IR3-H2-HD TRIPLE IR HYDROGEN DETECTOR

Introduction

The Buckeye IR3-H2-HD Triple IR Hydrogen flame detector provides ultra-fast response, high performance and reliable detection of hydrogen (H2) fires. The detector addresses slow growing fires as well as fast eruptions of fire using improved IR3 technology. The detector operates in all weather and light conditions.

In addition, the detector provides high-definition (HD) video output of the monitored area with clear imaging of a fire event and of personnel at distances up to 100 ft. (30m). This allows the rescue team to be aware of the exact situation before entering the hazardous area. The detector automatically records video of fire event (1 minute pre- and up to 3 minutes post-alarm initiation). These features, along with the built-in event logger, provide additional means to study the cause and development of fire events.

Key Benefits

- High immunity to false alarm
- Ultra-fast detection mode detection within 40 milliseconds for Hydrogen fireballs or explosions
- Hydrogen flame detection
- High sensitivity – up to 100 ft. (30m)
- HD video output with Automatic HD video recording of fire events
- 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
- Window heater to avoid condensation and icing
- Tilt mounting bracket can be connected either above or below the detector.

The Buckeye IR3-H2-HD will detect fires and explosions fast and reliably allowing preventative action to be initiated rapidly and minimize the consequences!

Buckeye IR3-H2-HD

Triple IR Hydrogen Flame Detector

Immunity to False Alarm

False Alarm Source	Modulated		Unmodulated	
	Distance ft.	Response	Distance ft.	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	2.0 0.5	No Alarm	2.0 0.5	No Alarm
Radiation heater, 1850W	2.0 0.5	No Alarm	2.0 0.5	No Alarm
Quartz lamp (1000W) shielded	2.0 0.5	No Alarm	2.0 0.5	No Alarm
Quartz lamp (500W) non-shielded	2.0 0.5	No Alarm	2.0 0.5	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)
H2	32-in Plume	98	30	0.7
H2	32-in Plume	66	20	0.7
H2	32-in Plume	33	10	0.8
Methanol	1 x 1 ft.	59	18	4.3
Methanol	1 x 1 ft.	30	9	0.6

Buckeye IR3-H2-HD

Triple IR Hydrogen Flame Detector

FIRE DETECTION	**Detection time and distance**	40ms for fast burst of explosion 0.7s for 32" (0.8m) hydrogen fire at 0–100 ft. (0–30m)
	Field of view (IR detection)	90° Horizontal, 75° Vertical
	Alarm Delay	0-30 seconds (Adjustable)
	Built in Test	Automatic and Manual
VIDEO FUNCTIONALITY	**HD Video**	Allows clear imaging of fire and people at 100 ft. (30m) distance
	Video recording of alarm events	1-minute pre-event and 3 minutes post-event
	System integration protocol	ONVIF (Open Network Video Interface Forum) Profile S
ELECTRICAL SPECIFICATIONS	**Operating Voltage**	24 VDC nominal (18-32 VDC)
	Current Consumption	Standby: 180mA Maximum: 250mA all systems in operation (including window heater)
	Conduit Entries	2x conduit entries 3/4" 14NPT or M25x1.5
	Wiring	12-20AWG (2.5-0.35mm^2)
OUTPUTS	**Relays**	Volt-free contacts rated 2A at 30 VDC Alarm – normally open Fault – normally closed
	0-20mA (stepped) current output	3 wire and 4 wire configurations (sink and source)
	Indication	Tri-color LED
	Modbus	RTU compatible on RS-485
	Digital (for video)	IP network IEEE 802.3 10Base-t
	Composite video	NTSC or PAL
MECHANICAL SPECIFICATIONS	**Size**	7.87 x 5.12 x 5.12" (200x130x130mm)
	Weight	Detector (Stainless Steel 316): 9.8 lbs. (4.4 kg) Tilt mount (Stainless Steel 316): 5.4 lbs. (2.4 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 250 4X & 6P
APPROVALS*	**Explosion proof**	ATEX: II 2 G D 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)	
ACCESSORIES	**Weather shield**	
	Adapters for connecting different mounts	
WARRANTY	**5 years**	

*All products designed and tested to relevant approval standards