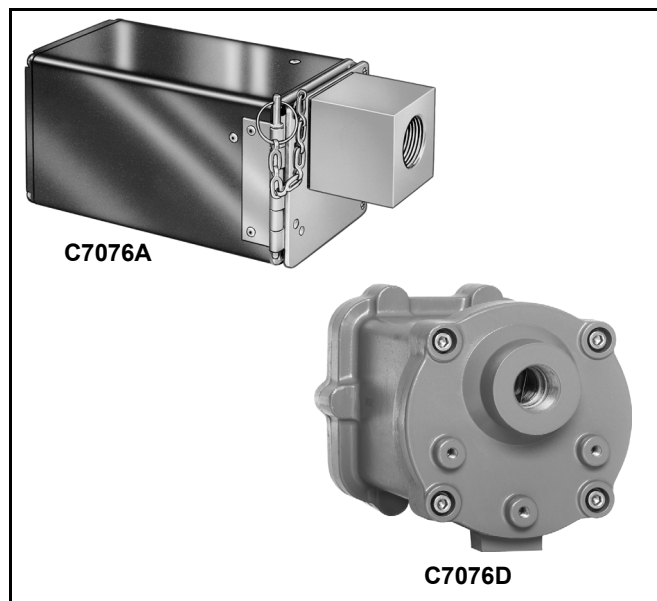


# C7076A,D Adjustable Sensitivity Ultraviolet Flame Detectors

**PRODUCT DATA**



The C7076A and C7076D are identical except for their housings. The C7076A is designed for standard installations. The explosion-proof housing used with the C7076D meets the requirements for Division I, Class I, Groups C and D; and Class II, Groups E, F, and G of the National Electrical Code (NFPA70).

The C7076 features two sensitivity adjustments, each with a 400:1 dynamic range, and an integral flame signal meter jack to facilitate precise sighting.

The flame detector is designed for use with Dynamic Self-Check Ultraviolet Amplifiers R7476A and R7886 to provide a closed-loop, self-checking circuit which insures the integrity of both amplifier and flame detector. Improper response to simulated flame loss results in a safety shutdown and/or alarm.

## FEATURES

- High level output permits long distance transmission without special wiring.
- Solid state circuitry assures long life and stable sensitivity over wide ranges of temperature and voltage.
- Available in two versions:
  - C7076A for use in standard installations.
  - C7076D for use in installations requiring explosion-proof packaging.

## APPLICATION

The C7076 Adjustable Sensitivity Ultraviolet Flame Detector is a solid-state, adjustable sensitivity, device for sensing the ultraviolet radiation emanating from gas, oil and pulverized coal flames. It is designed for burner management and flame safety systems which require optimum sensitivity and/or flame discrimination.

## Contents

Application .....	1
Features .....	1
Specifications .....	2
Ordering Information .....	2
Installation .....	7
Wiring .....	8
Troubleshooting .....	16
Service .....	18



## SPECIFICATIONS

### Models:

C7076A—Adjustable sensitivity flame detector packaged in standard housing. Used with R7476A and R7886 Dynamic Self-Check Ultraviolet Amplifiers.

C7076D—Adjustable sensitivity flame detector packaged in explosion-proof housing. Used with R7476A and R7886 Dynamic Self-Check Ultraviolet Amplifiers.

**Electrical Ratings:** See Table 1.

**Table 1. Electrical Ratings.**

Line Voltage (+10%, -15%)	Frequency (Hz)	Shutter Voltage <sup>a</sup>	Maximum Power Consumption <sup>b</sup>	
			Watts	VA
100	50/60	100	7	14
120	60	120	7	14
200	50/60	120	7	14
220/240	50/60	120	7	14
117 <sup>c</sup>	50	117	7	14

<sup>a</sup> Supplied by the appropriate flame safeguard control operating at the designated line voltage.

<sup>b</sup> Does not include shutter power, which is supplied by the flame safeguard control.

<sup>c</sup> For applications in South Africa.

### Temperature Ratings:

Maximum Aspirator Temperature (C7076A only): 225°F (107°C).

Ambient Operating Temperatures:

C7076A: -40°F to +160°F (-40°C to +71°C).

NOTE: Derate ambient temperature 1°F for every 13°F of aspirator temperature over 160°F.

C7076D: -40°F to +160°F (-40°C to +71°C).

Storage Temperature Range:

-60°F to +185°F (-51°C to +85°C).

### Sensitivity Selection:

Remote Sensitivity Selection: External switch can be wired to select the setting sensitivity control, either A or B.

External Selector Switch: Must rated for switching 20 mA at 48 Vdc.

### Sensitivity Adjustment:

Range: 400 to 1.

Sensitivity Controls: Two, labeled **A** and **B**, on plug-in electronics chassis. Each can be set independently and locked to prevent drift due to vibration.

### Flame Signal Amplifiers:

R7476A or R7886 Dynamic Self-Check Ultraviolet Amplifier; order separately.

### Flame Signal:

Measured at flame current meter jack on C7076: 1.4 to 5.5 mA nominal.

Measured at flame current meter jack on R7476A amplifier: 2.5 to 5.5 mA nominal.

Measured at flame voltage meter jack on R7886 amplifier: 0.0 to 5.0 Vdc.

### Shutter Frequency:

R7476A: 1.25 Hz nominal. Interrupts the line-of-sight of the detector about 75 times per minute to provide self-checking.

R7886: One test every 5 seconds to provide self-checking.

### Pressure:

C7076A quartz viewing lens: 20 psig (138 kPa) maximum.

C7076D quartz viewing lens: 142 psig (981 kPa) maximum.

## ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Honeywell Automation and Control Products Sales Office (check white pages of your phone directory).
2. Honeywell Customer Care  
1985 Douglas Drive North  
Minneapolis, Minnesota 55422-4386
3. <http://customer.honeywell.com> or <http://customer.honeywell.ca>

International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

**Interchangeability:**

Models C7076A and C7076D are not interchangeable with other flame detector models; they must be used with either the R7476A or R7886 Dynamic Self-Check Ultraviolet Amplifier.

**Wiring Connections:**

C7076A: Terminal block in front compartment of housing; wire-clamp type, removable screws (terminal lugs can be used). Conduit fitting: 7/8 in. opening in housing to accommodate 1/2 inch flexible conduit; fitting must be water-tight to meet NEMA 4 standards.

C7076D: Terminal block in front compartment of housing; wire-clamp type, removable screws (terminal lugs can be used). Conduit fitting: 1/2 in. NPT tapped opening in bottom of housing to accommodate conduit.

**Plug-in Electronics Chassis:**

Field-replaceable; plugs into octal socket in housing. Contains ultraviolet sensing tube, shutter assembly, power supply, solid state circuitry, sensitivity adjustment controls and flame current meter jack. Keyed to housing to ensure proper orientation.

**Air Flow Requirements (C7076A only):**

Purge Air: 0.7 SCFM (3.3 ml/sec) is required to maintain 4 in. (102 mm) of differential pressure from the aspirator inlet to the combustion chamber. An air flow of 3 SCFM (14 ml/sec) is recommended.

Seal-off Air: 5 psig (34.5 kPa) maximum combustion chamber pressure.

**Housing:**

C7076A: Meets NEMA 4 standards (water-tight and dust-tight, indoor and outdoor).

Construction: Aluminum and cadmium-plated steel.

Color: Light blue.

Front compartment contains terminal block; rear compartment contains electronic chassis.

C7076D: Meets NEMA 7 requirements (explosion-proof).

Construction: Cast aluminum alloy.

Color: Light blue.

Front compartment contains terminal block; rear compartment contains electronic chassis.

**Mounting:**

C7076A: Aspirator has 1-in. NPT tapping for mounting onto sight pipe, and 3/8 in. NPT tapping for connecting to the air supply.

Detector mounts on aspirator by means of a removable piano-type hinge.

C7076D: Detector has 1-in. NPT tapping for mounting onto sight pipe and two 5/16-18 UNC tapped holes for attaching a bracket for additional security.

For allowable mounting positions, see Fig. 1.

**Weight:**

C7076A: 6.6 lb (3 kg).

C7076D: 17.6 lb (8 kg).

**Dimensions:** See Fig. 2.

**Accessories:**

118367A Swivel Mount.

W136A Test Meter (includes 117053 meter connector plug).

117053 Meter Connector Plug (for older W136A models).

**Replacement Parts:**

C7076A:

191002B Plug-in Electronics Chassis (without UV sensing tube).

190971E Coil and Shutter Assembly (for all models except 100V model).

190971F Coil and Shutter Assembly (for 100V model).

190998A Aspirator Assembly.

191205 Pin and Chain.

191055A Cover Assembly for 120 Vac models.

191055B Cover Assembly for 220/240 models.

191203-767 Hinge.

191053 Ultraviolet Sensing Tube.

191050 Viewing Lens.

190999 grommet, silicone rubber for viewing lens.

191054 Gasket, silicone-rubber seal for front and rear cover plates.

C7076D:

191002R Plug-in Electronics Chassis (without UV sensing tube).

190971E Coil and Shutter Assembly (for all models except 100V model).

190971F Coil and Shutter Assembly (for 100V model).

191053 Ultraviolet Sensing Tube.

191050 Viewing Lens.

24400152-001 Lens Kit (consists of quartz window gasket and gasket seal).

**SIL 3 Capable:**

The C7076A or D when used with a R7886 self-check amplifier in Relay Module EC7810A, 20A, 30A, 40L, 50A; RM7800[E,G,L,M], 30A, 38[A,B,C], 40[E,G,L,M] 50A, 90[A,B,C,D], 97[A,C], 98A is SIL 3 Capable in a properly designed Safety Instrumented System. See form number 65-0312 for Certificate Agreement.

**Approvals:**

C7076A:

Underwriters Laboratories Inc. Listed (120V models only): File No. MP268, Guide No. MCCZ.

Canadian Standards Association (CSA) Certified (120V models only): File No. LR1620.

Factory Mutual Approved: Report No. FM26980.

C7076D:

Underwriters Laboratories Inc. Listed: File No. E34649, Guide No. ZTSZ.

Swiss Re (formerly Industrial Risk Insurers) Approvable.