CRANFORDCONTROLS®

FIRE & SECURITY

IR² Conventional Dual Flame Detector

The dual Infra-Red (IR²) Flame Detector is designed to protect areas where open fires may be expected and detects almost all flames, including hydrocarbon fires with 4.3 μm emissions through to invisible fires such as hydrogen.

The IR2 Flame Detector is sensitive to flickering, low frequency (1- 15Hz) infra-red radiation emitted by flames during combustion even if the lens is contaminated by a layer of oil, dust, water, vapour or ice.

This detector has two IR sensors which respond to different IR wavelengths in order to discriminate between flames and spurious sources of radiation. False alarms from flickering sunlight are avoided by a combination of filters and signal processing techniques.

The IR2 detector has selectable output options of relay contacts or 4-20mA signal, as standard.

Features

- High immunity to false sources
- Tolerant of fumes, vapours, dust and mist
- Suitable for indoor areas
- Unaffected by convection currents, draughts or wind
- Proven response to multiple fuel types
- Multi-spectrum detection
- Selectable output options
- Selectable response speed
- Selectable sensitivity levels
- Built in auto and manual test
- Low current consumption
- Fast response to fire

Applications

- Compressor Stations
- Chemical plants
- Tunnels
- Waste Recycling
- Nuclear Power Sites
- Engine Rooms
- Spray Booths
- Pharmaceutical Production
- Military Applications
- Marine Industry
- Coal Handling
- Printing
- LNG/LPG production

Item Number	
316-002	IR² Flame Detector

Accessories	
316-019	Stainless Steel Adjustable Mount
316-021	Stainless Steel Weather Shield
316-023	Portable Flame Detector Tester

Approvals

Worldwide approvals include EN54:10, with AFNOR and LPCB certification, as well as SIL 2 rated.

Approvals	
CPR	0832-CPR-F0582
LPCB	1024a/10
AFNOR	LIR 009 A2
SIL 2	CI27_CT003_(2.0)

Specifications

Mechanical Specification

Housing Material	Die Cast Zinc Alloy (ZA12)
Housing Colour	Blue
Dimensions	142(H) x 108(W) x 82(D)mm
Weight	2kg
Cable Gland Entries	2 x 20mm
Wiring	1.0 to 4.0mm²

Electrical Specification

Supply Voltage	**14 to 30Vdc**
Quiescent Current	8mA, RL2 energised
	4mA, current loop, RL2 off
	3mA, RL2 off
Alarm Current	28mA, RL1 & RL2 energised
	20mA, current loop, RL1 & 2 off
	9mA, RL1 energised
Power Up Time	2 seconds max.
Test Signal Voltage	14 to 30Vdc
Relay Outputs	
- Programmable	Normally Open or Normally Closed
	Latching or Non-latching
- Ratings: Current	1.0A Max.
Voltage	50Vdc Max.
Power	30W Max.
	(Note: Resistive Loads Only)

Environmental

Operating Temperature	-10°C to +55°C
Storage Temperature	-20°C to +65°C
Relative Humidity	95% Non condensing
IP Rating I	IP65

Performance

Range—Class 1*	0.1m² n –heptane at 25m
- Class 3	0.1m² n-heptane at 12m
	(see EN54:10 for sensitivity settings)
Field of View	90° min. Cone
Operating Wavelength	
Band—IR	0.75 to 2.7µm

Response Characteristics—High Sensitivity

Fuel	Flame Size m (ft)	Distance m (ft)	Average Response Time (seconds)
n-Heptane* (yellow flame)	0.3 x 0.3	25 (82)	12
Methylated Spirit* (Clear flame)	0.5 x 0.5	25 (82)	25
Hydrogen (non-visible flame)	0.1 x 0.5	12 (39)	8

*** has been tested and approved at Class 1**

Installation Recommendations

Please refer to our User Manual for mounting and wiring instructions.

The installation of flame detectors should be undertaken in accordance with recognised national or international standards and codes of practice.
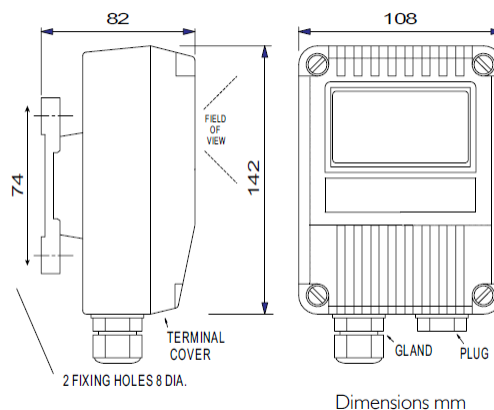
Specifications and wiring information are provided for information only and are believed to be accurate. CCL assumes no responsibility for their use. Data and design are subject to change without notice. Installation and wiring instructions are shipped with the products and should always be used for actual installation. For more information, contact your Sales Representative.

Field of View
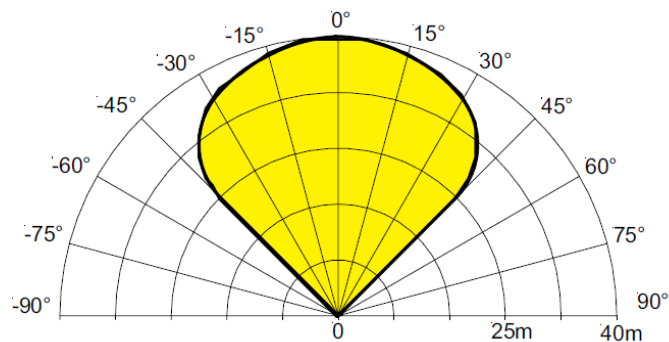
To meet the requirements of EN54:10 clause 5.4, where the ratio of the response points. Dmax: Dmin should not exceed 1.41, the horizontal and vertical viewing angles max should not exceed ±30°.

Flame Detector

Dimensions mm

Mounting Bracket