

General Monitors® FL5000 MSIR Flame Detector



Datasheet

FM performance approved
for 22 fuel sources

Bluetooth® equipped
for easy configuration
and diagnostics via
Flame Connect app

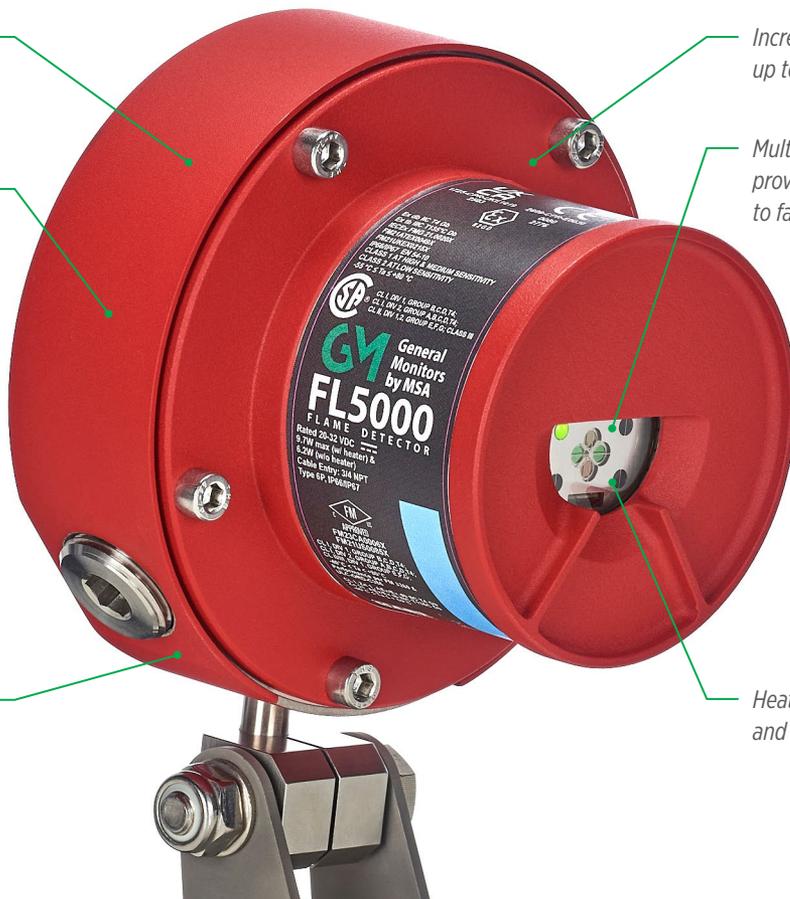


Increased detection distance
up to 310 ft. (95 m)

Multiple sensor arrays
provide excellent immunity
to false alarms

Simple retrofit upgrade
of FL4000H/FlameGard 5
MSIR detectors

Heated optics keeps frost
and condensation away



Multi-Spectrum Infrared (MSIR) Technology

The MSA General Monitors® FL5000 is a Multi-Spectrum Infrared (MSIR) Flame Detector. The FL5000 employs state-of-the-art infrared (IR) detectors and an advanced flame detection algorithm leveraging a sophisticated artificial neural network (ANN) based signal processing to produce a system that is highly immune to false alarms caused by lightning, sunlight reflection, arc-welding, hot objects, and other sources of radiation.

Enhanced Design

Stainless steel housing, Bluetooth, LED status indicators, and simplified wiring make the FL5000 Flame Detector easy to install and maintain.

FM Performance Approved Detection

The FL5000 Flame Detector has 22 fuel sources performance approved by FM assuring of field of view and distance covered.

Easy Upgrades Made Possible

The FL5000 Flame Detector has the same footprint of our legacy FL4000H/FlameGard 5 MSIR flame detectors. Simply replace the detector head, replace the electronics and you're operational—no need to remove wiring or seals.

Optical Path Integrity Self-Check

Every two minutes, a built-in self-check known as Continuous Optical Path Monitoring (COPM) performs an optical and electrical check to ensure the optical path is clear and the electronic circuitry is operational.

Reliable Testing Anytime, Anywhere

The FL5000 Flame Detector can be tested with our explosion proof TL105 Test Lamp, which simulates the flickering of a fire. This allows the detector to be tested under real fire conditions without the associated risk of an open flame.

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System Specifications

SPECTRAL RANGE	2 - 5 microns (IR)
MAXIMUM RANGE	310 ft. (95 m)
TYPICAL RESPONSE TIME	10 sec
FM TESTED FUEL SOURCES	n-Heptane, gasoline, methanol, methane, butane, propane, ethane, ethanol, crude oil, ethylene glycol, isopropanol, diesel, JP4, JP5, JP8, jet fuel A, marina fuel, kerosene, xylene, MEK, wood, cardboard
MAXIMUM FIELD OF VIEW	±15° @ 310 ft. (95 m) ±30° @ 210 ft. (64 m) ±45° @ 110 ft. (34 m)
ACCESSORIES	Test lamp, mounting bracket, rain guard, air curtain, 3/4" NPT plug, M25 plug, thread adapter, FL4000H upgrade kit
HAZARDOUS AREA CLASSIFICATION	
NORTH AMERICA	Class I, Div. 1, Groups B, C & D T4 Class II/III, Div. 1/2, Groups E, F & G; Class I, Div. 2, Groups A, B, C & D T4 (-40°C ≤ Ta ≤ +80°C) Type 6P, IP66/67 CL I, Zn 1, AEx db IIC T4 Gb Zn 21, AEx tb IIIC T135C Db Ex db IIC T4 Gb Ex tb IIIC T135C Db -55°C ≤ Ta ≤ +80°C
ATEX/UKCA/IECEX	Ex db IIC T4 Gb, Ex tb IIIC T135C Db, -55°C ≤ Ta ≤ +80°C, IP66/67
WARRANTY	Five years
APPROVALS	FM, CSA, IECEx, ATEX, UKCA, UAE, Compliant to ATEX, EMC, and CPR Directives HART 7 registered. SIL 2/3 FM, ULC and EN 54-10 performance approvals
PART NUMBER	10225125

Environmental Specifications

OPERATING/STORAGE TEMPERATURE RANGE	
FM/CSA	-40°F to +176°F (-40°C to +80°C)
ATEX/IECEX/UKCA/CPR	-67°F to +176°F (-55°C to +80°C)
OPERATING HUMIDITY RANGE	0% to 95% RH, non-condensing

Mechanical Specifications

HOUSING	316 Stainless Steel, Red Powder Coated
HEIGHT	4.3" (109 mm)
DIAMETER	
BASE	5.44" (138 mm)
OPTICAL HOUSING	3.50" (89 mm)
WEIGHT	
W/O MOUNTING BRACKET	7.6 lb. (3.45 kg)
W/MOUNTING BRACKET	9.13 lb (4.14 kg) with mounting bracket
MOUNTING	Stainless steel mounting bracket

Electrical Specifications

INPUT POWER	20-32 VDC 24 VDC (5.7 W with heater OFF, 8.9 W with heater ON)		
MAX POWER CONSUMPTION			
HEATER OFF	6.2 W		
HEATER ON	9.7 W		
MAX OUTPUT SIGNAL LOAD	600 ohms @ 24 VDC		
	HART Off	HART*	HART**
ANALOG SIGNAL	0-20 mA	1.25-20 mA	3.5-20 mA
FAULT SIGNAL	0 to 0.2 mA	1.25 mA	3.5 mA
COPM FAULT	2.0 ±0.2 mA	2.0 ± 0.2 mA	3.5 mA
BLUETOOTH LOAD	3.0 mA	3.0 mA	3.0 mA
READY SIGNAL	4.05 ±0.2 mA	4.05 ±0.2 mA	4.05 ±0.2 mA
INSTANT ALARM MODE	16 ±0.2 mA	16 ±0.2 mA	16 ±0.2 mA
SUSTAINED ALARM MODE	20 ±0.2 mA	20 ±0.2 mA	20 ±0.2 mA
RELAY CONTACT RATING	8A @ 24 VDC resistive max.		
BAUD RATE	2400, 4800, 9600, 19200, or 38400 BPS		
COMMUNICATION	HART 7, DD, FDI Registered by FieldComm, and DTM available		
RS-485 OUTPUT	Modbus, suitable for linking up to 128 units and 247 units with repeaters.		
STATUS INDICATORS	Four LEDs with status and fault conditions		
MAX. CABLE PARAMETERS			
0-20 MA OUTPUT SIGNAL	4,500 ft. (1,370 m), max 50 ohm loop, with max 250 ohm input impedance of readout unit		
REMOTE POWER SUPPLY	6,289 ft. (1,917 m) max 12 ohm loop, and 24 VDC min.		

* HART 1.25 mA (default)

** HART 3.5 mA

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice. MSA is a registered trademark of MSA Technology, LLC in the US, Europe, and other Countries. For all other trademarks visit <https://us.msasafety.com/Trademarks>.

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