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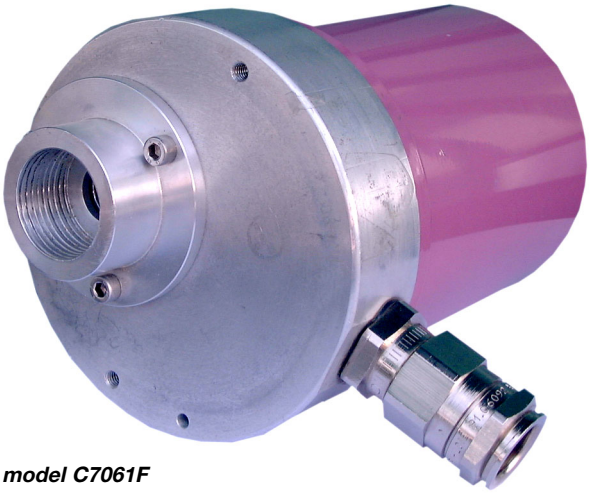
C7061 A/F

DYNAMIC SELF CHECK ULTRAVIOLET FLAME DETECTOR

PRODUCT HANDBOOK



model C7061A



model C7061F

APPLICATION

The C7061A is a dynamic self-checking flame detector for sensing the ultraviolet radiation generated by the combustion of gas, oil, or other fuels.
This flame detector is available in two versions:
model C7061A for use in Standard applications, and model C7061F for use in installations requiring explosion-proof packaging. The flame detector is designed for use with either,

R7061 Dynamic Self-Check Ultraviolet amplifier and
- R4348 Flame Switch or,

or with,

R7861A Dynamic Self-Check Ultraviolet amplifier and,
- 7800 SERIES Burner Programmers

These configurations provide a closed-loop, self-checking circuit which insures the integrity of both amplifier and flame detector. Improper response simulated flame loss results in a safety shutdown and/or alarm.

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GENERAL

DESCRIPTION

The C7061A1020 and C7061F1003 detector models are identical except for housings.
Model C7061F detector is for use in installations requiring explosion proof packaging. The housing is conform the EExd IIC T6 classification. More details for the explosion proof housing can be found in the chapter Standards and Approvals.
The C7061F model has a 1-inch NPT tapping for mounting onto a sight pipe. For allowable mounting positions of model C7061A and model C7061F, see Page 9.

The terminal block on both models is of wire clamp type with removable screws and is situated in the compartment of the C7061. The UV cell contains an ultraviolet sensing tube, shutter assembly, terminal block and magnifying lens.
The UV sensor can be mounted from the programmer/flame switch up to a length of 300 m.

FEATURES

- Oscillating shutter interrupts ultraviolet radiation reaching the UV Sensor 12 times per minute (when used with R7861 amplifier in combination with 7800 SERIES) to provide the UV Sensor tube checking function. When used with the R7061 amplifier in combination with R4348 flame switch, the shutter frequency is 60 times per minute. Amplifier circuitry components are checked from the microprocessor in the 7800 SERIES Control.
- Detectors can be mounted horizontally, vertically or at any angle in between. The self-checking C7061 models require faceplate alignment and have integral locating reference points to assure proper operation of the shutter mechanism.
- Ultraviolet radiation sensing tube and quartz viewing window are field replaceable.
- Two flame detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
- A swivel mount is available to facilitate flame sighting.
- -40°C (-40°F) rated ultraviolet sensing tube is available.
- Incorporates UV Sensor tube checking feature; used with R7061 and R7861 Dynamic Self-Check amplifiers.
- High pressure 50 psi (345 kPa) quartz viewing window, magnifying lens and antivibration mount are available as accessories.
- Housing meets IP67 enclosure standards.
- C7061 F only: explosion-proof housing, meets EExd IIC T6 classification.
- Protective heat block built into mounting flange.

ORDERING INFORMATION

When ordering specify:
- Complete model number.

Order separately:
- R7061 Dynamic Self-Check Ultraviolet Amplifier.
- R7861A Dynamic Self-Check Ultraviolet Amplifier.
- Replacement parts, if desired.
- Accessories, if desired
- Flame safeguard control

TECHNICAL DATA

SPECIFICATION

Specification

Models
C7061A: Self checking UV flame detector in standard housing.
C7061F: Self checking UV flame detector in explosion proof housing. Designed for use with either,

R7061 Dynamic Self-Check Ultraviolet amplifier and
- R4348 Flame Switch

or with,

R7861A Dynamic Self-Check Ultraviolet amplifier and,
- 7800 SERIES Burner Programmers

Ambient Operating temperature ratings
C7061A: -40°C to +70°C (-40°F to +160°F)"(derate ambient 1°F for every 13°F of aspirator temperature over 160°F).
C7061F: -20°C to +70°C (-22°F to +160°F)

Storage temperature ratings
- -51°C to +85°C (-60°F to +185°F)

Voltage and Frequency
C7061A1004 120 VAC, 50/60 Hz
C7061A1020 115/230 VAC, 50/60 Hz
C7061F1003 115/230 VAC, 50/60 Hz
The System operates correctly at a nominal voltage (-15%, +10%), 50/60 Hz.

Flame Signal
Measured at the flame current meter jack.
C7061 Detector: 1.4 to 5.5 micro amps (nominal).
R7061A Amplifier: 2.5 to 5.5 micro amps (nominal).
R7861A Amplifier: 1.25 to 5.0 Volts (On keyboard display module).

Flame Signal amplifier
R7061A Dynamic Self-Check Ultraviolet amplifier
R7861A Dynamic Self-Check Ultraviolet amplifier
(Order separately)

Interchangeability
Models C7061A and C7061F are not interchangeable with other flame detector models.

Shutter frequency
0.2 Hz, nominal (when used in combination with 7800 SERIE). Interrupts the line-of-sight of the detector about 12 times per minute to provide self-checking. Any malfunction in the flame detection system results in a safety shutdown. 1Hz nominal when used with R4348 in combination with R7061 amplifier.

Pressure rating of quarz viewing window
C7061A: 138 kPa (20 psi) maximum.
C7061F: 690 kPa (100 psi) maximum

Dimensions
C7061A: see figure 1.
C7061F: see figure 2.

Housing
C7061A:
Construction: cast-aluminum cover.
Color: Violet.
Mounting flange (with heat block) and faceplate are separate to provide heat insulation and seal-Off.

C7061F:
Meets requirements (explosion-proof): EEx d IIC T6
Construction: cast-aluminum Cover.
Color: Violet. Mounting flange (with heat block) and faceplate are separate to provide heat insulation and seal-Off.

Enclosure
C7061A: Meets IP66 enclosure requirements (indoor, outdoor protection; rain-tight, dust-tight, hose-directed water). "Optional water jacket available.
C7061F: IP65 according to DIN 40050

Weight
C7061A: 3.3 kg (7.3 lb)
C7061F: 6.3 kg (13.9 lb)

Mounting and orientation
C7061A : Mounting flange with 3/4 inch NPT internal threads for attaching to sight pipe.
C7061F: Mounting flange with 1 inch NPT internal threads for attaching to sight pipe.
For allowable mounting positions of model C7061A and F, see Page 9.

Wiring Connections
C7061A1004:
NEC Class 1 color coded leadwire.
Length: 8 ft (2.4m).

C7061A1020:
Terminal block
Threaded leadwire opening in faceplate:
1/2-14 NPSM internal threads for attaching conduit.
One brass cable gland standard with housing.

For C7061F only:
Terminal block:
Terminal block inside the housing, wire clamp type, removable screws (terminal lugs can be used).
Cable entry holes:
One brass cable gland Ex classification: EExdII C, is standard provided in the housing.
Inner sheath diameter 6 to 12 mm
Outer sheat diameter 8.5 to 16 mm
Tightening torque:
- cable gland into rear cover plate: 20 Nm
- cap into cable gland: 3 Nm

Serviceability
Field replaceable viewing window and ultraviolet sensing tube, coil and shutter assembly.

Maximum cable length
300 meter between sensor and amplifier

Design life
Ultraviolet sensing tube: limited life, see sections Troubleshooting and Service.