

Engineering Specifications

TXP-FDE IR3-H2 FLAME DETECTOR (Hydrogen Fires) WITH HD VIDEO

1.0 General Description:

The IR3-H2-HD flame detector provides ultra-fast response, high performance, and reliable detection to hydrogen fires. The detector addresses slow growing fires as well as fast eruption of fire using improved triple IR (IR3) technology. It operates in all weather and light conditions with highest immunity to false alarms. The detector shall have in-built HD video capability.

2.0 Electrical requirements

- 2.1 Operating Voltage - The detector shall operate between 18VDC and 32VDC (24VDC Nominal).
- 2.2 Current Consumption - The HD model shall have a standby current consumption of 180mA and 250mA with all systems in operation including the window heater.
- 2.3 The detector must provide a stepped 0-20mA (stepped) current output configurable as either 3 or 4 wire sink or source.
- 2.4 The detector shall come standard with 2 relays and be capable of Modbus® RTU communication output.
- 2.5 The detector shall have a tricolor LED indicator for Alarm, Fault and Normal operation.
- 2.6 The detector shall provide high-definition (HD) video output with near IR imaging of fire events up to 100 ft. (30m) capable of showing a Hydrogen Flame.
- 2.7 The detector shall automatically record fire events (1 min pre-alarm / up to 3 min post-alarm).
- 2.8 The detector shall be capable of supporting ONVIF profile S Video Integration Protocol.

3.0 Mechanical Requirements

- 3.1 The enclosure and tilt mount shall be constructed of 316 Stainless Steel.
- 3.2 The enclosure shall have two ¾" threaded conduit/cable entries.
- 3.3 The enclosure shall include certified stopping plugs to close unused conduit/cable entries.
- 3.4 The detector shall allow access to the terminals and wiring connections, with the use of a hex key to release the locking nut.
- 3.5 The mounting bracket shall be capable of being fitted below the detector.

4.0 Transmitter Features

- 4.1 The detector must alarm within 40 milliseconds of fireballs or explosions, within 1.5 seconds from 20m and 4 seconds from 30m to a 32" (0.8m) hydrogen plume fire.
- 4.2 The optional in-built HD Camera works in the near infrared. Video recording of 1-minute pre-event and up to 3 minutes post-event.
- 4.3 The detector must include a Data/Event logger. Alarms, faults, and other relevant events must be logged to non-volatile memory and be available for review and download.



4.4 The detector must have Built-in-Test (BIT) that initiates automatically or manually a self-test of window cleanliness and the overall operation of the detector.

4.5 The detector must have a window heater to prevent condensation and icing.

5.0 Performance

5.1 The detector must have a 90° Horizontal, 75° Vertical field of view.

5.2 The detector must have an adjustable time delay of between 0 and 30 seconds.

6.0 Environmental

6.1 The detector must have an operational temperature range of -55°C to +85°C. The detector must have a storage temperature range of -55°C to +85°C.

6.2 The detector must operate in up to 99% (RH), non-condensing humidity.

6.2.1 The detector enclosure must provide Ingress Protection to IP66 & 68 (2m, 24hr).

7.0 Approvals

7.1 The detector must have explosion proof approvals to:

ATEX: II 2 G D

Ex db IIC T5 Gb or Ex db eb IIC T5 Gb and Ex tb IIIC T95°C Db -55°C<Ta<75°C

Ex db IIC T4 Gb or Ex db eb IIC T4 Gb and Ex tb IIIC T105°C Db -55°C<Ta<85°C

FM & FMC

Class I, Div. 1, Groups B, C & D: T4

Class I, Zone 1, AEx/Ex db IIC T4 Gb

T4 -50°C≤Ta≤85°C

T5 -50°C≤Ta≤75°C

7.2 The detector must have Performance Approvals to:

ANSI FM 3260

CE

7.3 The detector must be designed in accordance with Functional Safety Level SIL2, per IEC 61508.

8.0 Warranty

8.1 The detector must be supplied with a 2-year standard warranty.

