



UV-IR FLAME DETECTOR

Introduction

The Buckeye UV-IR flame detector provides ultra-fast response, high performance and reliable detection of a large variety of fires including hydrocarbon fires (visible and non-visible), as well as Hydrogen fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved UV-IR technology. The detector operates in all weather and light conditions.

Key Benefits

- Hydrogen and Hydrocarbons flame detection.
- Ultra-fast detection mode detection within 5 milliseconds for fireballs or explosions
- High sensitivity - up to 100ft (30m) for a 1ft² (0.1m²) n-heptane pan fire
- High immunity to false alarm
- Data/Event logger - alarms, faults and other relevant events are logged to non-volatile memory.
- Ethernet communication – in addition to the standard methods, such as 4-20mA and Modbus.
- Built-in-Test (BIT) - Automatic and manual internal self-test of window cleanliness and the overall operation of the detector (for both IR and UV channels).
- Window heater to avoid condensation and icing.
- Tilt mounting bracket can be connected either above or below the detector.
- Configurable detection mode – allows configuration of UV-IR, UV or IR detection mode.



The Buckeye UV-IR detector offers extremely fast detection of fires and explosions, providing the extra, extremely valuable time that, in many cases, will make all the difference.



Buckeye UV-IR

UV/IR Flame Detector

Immunity to False Alarm

False Alarm Source	Modulated			Unmodulated		
	Distance ft.	m	Response	Distance ft.	m	Response
Sunlight, Direct, Reflected			No Alarm			No Alarm
Incandescent frosted glass light, 300W	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Fluorescent, 70W (3x23.3W)	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Electric arc	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Arc welding	7.0	2.0	No Alarm	7.0	2.0	No Alarm
Radiation heater, 1850W	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Quartz lamp (500W) non-shielded	10.0	3.0	No Alarm	3.0	1.0	No Alarm
Mercury vapor lamp 160Wx3	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Exhausts	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Projector led	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Solenoid bell	2.0	0.5	No Alarm	2.0	0.5	No Alarm
soldering iron	2.0	0.5	No Alarm	2.0	0.5	No Alarm
Electric Drill	2.0	0.5	No Alarm	2.0	0.5	No Alarm

Response Characteristics

Fuel	Pan Size	Distance ft.	m	Avrg Response Time (Sec)
N-Heptane	1 x 1 ft.	98	30	3.0
N-Heptane	1 x 1 ft.	49	15	1.5
Gasoline	2 x 2 ft.	164	50	8.1
Gasoline	1 x 1 ft.	98	30	2.9
Methane	32-in Plume	59	18	4.8
LPG	32-in Plume	75	23	3.2
LPG	32-in Plume	33	10	0.6
Diesel	1 x 1 ft.	75	23	3.0
JP5	1 x 1 ft.	75	23	3.1
JP5	1 x 1 ft.	79	24	2.1
Kerosene	1 x 1 ft.	75	23	2.5
Methanol	1 x 1 ft.	59	18	3.8
Methanol	1 x 1 ft.	26	8	2.2
Ethanol	1 x 1 ft.	72	22	3.8
Isopropanol	1 x 1 ft.	75	23	3.0
Polypropylene	1 x 1 ft.	49	15	3.1
Paper	1 x 1 ft.	33	10	3.9
H2	32-in Plume	66	20	3.6



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FIRE DETECTION	Detection time and distance	5ms for fast burst of explosion 1s for 1ft ² (0.1m ²) n-heptane pan fire at 0–50 ft. (0–15m) Up to 7s for 1ft ² (0.1m ²) n-heptane pan fire at 50–100 ft. (15–30m)
	Field of view (IR detection)	90° Horizontal, 90° Vertical
	Time Delay	0-30 seconds
	Built in Test	Automatic and Manual
ELECTRICAL SPECIFICATIONS	Operating Voltage	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 100mA Maximum: <200mA all systems in operation (including window heater)
	Electrical Entries	2x 3/4" 14NPT or M25x1.5
	Wiring	12-20AWG (2.5–0.35mm ²)
OUTPUTS	Relays	Volt-free contacts rated 5A at 30 VDC Alarm – normally open and normally closed Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire (isolated) configurations (sink and source)
	Indication	dual-color LED
	HART® 7 Protocol	
	Modbus	RTU compatible on RS-485
	Digital	IP network IEEE 802.3 100Base-Tx (Ethernet TCP/IP at 100 Mbit/s)
MECHANICAL SPECIFICATIONS	Size	5.51 x 3.54 x 3.54" (140x90x90mm)
	Weight	Detector (Stainless Steel 316): 6.6 lbs. (3.0 kg) Tilt mount (Stainless Steel 316): 3.3 lbs. (1.5 kg)
ENVIRONMENTAL SPECIFICATIONS	Temperature Range	Operating: -67°F to +167°F (-55°C to +75°C) Option: -67°F to +185°F (-55°C to +85°C) Storage: -67°F to +185°F (-55°C to +85°C)
	Humidity	up to 99% (RH), non-condensing
	Ingress Protection	IP66 & 67; NEMA 4X & 6P
APPROVALS*	Explosion proof	ATEX: II 2 G D (pending) Ex db eb IIC T5 Gb -55°C<Ta<75°C or Ex db eb IIC T4 Gb -55°C<Ta<85°C Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex tb IIIC T105°C Db-55°C<Ta<85°C IECEX (pending) Ex db eb IIC T5 Gb -55°C<Ta<75°C or Ex db eb IIC T4 Gb -55°C<Ta<85°C Ex tb IIIC T95°C Db -55°C<Ta<75°C Ex tb IIIC T105°C Db-55°C<Ta<85°C FMU & FMC (pending) Class I, Div. 1, Groups B, C & D Class II, Div. 1, Groups E, F & G Class III
	Performance (pending)	ANSI FM 3260 EN 54-10
	Functional safety (pending)	SIL2, per IEC 61508
	DNV GL (pending)	Standard DNVGL-CG-0339 for open deck locations Temperature class D; Vibration Class A, B and C
	EAC CU TR (pending)	
	Weather shield	
	Adapters for connecting different mounts	
WARRANTY	5 years	

*All products designed and tested to relevant approval standards

