



FlameGard[®] 5

UV/IR & UV/IR-H₂ Flame Detectors

Ultraviolet and infrared flame detection provides high immunity to false alarms

Description

The FlameGard 5 UV/IR Flame Detector is designed to detect fires and provide alarm outputs directly from the detector while maintaining false alarm immunity. The FlameGard 5 UV/IR-H₂ detects hydrogen fires.

The two models detect fires by monitoring in both the ultraviolet and infrared (UV & IR) spectral ranges, making it highly immune to false alarms caused by lightning, arc welding, hot objects and other sources of radiation.

The electronics of the FlameGard 5 UV/IR and UV/IR-H₂ detectors are housed in an aluminium explosion-proof enclosure (Stainless Steel optional). The detector is available with the following output configurations:

- 4–20 mA stepped output
- Warning, alarm and fault relays
- Modbus RTU (up to 128 units, or 247 units using repeaters to be linked up to a host computer)
- HART communication

The Modbus and HART outputs provide alarm status, fault and other information for operating, troubleshooting or programming the unit. HART enables this feature without the need for rewiring.

The continuous optical path monitoring (COPM) self test feature checks both the optical path integrity (window cleanliness) and the detector's electronic circuitry once every minute.

Applications FlameGard 5 UV/IR

- Aircraft Hangars
- Chemical Plants
- Compressor Stations
- Drilling and Production Platforms
- Electrostatic Paint Spray Booths
- Fuel Loading Facilities
- Gas Turbines
- LNG/LPG Processing and Storage Facilities



Features and Benefits

Wide field of view enables greater fire detection coverage

Event logging stores fault and alarm history

4–20 mA stepped output is the industry standard for remote alarm and fault indication

Modbus and HART user interface provides complete status and control capability in the control room

Wide operating temperature range permits operation at higher ambient temperature

Continuous Optical Path Monitoring (COPM) checks the optical path integrity and the detector's electronic circuitry once every minute

Three SPDT high-current programmable relay outputs provide immediate and time-delayed relay outputs for alarm, warning and fault conditions

Applications FlameGard 5 UV/IR-H₂

- Hydrogen Gas Generators
- Hydrogen Refilling Stations
- Hydrogen Storage and Test Facilities
- Locations with Hydrogen Fuel Cells
- Refineries
- Rocket Fabrication, Test, and Launch Facilities
- Semiconductor Facilities

System Specifications	
Wave Lengths	185 to 260 nm (UV), 4.35 microns (IR) (FlameGard 5 UV/IR)
Spectral Range	2.7 to 3.2 microns (IR) (FlameGard 5 UV/IR-H ₂)
Field of View	120° horizontal, 120° vertical
Sensitivity (FlameGard 5 UV/IR)	Approved performance specifications – 15.2 m distance for a 0.092 m ² heptane fire
Typical Response Time	< 3 sec (FlameGard 5 UV/IR) < 3 sec (FlameGard 5 UV/IR-H ₂)
Classification	Class I, Div 1 & 2, Groups B, C & D Class II, Div 1 & 2, Groups E, F & G Class III, Type 4X, Ex d IIC, T5, IP66
Warranty	Two years
Approvals	ATEX, IECEx, CSA, FM, HART registered, SIL 3 suitable, FM certified to IEC 61508 (FlameGard 5 UV/IR) ATEX, IECEx, CSA, HART registered (FlameGard 5 UV/IR-H ₂)

Mechanical Specifications	
Housing	Aluminum (stainless steel optional)
Length	140 mm
Diameter	152 mm
Weight	2.3 kg – aluminum 7.3 kg – stainless steel
Mounting	3/4" NPT (2 ports)
Cable Entry	2 x 3/4" NPT or 2 x 25 mm ISO or 2 x 20 mm ISO or 2 x 13.5 PG

Environmental Specifications	
Operating Temp. Range	–40 °C to +85 °C
Storage Temperature Range	–40 °C to +85 °C (FlameGard 5 UV/IR) –50 °C to +85 °C (FlameGard 5 UV/IR-H ₂)
Operating Humidity Range	0% to 100% RH, non-condensing

Electrical Specifications	
Input Power	20–36 VDC, 24 VDC @ 150 mA max. (3.4 W max.)
Analog Signal	0–20 mA (600 Ohms maximum)
Fault Mode	0–0.2 mA*
COPM Fault	2 mA, ±0.2 mA**
Ready Signal	4.05 mA, ±0.05 mA
IR Signal	8 mA, +0.2 mA
UV Signal	20 mA, ±0.2 mA (FlameGard 5 UV/IR) 12 mA, ±0.2 mA (FlameGard 5 UV/IR-H ₂)
WARN Signal	8A @ 250 VAC, 8A @ 30 VDC resistive max. (FlameGard 5 UV/IR) 16 mA, ±0.2 mA (FlameGard 5 UV/IR-H ₂)
ALARM Signal	20 mA, ±0.2 mA
Relay Contact Rating	8A @ 30 VDC resistive (Europe) 8A 250 VAC, 8A @ 30 VDC resistive (North America)
Selectable Options	Sensitivity: 100%, 75%, 50% Alarm Time Delay: 2, 4, 8 or 10 seconds Warn & Alarm Relays: Latching /Non-latching, Energized/De-energized
RS-485 Output	Modbus RTU, suitable for linking up to 128 units or up to 247 units with repeaters. Optional – Dual Modbus.
Baud Rate	2400, 4800, 9600, or 19200 BPS
HART (optional)	HART 6, HART Device Description Language available
RFI /EMI Protection	Complies with EN 50130-4, EN 61000-6-4
Cable Requirements	Maximum distance between detector and power source @ 24 VDC nominal (20 Ohm loop), 14 AWG – 1,370 m (4,500 ft.), Terminal Blocks 14–22 AWG
Status Indicator	2 LEDs with status, fault and alarm indication
Faults Monitored	Memory checksum, reset line shorted, optics failure/ blockage, internal voltages, and low supply voltage

* Under HART, current values can be either 3.5 mA or 1.25 mA, depending on user selection

** Under HART, current value can be either 3.5 mA or 2.0 mA, depending on user selection

Ordering Information				
FlameGard 5 UV/IR and FlameGard 5 UV/IR-H ₂	3/4" NPT FlameGard 5 UV/IR	M25 FlameGard 5 UV/IR	3/4" NPT FlameGard 5 UV/IR-H ₂	M25 FlameGard 5 UV/IR-H ₂
Single ModBus, 4–20 mA, AI Housing	5UVIR-1613131	5UVIR-1613132	5UVIR-1613331	5UVIR-1613332
Single ModBus, 4–20 mA, SS Housing	5UVIR-1613231	5UVIR-1613232	5UVIR-1613431	5UVIR-1613432
Dual ModBus, AI Housing	5UVIR-2613131	5UVIR-2613132	5UVIR-2613331	5UVIR-2613332
Dual ModBus, SS Housing	5UVIR-2613231	5UVIR-2613232	5UVIR-2613431	5UVIR-2613432
Single ModBus, 4–20 mA, HART, AI Housing	5UVIR-6613131	5UVIR-6613132	5UVIR-6613331	5UVIR-6613332
Single ModBus, 4–20 mA, HART, SS Housing	5UVIR-6613231	5UVIR-6613232	5UVIR-6613431	5UVIR-6613432

Accessories	
FlameGard 5 UV/IR Test Lamp	5TL-12
Window Cleaning Solution	10272-1
FlameGard 5 UV/IR Bracket Assembly	71172-2

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