MSA
The Safety Company

General Monitors® FL5000 Multi-Spectrum IR Flame Detector

Next generation of false alarm immunity and outstanding performance.

SAFEGUARDING
PEOPLE, PLACES & THE PLANET

Innovative Advancements in Flame Detection Technology

PROVEN TECHNOLOGY & FALSE SIGNAL SUPPRESSION

Equipped with advanced IR sensors and an intelligent Artificial Neural Network (ANN), the FL5000 Flame Detector minimizes false alarms by expertly distinguishing actual flames from other radiation sources, helping to ensure operational efficiency and cost savings.

EASY UPGRADE FOR EXISTING INSTALLATIONS

Operating on the same footprint as our legacy FL4000H / FlameGard 5 MSIR flame detectors makes upgrading to the FL5000 Flame Detector effortless. Simply replace the detector head, replace the electronics, set your preferred configuration, and you're operational—no need to remove wiring or seals.

WARRANTY SUPPORTED USER CONFIDENCE

Expertly designed by MSA and built with exceptional-quality components, the FL5000 Flame Detector offers solid performance and reliability, backed by a five-year warranty.

VERSATILE USE SUPPORTED WITH HEATED OPTICS

Designed with a built-in optical heater, the FL5000 Flame Detector helps suppress false alarms caused by frost or condensation build-up, making it ideal for a wide range of industries and climates.

FM TESTED, OUTSTANDING PERFORMANCE

The FL5000 Flame Detector has 22 fuel sources performance approved by FM, assuring of field of view and distance covered. Additionally, it is certified by FM to IEC 61508 as SIL 2/3 Suitable to offer protection for critical areas where reliability is demanded.

OPTICAL PATH INTEGRITY SELF-CHECK

Every two minutes, Continuous Optical Path Monitoring (COPM) ensures the optical path and electronic circuitry are operational through a built-in self-check.

CONVENIENT TESTING ANYTIME, ANYWHERE

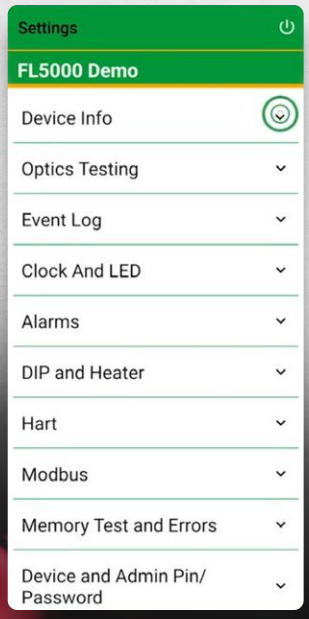
The FL5000 Flame Detector can be safely tested using our explosion-proof TL105 Test Lamp, simulating real fire conditions without the risk of an open flame.

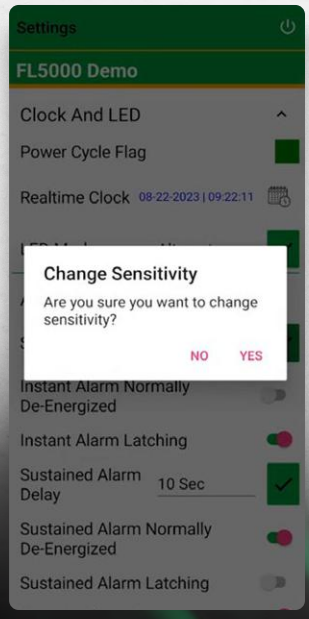
FIRST TO BRING BLUETOOTH® TECHNOLOGY TO FLAME DETECTION

The FL5000 Flame Detector, with its exclusive Flame Connect App, is the first to offer swift setup and diagnostics via Bluetooth, enabling easy configuration and event log downloads from mobile devices.

GET IT ON Google Play

Download on the App Store





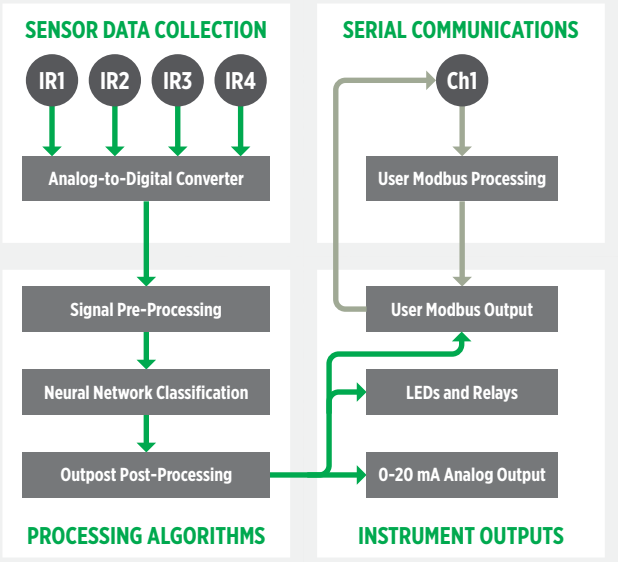
A Standout Design—The FL5000 Flame Detector brings outstanding performance and false signal suppression to MSIR Technology.

How MSIR Technology Works

The FL5000 Flame Detector is a highly discriminating detector, which makes use of multiple infrared (MSIR) sensors sampling different IR spectrum wavelengths.

MSIR's flame decision is informed by input from several infrared wavelengths using flicker rate information as it is independent of environmental factors like wind or fog.

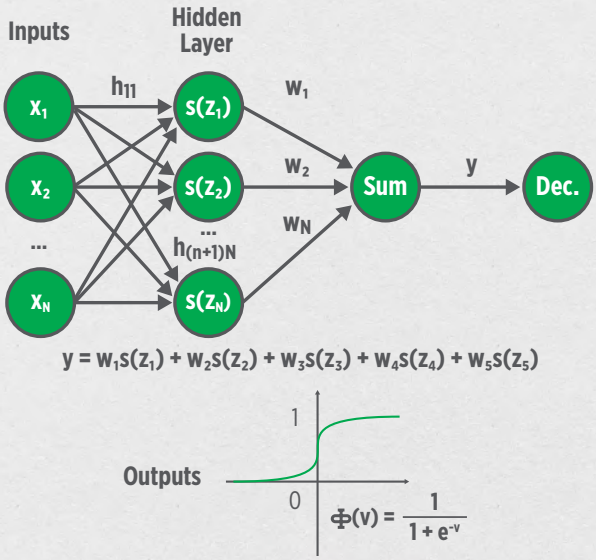
IR channels absorb light at different wavelengths associated with CO_2 emissions and visible light, helping detect the presence of a flame with greater certainty than any one channel alone.



How ANN Technology Works

The FL5000 Flame Detector uses advanced, patented neural network technology to accurately identify fires while simultaneously suppressing false signals.

The device achieves better accuracy by converting analog IR sensor signals into digital format, allowing the device to better analyze time and frequency data. The FL5000 Detector analyzes the digital time and frequency data using an exclusive neural network classification algorithm to better distinguish between signals emitted by flames and those from other sources.



The FL5000 Flame Detector builds upon proven MSIR sensing technology, incorporating "immunity sensors" to detect wavelengths unrelated to flames, resulting in:

- Longer Detection Distance
- Enhanced Field of View
- Better Sensitivity to Many Fire Sources

The FL5000 Flame Detector advanced neural network technology, combined with proven MSIR sensing technology and "immunity sensors," provides exceptional performance features including:

- Better False Alarm Immunity
- Improved Response Time
- Increased Accuracy and Reliability

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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, ¾" 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*

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