



ULTRAVIOLET-INFRARED FLAME DETECTOR

Omniguard® model 860



The Omniguard® model 860 UV/IR flame detector is designed to detect fires and output appropriate alarm information. The model 860 senses ultraviolet radiation and infrared radiation in the appropriate wavelengths for very early fire detection. Using the patented Fire Event Analysis (FEA) algorithm, it is also able to distinguish between real fire and non-fire events providing superior false alarm immunity. The technology has proven itself over decades of reliable service.

The model 860 is available in two versions, one for hydrocarbon fires only, and one for hydrocarbon and certain non-hydrocarbon fires. This dual capability provides the unique ability of providing fire detection for a broad range of fuels with a single unit. Both versions come with an automatic self-test function to monitor the detector's ability to sense fires, and report a fault condition when impaired. Typical applications for the Omniguard® 860 model are refineries, turbine enclosures, petrochemical plants, tank farms, powerplants, compressor stations, LPG facilities, LNG facilities, hangars and paint booths.

Specifications

Performance ratings

Responsive to hydrocarbon (gasoline, propane, methane, alcohol, JP-4, JP-3, etc.). Also responsive to non-hydrocarbon (hydrogen, silane, hydrazine, etc.) flames when special dual-pass IR sensor is used.

Third-party performance certified to detect:


- Saturating signal source in 50 milliseconds
- 1 square foot gasoline fire at 50 feet in 1 second
- 4 square foot aviation fuel fire at 100 feet in 2 seconds or less
- 100 square foot aviation fuel fire at 250 feet in 3 seconds or less
- Methane plume flame 30 inches at 35 feet in 1 second

Additional performance with dual-pass infrared sensor:

- Silane plume flame 24 inches at 35 feet in 600 milliseconds
- Hydrogen plume flame 20 inches at 35 feet in 3 seconds
- Hydrazine 8 inch pool fire at 80 feet in 9.4 seconds

Environmental ratings

Rated:

Class I, Division 1, Groups B, C, D (explosion proof)
Class II, Division 1, Groups E, F, G (dust ignition proof)
NEMA Type 4X weatherproof, dust-tight, watertight
CE0081  II 2 G/D
Ex db IIB + H₂ T5 Gb for gas
Ex tb IIIC T100°C Db IP66 for dust

Housings

Copper-free aluminum conversion coated to MIL-C-5541C, Class 3 (white)
Stainless Steel 316 housing with passive finish per MIL-S-5002C, Type 1

Operating temperature

-40°C to +85°C (-40°F to +185°F)

Operating humidity

0-95% RH (non-condensing)
(withstands up to 100% RH for short periods)

Specifications continue on next page...

Key features

- Patented Fire Event Analysis (FEA) algorithm for superior false-alarm immunity
- Five-year warranty on sensors from date of delivery, three-year warranty on components or manufacturing defects from date of delivery
- Field of view 120°
- Robust weatherproof enclosure for indoor or outdoor applications
- FM, CSA, IECEx, ATEX, SIL2, UKCA, ECAS-Ex, PESO
- Advanced through-the-lens diagnostic self-test
- Long range detection
- Self-contained, explosion-proof enclosure
- Field configurable relays and sensitivity
- State-of-the-art microprocessor control
- High intensity, localized indication of fire or fault



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Specifications (continued)

Spectral response

Ultraviolet peak sensitivities of 0.22 µm

Infrared

- Standard: peak sensitivities of 4.4 µm
- Dual pass: peak sensitivities of 2.9 µm and 4.4 µm

Detector inputs

Inputs

- nominal voltage 24 VDC (ripple voltage <240 mV)
- range 20 to 32 VDC

Power consumption

- standby 42 mA
- standby 4-20 mA 47 mA
- alarm 57 mA
- auto test 136 mA
- manual test 160 mA

Detector outputs

Relay

- relays (2) fire, trouble, dry contacts, hermetically sealed
- fire relay user selectable latching or non-latching
- rated 2 A at 30 VDC, User selectable NO or NC

Current loop 0 to 20 mA output

- 20 mA = Fire
- 16 mA = Warning UV
- 15 mA = Warning IR
- 4 mA = Normal
- 3 mA = Fire relay coil fault
- 2 mA = EEPROM corrupted fault
- 1 mA = Self-test fault
- 0 mA = Current loop fault

RS485 User Interface (UI)

Mechanical considerations

- Weight 2.4 kg (5 lbs) (aluminum)
6.3 kg (13 lbs) (stainless steel)
- Height x width x depth 114 x 140 x 153 mm
(4.5 x 5.5 x 6.0 in)

Conduit entry 3/4-14 NPT or M20-1.5

Optional accessories

Swivel mount (SS304) 20856 (for aluminum detectors)
Pole mount 2" (SS316L) 26803 (for swivel mount 20856)

Swivel mount (SS316) 24784 (for stainless steel detectors)
Pole mount 2" (SS316L) 26807 (for swivel mount 24784)

Rain shield/Sun shield 23546
(SS316L)

Air shield assembly 8001023

Portable test unit 540 (CSA approved)

Ordering information

To order, please specify

Type Omniguard® model 860
Designation Ultraviolet-infrared flame detector
Ordering number 860 - X X X X X

Fire type

- 0 Hydrocarbon
- 1 Hydrocarbon/non-hydrocarbon

Housing material/conduit entry

- 0 Aluminum, 3/4-14 NPT (white)
- 2 Stainless steel, 3/4-14 NPT
- 3 Aluminum, M20-1.5 (white)
- 5 Stainless steel, M20-1.5

Test feature

- 1 Auto self-test

Fire relay configuration

- 0 Latching
- 1 Non-latching

Approvals

- 0 FM, CSA, IECEx, ATEX, SIL2,
UKCA, ECAS-Ex, PESO, CE, EMC, LVD



For information on the specific certifications and approvals each Omniguard® Flame Detector holds please visit:
www.omniguardbyfirefly.com/flamedetectors

