

Minerva S860

*Combined Ultra-Violet
Infra-Red Flame Detection*

Ex d flameproof Solar Blind Flame Detectors

Key Features

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Robust weather-proof construction certified for hazardous locations

Major international third party approvals certifying Class 1, Division 1, Groups B,C and D application areas. European standards EExd IIB + H₂T5

Microprocessor controlled operation incorporating patented Five Event Analysis™

Advanced Built-in automatic diagnostics with 'through the lens' clarity checking and output device monitoring.

Enhanced detection range capability with a 120° field of view

Certified to Military Standards 461C, part 4 IEC 801-5 (voltage-surge) and IEC 801-2 (ESD) susceptibility test. Also certified to European standards EN 50081-2 and EN50082-2

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Using technologies developed over more than 30 years, the microprocessor based Minerva S860 series flame detectors combine solar blind sensing of UV radiation and narrow waveband sensing of flame specific IR radiation to provide a reliable means of detecting flaming fires. The detectors are supplied in a Flameproof (Explosion proof) housing making them suitable for use in classified Hazardous Areas. They provide an easy interface to the range of Tyco conventional and analogue addressable panels.

Introduction

Applications include Aircraft Hangers, Fuel Loading Stations, Natural gas Compressor Buildings, Tank Farms and Flammable Storage Areas. The Minerva S860 series is capable of detecting various hydrocarbon fuel fires such as aviation fuel, various solvents, methane, propane, crude oil and many others.



Minerva S860 Detector

General

The Ultraviolet-Infrared Flame Detector utilised a state-of-the-art micro-processor incorporating patented Fire Event Analysis™. With Fire Event Analysis™, the S860 is capable of offering superior high speed flame detection without compromise to false alarm immunity. The detector employs a highly sensitive, solar blind ultraviolet sensor along with a narrow band infrared (thermopile) sensor to ensure unbeatable performance.

The S860 has a built-in self test feature, proper calibration and output relay continuity.

As with all Minerva flame detectors, the S860 is easy as well as economical to install. Installation requires 24 Vdc, and connection of the detectors' form C relays to a commercially available fire control panel.

Benefits

- Robust weatherproof enclosure for indoor or outdoor applications
- Patented Fire Event Analysis™ assuring the highest level of false alarm immunity
- Improved Advanced 'Through the Lens' diagnostic self-test capability
- Long range detection available
- Self contained Explosion proof enclosure
- Field configurable relays and sensitivity
- State of the art microprocessor control with proprietary Fire Library™
- High Intensity localised indication of Fire or Fault

Specification

Ultraviolet Sensor

Spectral Response: Ultraviolet peak sensitivity 220 nanometers

Spectral Range: 200 to 260 nanometers (100% Solar Blind)

Sensor: Omniguard High Performance UV sensor.

Infrared Sensor

Spectral Response

Standard units detects all flames emitted by a burning hydrocarbon and therefore uses a thermopile with an Infrared peak sensitivity of 4.4m. Special versions can also sense at 2.9m and may be used for applications where hydrocarbon and non-hydrocarbons such as Silane, Hydrazine and Hydrogen are to be detected. Contact your supplier for further details.

Standard Spectral Range: 4.1m to 4.7m

Sensor: Omniguard High Performance IR sensor

Construction: TO-5 Can, Nickel plate and gold flash header and leads.

Environmental Ratings

Third Party Validated explosion proof (flame proof) Enclosure for Hazardous environments.

Rated: Class 1, Division 1, Groups B,C & D (Explosion-proof)

European Rating EExd IIB + H₂ T5

Class II, Division 1, Groups E, F & G, (dust ignition proof)

Nema 4 Weatherproof, Dust tight, Water tight, (IP 67)

Standard housing is copper free aluminum conversion coated to MIL-C-5541C, Class 3

Optical Stainless Steel Housing Passive finish per MIL-5-5002C, Type 1.

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

Performance Ratings

Responsive to Hydrocarbon (gasoline, propane, methane, alcohol, JP-4, JP-8 etc.) flames. Can be made responsive to Hydrocarbon and Non-hydrocarbon (Hydrogen, Silane, Hydrazine, etc.) flames when special IR sensor used.

- Saturating signaled source in 50 milliseconds.
- One square foot gasoline flame at 50 feet in one second.
- Four square foot aviation pool fire at 100 feet in five seconds or less.
- Methane plume flame at 35 feet in one second.
- Horizontal performance envelope 120°.

Detector Inputs/Outputs

Input:

Nominal voltage 24 Vdc (ripple voltage not to exceed 240mV)

Range: 18 to 30 Vdc

Power Consumption:

Standby	90mA
Alarm	100mA
Automatic & Manual Test	250mA

Output Relays available:

2 Relays, 1 for fire, 1 for fault

Dry Contact Hermetically Sealed

Rated: 2 amps @ 28Vdc

User Selects N.O or N.C.

Fire Relay: User selects Latching or Non-latching function. Can be delayed up to 63 seconds.

Current Loop

Zero to Twenty milliamp output (0-20mA)

20mA = Fire

16mA = UV or IR presence

4 mA = Ready

0 mA = Trouble

Programmable RS-485 Serial Output

Mechanical Considerations

Weight: 5 lbs (2.3kg) Aluminum 13 lbs

Height x Width X Length: 4.90 x 5.50 x 5.98 inches (124.5 x 139.7 x 151.9mm).

Conduit Entry: 3/4-14 NPTF

Applications

Aircraft Hangers, Fuel Transfer Stations, Compressor stations, silane Storage Bunkers, Paint spray booths and Gas Cabinets.

Technical Information

Mechanical

TEPG Stockcode	Minerva S860 UV/IR Flame Detectors	Material	Conduit	Relay Outputs	0-20mA Output	RS485 Output
516.060.022	UV/IR detector with self test	Aluminum	3/4" NPT	Yes	Yes	Yes
517.060.001	Swivel Mounting Bracket	Steel (Black)	N/A	N/A	N/A	N/A
517.060.003	540 UV/IR Test Gun	Steel	N/A	N/A	N/A	N/A
517.060.005	Air Shield	Steel	N/A	N/A	N/A	N/A