



# ULTRAVIOLET-INFRARED FLAME DETECTOR

## Omniguard® model 860

The Omniguard® model 860 UV/IR flame detector is designed to detect unwanted 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 capability of providing fire detection for a broad range of fuels with a single unit. Both versions are available 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, and hangars.



### 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 5 seconds or less
- 100 square foot aviation fuel fire at 250 feet in 5 seconds or less
- Methane plume flame at 35 feet in 1 second

Additional performance with dual-pass infrared sensor:

- Silane plume flame 24 inches at 35 feet in 60 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  
CE008  II 2 G/D  
Ex db IIB + H<sub>2</sub> T5 Gb for gas  
Ex tb IIIC T100°C Db IP66 for dust

Standard housing is copper-free aluminium conversion coated to MIL-C-5541C, Class 3 (white).  
Optional stainless steel housing available with passive finish per MIL-S-5002C, Type 1.

### 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 degrees
- ✧ Robust weatherproof enclosure for indoor or outdoor applications
- ✧ FM, CSA, IECEx, ATEX, SIL2, Russian Fire Certificate, EMC, LVD, CSFM
- ✧ 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)

Operating temperature range:  
-40° to +85°C (-40° to +185°F)

### 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 <240mV)
- range 20 to 30 VDC

Power consumption

- standby 90 mA
- alarm 110 mA
- auto and manual test 250 mA

### Detector outputs

Relay

- relays (2) fire, trouble, dry contacts, hermetically sealed
- rated 2 A at 28 VDC. User selectable NO or NC
- fire relay user selectable latching or non-latching

Current loop (standard version): 0 to 20 mA output

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

Programmable RS-485 serial output.

### 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 No 20856 (used with aluminum)  
No 24784 (used with stainless steel)
- Portable test unit Model 540 / 545
- Air shield kit No 8001023
- Rain shield No 23546

## 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 aluminium, 3/4-14 NPT (white)  
2 stainless steel, 3/4-14 NPT  
3 aluminium, M20-1.5 (white)  
5 stainless steel, M20-1.5

### Test feature

- 0 no self-test  
1 auto self-test

### Fire relay configuration

- 0 latching  
1 non-latching

### Approvals

- 0 FM, CSA, IECEx, ATEX, SIL2,  
Russian Fire Certificate, EMC, LVD, CSFM

