



FlameGard® 5 Multi-Spectral IR 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. 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 0.2 mA
Test Mode	1.5 ± 0.2 mA
Continuous Optical Path Monitoring (COPM) Fault	2.0 ± 0.2 mA
Ready signal	4.3 ± 0.2 mA
WARN signal	16.0 ± 0.2 mA
ALARM signal	20.0 ± 0.2 mA

3.0 ALARM CIRCUITS: The detector shall have an option for three SPDT relays for ALARM, WARN, and FAULT circuits. Contact ratings 8A 250 VAC and 8A 30 VDC resistive.

4.0 MALFUNCTION INDICATIONS: The detector shall transmit a 0 mA output current as a malfunction indication if any of the power leads are opened or shorted and/or if the DC voltage is below 19 V, or in the event of any other electronic failure.

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

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

4.3 SELECTABLE OPTIONS: The detector shall include the following customer-selectable options:

Sensitivity: High, Medium or Low Alarm Time Delay:

DIP switch options: 0, 8, 10 or 14 seconds

ModBus: up to 30 seconds

Latch or non-latch and energized or non-energized modes for WARN and ALARM relays.

5.0 SPECTRAL SENSITIVITY RANGE: The detector shall operate in the range of 2 - 5 microns IR-specific (electronically processed by highly discriminative circuits).

6.0 OPTICAL FLAME SENSORS: The detector must have 4 optical sensors for detection of IR emissions characteristic of flame and sources of false alarms.

7.0 FIELD OF VIEW: The detector must operate with a field of view of 100° at 100 ft., 90° at 210 ft.

- 8.0 FALSE ALARMS: The detector must use Neural Network Technology to discriminate between actual flames and nuisance false alarms.
- 9.0 SENSITIVITY: The detector must be capable of detecting a flame at 230 ft. (70 m). Maximum distance for a 1 square foot (0.093 m²) n-heptane fire to be reliably detected.
- 10.0 RESPONSE TIME: The detector's typical response time must be <10 seconds at 50 ft. for gasoline and heptane fires.
- 11.0 ARC WELDING IMMUNITY: Detector shall be immune to arc welding as close as 5-15 ft. (depending on rod).
- 12.0 TEMPERATURE RANGE: The detector must be capable of operating from -40° C to 80°C (-40°F to 176°F).
- 13.0 ELECTRICAL CLASSIFICATION: The unit shall be suitable for use in Class I, Division 1, Groups B, C and D; Class II, Division 1, Groups E, F and G; and Class III hazardous locations. Type 6P enclosure, IP67.
- 14.0 CABLE REQUIREMENTS: Maximum distance between detector and power source @ 24 VDC nominal (16 Ohm loop): 14 AWG – 4,500 ft. (1,370 m). Terminal blocks: 14-22 AWG.
- 14.1 Maximum distance between detector and analog output: 9,000 ft. (2,750 m), maximum 50 Ohm loop, with maximum 250 Ohm input impedance of readout unit.
- 15.0 ALARM TEST: The detector shall be capable of remote, manual testing of WARN and ALARM circuits.
- 16.0 RESET: The detector shall have terminals available for a remote (manual) alarm reset mode of operation.
- 17.0 HART: The Detector shall have a HART version 6 output, AMS Device Manager support.
- 18.0 DETECTOR HOUSING: The detector housing shall be 316 Stainless Steel.
- 19.0 DIMENSIONS: The detector housing shall be 6.26"H x 3.5"D (159 mm H x 89 mm D) or smaller.
- 20.0 HUMIDITY RANGE: The detector shall be able to operate in 0 to 95% R.H. non-condensing humidity conditions.
- 21.0 WARRANTY: The warranty period for the detector shall be a minimum of two years.
- 22.0 MANUFACTURER: The manufacturer must be capable of supplying all equipment used to check or calibrate the sensor/transmitter units.
- 22.1 The manufacturer must be capable of providing on-site training for owner/operator.