



# FlameGard® 5

## UV/IR-H2 Flame Detector

Ultraviolet and infrared hydrogen flame detection provides high immunity to false alarms

### Description

The MSA FlameGard 5 UV/IR-H2 Flame Detector is an ultraviolet/infrared flame detector designed to detect unwanted hydrogen fires.

The FlameGard 5 UV/IR-H2 Detector detects 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.

Other features of the FlameGard 5 UV/IR-H2 Flame Detector include three alarm/fault relays, and an RS-485 serial output with ModBus RTU protocol for linking up to 128 detectors in series or 247 with repeaters. The RS-485 and HART outputs provide status, alarm, fault and other information for operation, troubleshooting or programming of the units. 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.



### 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 both the optical path integrity and the detector's electronic circuitry once every minute

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

### Applications

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

### System Specifications

Spectral Range 2.7 to 3.2 microns (IR)

Field of View 120° horizontal

Typical Response Time < 3 sec @ 15 ft

Accessories Swivel elbow union, mounting bracket, test lamp

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 CSA, ATEX, IECEx  
HART registered

Patent Number 5,914,489

Standard Part Number 5 UVIR - 1513311  
Single ModBus, relays, hydrogen, 100% sensitivity, 4 second delay, aluminum housing

### Environmental Specifications

Operating Temperature Range -40°F to +185°F (-40°C to +85°C)

Storage Temperature Range -58°F to +185°F (-50°C to +85°C)

Operating Humidity Range 0% to 100% RH, non-condensing

### Mechanical Specifications

Housing Aluminum (stainless steel optional)

Length 5.5 inches (140 mm)

Diameter 6 inches (152 mm)

Weight 5 lbs (2.3 kg) – aluminum  
16 lbs (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

Standard Configuration Single ModBus, relays, 100% sensitivity, 4 second delay, aluminum housing

### 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 12 mA, ± 0.2 mA

WARN Signal 16 mA, ± 0.2 mA

ALARM Signal 20 mA, ± 0.2 mA

Relay Contact Rating 8A 250 VAC, 8A @ 30 VDC resistive (North America)

Sensitivity: 100%, 75%, 50% Alarm  
Time Delay: 2, 4, 8 or 10 seconds

Dip Switch Selectable Options 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. AMS-aware

RFI /EMI Protection Complies with EN 50130-4, EN 61000-6-4

Cable Requirements Max. distance between detector and power source @ 24 VDC nominal (20 Ohm loop), 14 AWG – 4500 ft (1370 m)  
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

**Note:** This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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