault relays
 - 0-20 mA
 - (HART®, for configuration only)
- Certified SIL 2 capable

Data

Nominal supply voltage	24 V DC
Operating voltage range	18-32 V DC
Relay outputs	Alarm and fault
Current output	0-20 mA, HART®
Power consumption	3 W minimum (no heater), 15 W maximum (at 32 V DC with heater)
Response time	Approx. 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 100% RH (non-condensing)
Ingress protection	NEMA type 4X / IP66
Material	Copper free aluminum or 316 stainless steel
Entries	2×M25
Weight	Al 2.5 kg (5.5 lbs) SS 6 kg (13.2 lbs)

Certifications

EN 54	Certificate No: 1725-CPR-E0007 Certified according to: EN 54-10:2002 + A1:2005
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ATEX

Certificate No:
FM18 ATEX 0040X
Certified according to:
60079-0, 60079-1
ATEX  II 2 G

IECEX Ex db

Certificate No:
IECEX FME18.0003X
Certified according to:
60079-0, 60079-1
Ex db IIC T4
Ambient: -60°C to +85°C
IP66

FM

FM 3260

NEC 505

Class 1 Zone 1 AEx/Ex d
IIC T4

NEC 500

Class 1 DIV 1 GROUPS
B,C,D T4
Ambient: -50 °C to 85 °C

SIL

Certified SIL 2 capable
according to IEC 61508

Performance approvals



DoP

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1725-CPR-E0007

Flame Sensitivity

	Fuel	Fire Size	Distance
Standard sensitivity	n-Heptane	30 × 30 cm (12 × 12 in.)	30 m (98 ft)
	Gasoline	30 × 30 cm (12 × 12 in.)	30 m (98 ft)
	JP4	30 × 30 cm (12 × 12 in.)	30 m (98 ft)
	Methane	60 cm (24 in.) plume	30 m (98 ft)
	Ethanol	30 × 30 cm (12 × 12 in.)	30 m (98 ft)

Field of View

Horizontal FOV 90°

Vertical FOV 90°

Accessories

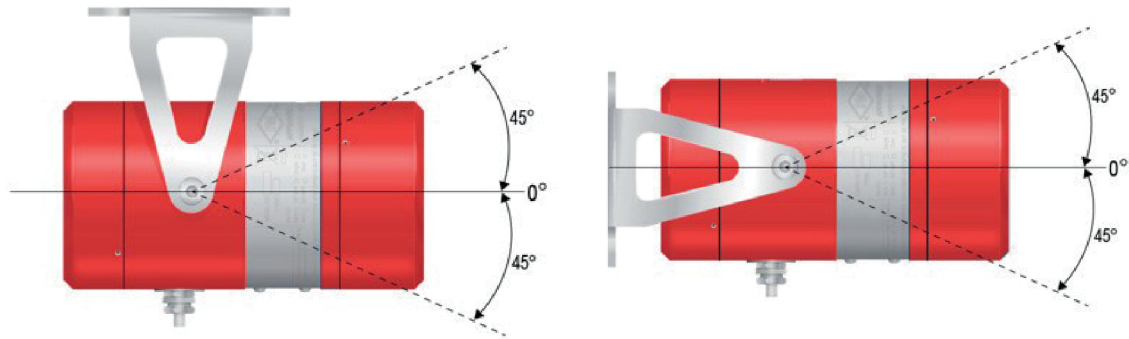
Product name	Product no.
CD-FS-30X Flame simulator	5100791-00A
Marine bracket (spare only)	5101032-00A
Standard bracket (spare only)	5101033-00A
Detector sealing kit (gland seals and O ring set)	5101093-00A

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 $\pm 45^\circ$.


**NOTE!**


When mounting on a wall allow space for cable gland and cable, as these may otherwise restrict the downward rotation of the detector.




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Connections

 **WARNING!**
Do not open if explosive atmosphere may be present.

 **WARNING!**
Refer to FDS303 technical manual 3303,0001 before installing or maintaining this unit.

 **NOTE!**
The front section of the enclosure should only be accessed by trained personnel.

The wiring terminals are in the rear section of the detector enclosure and are accessible by removal of the end cap.

The terminal schematic detailed below shows the view looking inside the detector following removal of the end cap.



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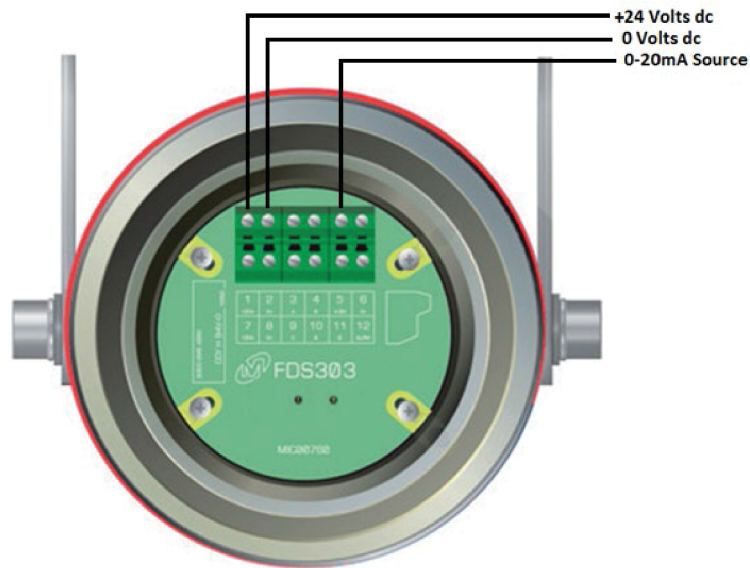
The detector has two types of alarm output available simultaneously:

- 0–20 mA (source non-isolated)
- Relay (Alarm & Fault)

Listed below are wiring options dependent on the functional requirements of the detector:

0–20 mA output

The following wiring connection diagram shows correct wiring of the detector when a 0–20 mA output is required.



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Factory fixed values

Current output	Event
0 mA	Power/detector fault
1.5 mA	Optical fault
4 mA	Healthy
18 mA	Alarm
21 mA	Over-range

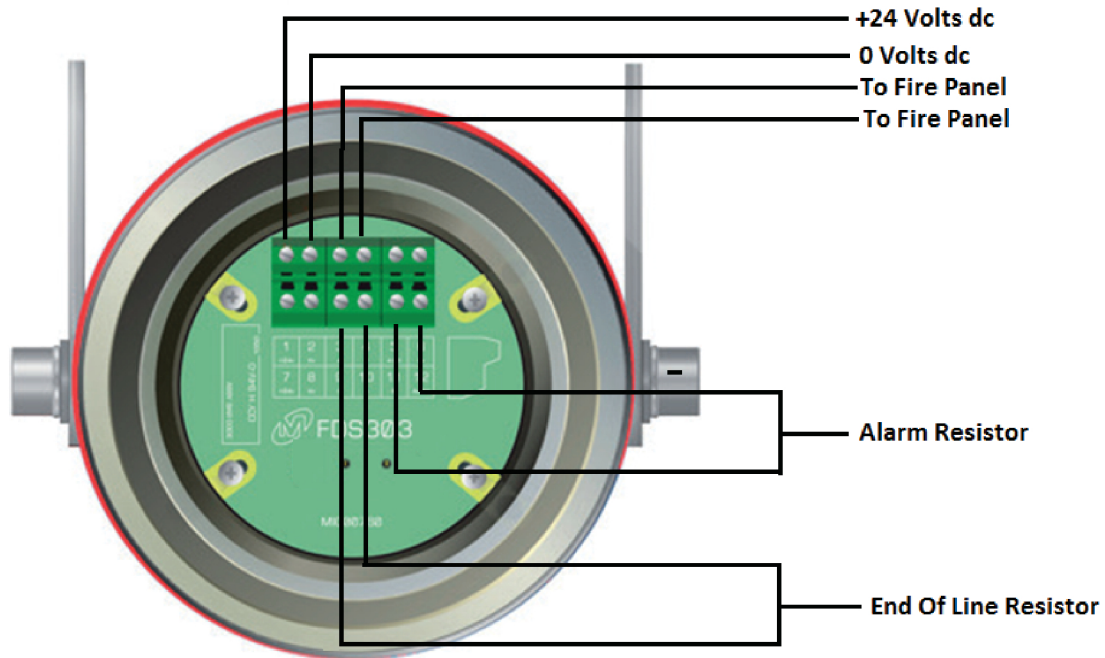


NOTE!

The tolerance on the above outputs is ± 0.3 mA DC current with a maximum loop resistance of 500 ohm.

Relay output

The following wiring connection diagram shows wiring the detector when a relay output is required. Reversal of polarity across terminals 1 and 2 enables Micropack RS485 communication on terminals 3 and 4. This communication protocol when used with Micropack applications allows configuration changes to the detector:



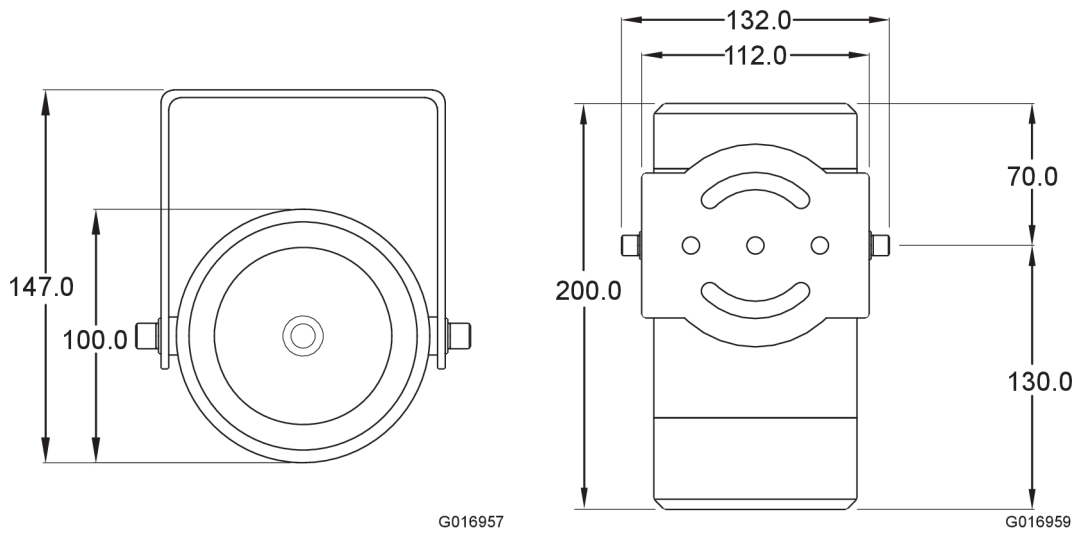
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**NOTE!**

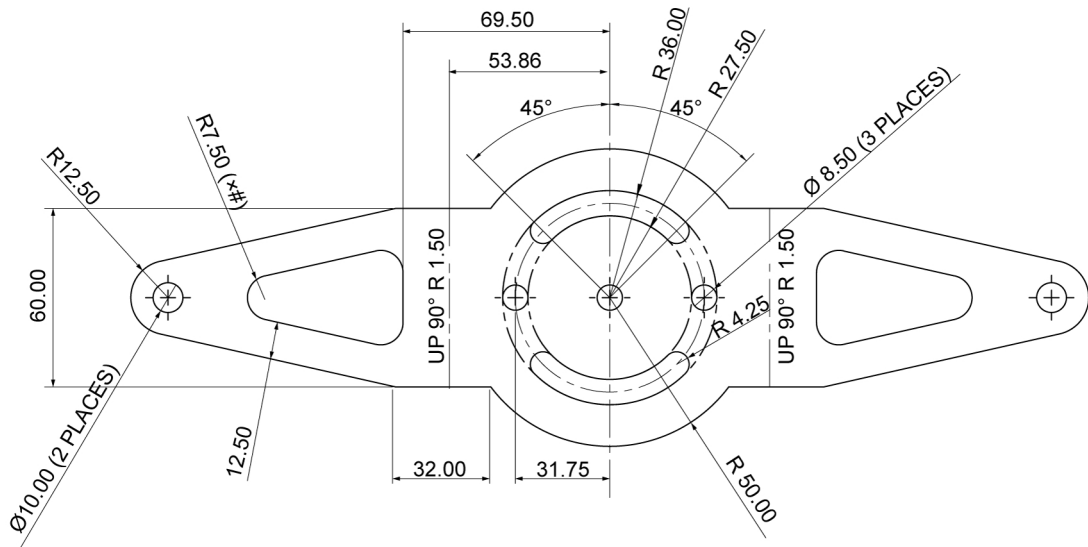
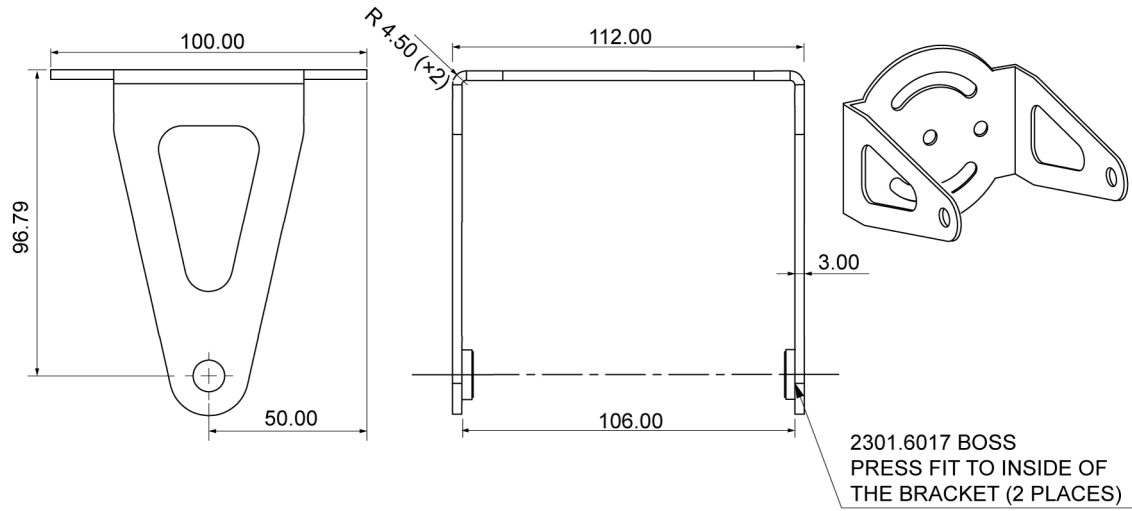
EOL and alarm resistors values are defined by the client and the control system/fire panel which the detectors are being integrated into.

Dimensions (mm)

Visual flame detector, shown with standard bracket

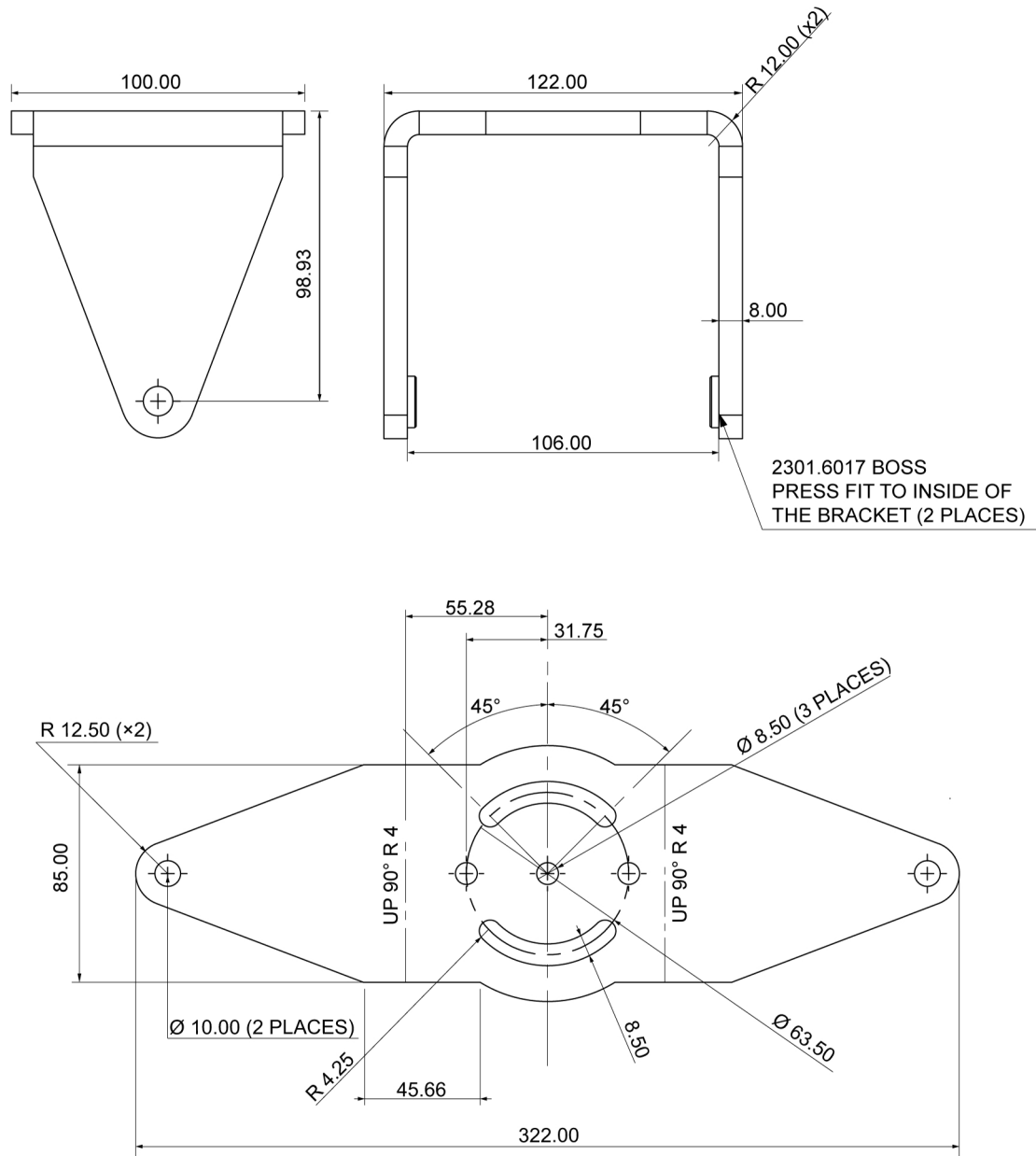


Standard bracket



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Marine bracket



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