



**ULTRAVIOLET AND IR
FLAME DETECTORS**

model 660[®]

Ultraviolet flame detector

Features

- Available in special high temperature version (-40°C to +125°C)
- All inclusive three-year warranty on parts and labor
- Widest field of view in the industry (120°)
- Robust, weatherproof enclosure for indoor or outdoor applications
- FM, CSA, and ATEX approved
- Improved, advanced through-the-lens diagnostic self-test
- Long range detection
- Self-contained, explosion-proof enclosure
- Economical no-test version available
- Field configurable relays and sensitivity
- State-of-the-art microprocessor control
- High intensity, localized indication of fire or fault



Typical applications: turbine enclosures, generator rooms, munitions facilities, battery rooms, and gas cabinets.

Description

The model 660 UV flame detector is designed to detect unwanted fires, and output appropriate alarm information. The model 660 senses ultraviolet radiation in the appropriate wavelength for extremely fast fire detection. The model 660 will sense both hydrocarbon and non-hydrocarbon fires, a technology which has proven itself over decades of reliable service.

The model 660 is available in two versions, one for standard industrial applications where a maximum operating temperature of 85°C is the norm, and a second which is capable of operating at a maximum sustained temperature of 125°C. This version is especially well suited for turbine enclosure and high temperature industrial applications. 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.

Specifications


Performance ratings

Responsive to hydrocarbon (gasoline, propane, methane, alcohol, etc) and non-hydrocarbon (hydrogen, silane, hydrazine, magnesium, etc) flames.

Third-party performance certified to detect saturating signal source in 15 milliseconds, 1 square foot gasoline flame at 50 feet in 1 second. Horizontal performance envelope of 120°.

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 4X weatherproof, dust-tight, watertight
CE0081  II 2 G/D

Ex d IIB + H₂ 100°C (T5) for gas on 660-0XXXX
Ex tD A21 IP66 T100°C for dust on 660-0XXXX
Ex d IIB + H₂ 135°C (T4) for gas on 660-1XXXX
Ex tD A21 IP66 T135°C for dust on 660-1XXXX

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-5-5002C, Type 1.

Standard operating temperature range: -40° to +85°C (-40° to +°185F).

Special high temperature version: -40° to +125°C (-40° to +°257F).

Spectral response

Ultraviolet peak sensitivity of 220 µm.

model 660

Ultraviolet flame detector

Specifications (continued)

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 selects NO or NC
- fire relay user selects latching or non-latching

Current loop (standard version) 0 to 20 mA output

- 20 mA = fire
- 4 mA = ready
- 0 mA = 20

Programmable RS-485 serial output

Mechanical considerations

- Weight 5 lb (aluminum)
13 lb (stainless steel)
- Height x width 4.90 in x 5.50 in
- Conduit entry 3/4-14 NPTF or M20-1.5

Optional accessories

- Swivel mount No 4651027 (aircraft aluminum with SST locking devices)
No 70991 (all stainless steel)
- Portable test unit No 43808-2
- Air shield assy kit No 8001023

Ordering information

To order, please specify

Type model 660
Designation Ultraviolet flame detector
Ordering number 660 - X X X 0 0

Fire type

- 0 Industrial temperature fire detector
- 1 High temperature fire detector

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

- 0 no self-test
- 1 auto self-test

Fire relay configuration

Agency approvals

- Factory Mutual (FM)
- ATEX
- Canadian Standards Association (CSA)
- California State Fire Marshall (CSFM)



model 760

Multi-spectrum infrared flame detector

Features

- Patented Fire Event Analysis (FEA) algorithm for superior false-alarm immunity
- Five year warranty
- Wide field of view (90°)
- FM, CSA, and ATEX approved
- User selectable sensitivities
- Advanced through-the-lens diagnostic self-test (no external test source required)
- Long range detection
- Self-contained, explosion-proof enclosure
- Field configurable relays and sensitivity
- State-of-the-art microprocessor control
- High intensity, localized indication of proper operation, fire or fault



Typical applications: turbine enclosures, generator rooms, munitions facilities, battery rooms, and gas cabinets.

Description

The Model 760 multi-spectrum infrared flame detector is designed to detect unwanted fires, and output appropriate alarm information. In a breakthrough technological advance, the model 760 senses infrared radiation in five discreet infrared (IR^s) wavelengths for early fire detection for maximum protection of people, machinery, and facilities. The model 760 utilizes the patented Omniguard Fire Event Algorithm for superior false alarm immunity.

The multi-spectrum sensor information, combined with the sophisticated algorithm, enables the model 760 the ability to detect both hydrocarbon and certain non-hydrocarbon fueled fires. The model 760 also features an automatic self test function to monitor the detector's ability to sense fires and report a fault condition when impaired. The self test feature also eliminates the need for any external test fixtures.

Specifications

Performance ratings

Responsive to hydrocarbon and non-hydrocarbon flames.

Third-party performance certified to detect:

Normal sensitivity

- 1 square foot gasoline fire at 75 feet in <1 second
- 1 square foot n-Heptane fire at 75 feet in <1 second
- 0.75 inch diameter orifice with a flow rate of 1.5 SCFM hydrogen plume at 50 feet in <1 second

Enhanced sensitivity

- 1 square foot gasoline fire at 100 feet in <1 second
- 1 square foot n-Heptane fire at 100 feet in <1 second

Long distance sensitivity

- 1 square foot gasoline fire at 200 feet in <1 second
- 1 square foot n-Heptane fire at 200 feet in <1 second
- 4 square foot JP-5 fire at 200 ft in <5 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 4X weatherproof, dust-tight, watertight

CE0081  II 2 G/D

Ex d IIB+H₂ T5 100°C (T5) for gas

Ex tD A21 IP66 T100°C 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-5-5002C, Type 1.

model 760

Multi-spectrum infrared flame detector

Specifications (continued)

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

Spectral response

Infrared peak sensitivities of 2.2 µm, 2.9 µm, 3.7 µm, 4.4 µm, and 5.8 µm.

Detector inputs

Inputs

- nominal voltage 24 VDC (ripple voltage <240mV)
- range 20 to 30 VDC

Power consumption

- standby 80 mA
- alarm 100 mA
- auto and manual test 160 mA

Detector outputs

Relay

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

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

- 20 mA = fire
- 16 mA = warning fire IR
- 5 mA = warning ref IR
- 3 mA = fire relay coil fault
- 2 mA = calibration not complete
- 1 mA = self-test fault
- 0 mA = current loop fault
- 4 mA = normal

MODBUS RS-485 serial I/O

Mechanical considerations

- Weight 5 lb (aluminium)
13 lb (stainless steel)
- Height x width 4.80 in x 5.50 in
- Conduit entry 3/4-14 NPTF or M20-1.5

Optional accessories

- Swivel mount No 4651027 (aircraft aluminium with SST locking devices)
No 70991 (all stainless steel)

Ordering information

To order, please specify

Type model 760
Designation Multi-spectrum infrared flame detector
Ordering number 760 - X X X O O

Fire type
 0 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
 1 auto self-test

Fire relay configuration

Agency approvals
 Factory Mutual (FM)
 ATEX
 Canadian Standards Association (CSA)



model 860

Ultraviolet-infrared flame detector

Features

- Patented Fire Event Analysis (FEA) algorithm for superior false-alarm immunity
- All inclusive three-year warranty on parts and labor
- Widest field of view in the industry (120°)
- Robust weatherproof enclosure for indoor or outdoor applications
- FM, CSA, and ATEX approved
- User selectable sensitivities
- Improved, advanced through-the-lens diagnostic self-test
- Long range detection
- Self-contained, explosion-proof enclosure
- Economical no-test version available
- Field configurable relays and sensitivity
- State-of-the-art microprocessor control with proprietary fire library
- High intensity, localized indication of fire or fault



Typical applications: aircraft hangars, fuel transfer stations, compressor stations, silane storage bunkers, paint spray booths, and gas cabinets.

Description

The 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. And, using the patented Fire Event Analysis algorithm, 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.

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 150 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 4X weatherproof, dust-tight, watertight

CE0081  II 2 G/D

Ex d IIB + H₂ 100°C (T5) for gas

Ex tD A21 IP66 T100°C 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-5-5002C, Type 1.

model 860

Ultraviolet-infrared flame detector

Specifications (continued)

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

Spectral response

Ultraviolet

- Peak sensitivities of 220 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 selects NO or NC
- fire relay user selects latching or non-latching

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

- 20 mA = fire
- 16 mA = UV or IR presence
- 4 mA = ready
- 0 mA = 20

Programmable RS-485 serial output.

Mechanical considerations

- Weight 5 lb (aluminium)
13 lb (stainless steel)
- Height x width 4.90 in x 5.50 in
- Conduit entry 3/4-14 NPTF or M20-1.5

Optional accessories

- Swivel mount No 4651027 (aircraft aluminium with SST locking devices)
No 70991 (all stainless steel)

Portable test unit Model 540

Air shield assembly kit No 8001023

Ordering information

To order, please specify

Type

model 860

Designation

Ultraviolet-infrared flame detector

Ordering number

860 - X X X 0 0

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

Agency approvals

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