FlameGard® 5 UV/IR-H2 Flame Detector

Engineering Specification

1.0 ELECTRONICS: The field-mounted detector shall be a microprocessor assembly that has all of its electronics in the detector housing.

1.1 The printed circuit boards shall be conformal coated to protect against humidity, fungus, and corrosive and contaminating atmospheric conditions.

2.0 ANALOG OUTPUT: The detector shall provide an analog output of 0-20 mA into a maximum load of 600 Ohms.

2.1 This output current is:

FAULT signal	0 to 0.5 mA
Continuous Optical Path Monitoring (COPM) Fault signal	2 +/- 0.5 mA
Ready signal	4 +/- 0.5 mA
IR only signal	8 +/- 0.5 mA
UV only signal	12 +/- 0.5 mA
WARN signal	16 +/- 0.5 mA
ALARM signal	20 +/- 0.5 mA

3.0 RS-485 OUTPUT: The detector shall feature MODBUS RTU suitable for linking up to 128 units in series and up to 247 units with repeaters.

4.0 HART: The detector shall have a HART version 6 output, AMS Device Manager support.

5.0 ALARM CIRCUITS: The detector shall include three 8 Amp SPDT relays for ALARM, WARN, and FAULT circuits.

6.0 MALFUNCTION INDICATIONS: The detector shall transmit a 0 mA output current as a malfunction indication if any of the three signal/power leads are opened or shorted and/or if the DC power is below a preset minimum.

6.1 The detector shall transmit a 2mA output current as a malfunction indication if there is a dirty lens/loss of automatic test sources (COPM).

6.2 The malfunction status shall also be indicated at the detector by means of blinking LEDs.

7.0 OPERATIONAL OPTIONS: The detector shall include DIP switch options:

- 50, 75 or 100% sensitivity to a 1 sq. ft. gasoline fire
- Time delay for ALARM relay of 1, 2, 4 or 8 seconds
- Latch or non-latch and energized or non-energized modes for WARN and ALARM relays
- Override provided via MODBUS, HART
- Detector available for detecting hydrogen fires only

8.0 SPECTRAL SENSITIVITY RANGE: The detector shall operate using specific UV (185-260 nanometers) and IR (4.2-4.6 micrometer, 2.7-3.2 micrometer for hydrogen-specific) ranges electronically processed by highly discriminative circuits.

9.0 FIELD OF VIEW: The detector must operate with a field of view of 120° horizontal, 115° vertical.

10.0 SENSITIVITY: The detector must perform to approved performance specifications: 50 feet (15.2 m) maximum distance for a 1 sq. ft. (0.092 m^2) gasoline fire.

11.0 RESPONSE TIME: The detector must be capable of flame detection in less than 3 seconds @ 50 ft. for a 1 sq. ft. gasoline fire.

12.0 Sensor Response Time: The detector's response must be less than 500 milliseconds.

13.0 OPERATING TEMPERATURE RANGE: The flame detector must be able to operate from -40°C to 85°C (-40°F to 185°F).

14.0 ELECTRICAL CLASSIFICATION: The unit shall be suitable for use in Class I, Division 1, Groups B, C and D hazardous locations.

15.0 CABLE REQUIREMENTS: The detector's power (24 VDC) and output/status information (0-20 mA) shall be transmitted using a 3-conductor cable.

15.1 The output signal shall be capable of being transmitted to a point up to 3,000 ft. with a maximum load of 600 Ohms.

15.2 The power circuit shall have a maximum loop resistance of 20 Ohms (up to 4,500 feet for 14-gauge wire).

16.0 ALARM TEST: The detector shall be capable of remote, manual testing of WARN and ALARM circuits.

17.0 RESET: The detector shall have terminals available for a remote (manual) alarm reset mode of operation.

18.0 DIMENSIONS: The detector shall be 5.5"L x 6"D (140 mm L x 152 mm D) or smaller.

19.0 HUMIDITY RANGE: The detector must be capable of operating in 0 to 100% R.H. non-condensing humidity conditions.

20.0 WARRANTY: The detector's warranty shall be 2 years or greater.

21.0 MANUFACTURER: The manufacturer must be capable of supplying all equipment used to check or calibrate the sensor/transmitter units.

21.1 The manufacturer must be capable of providing on-site training for owner/operator.