

## UNIVERSAL GAS VALVES

# C6097A

## GAS PRESSURE SWITCHES

### INSTRUCTION SHEET



Table 2. C6097A stand alone models

Model	Operating pressure range (mbar)	Nominal operating differential (mbar)	Maximum working pressure (mbar)
C6097A2110	1.0 ... 10	0.4	200
C6097A2210	2.5 ... 50	0.6	300
C6097A2310	30 ... 150	2.8	500
C6097A2410	100 ... 500	7.0	600

NOTE: The operating differential is the difference between the upper and lower operating pressures at one set point.

#### Dimensions

See Figure 1.

#### Connection

Inlet positive pressure Rp1/4" internal pipe thread (2 x).  
Differential pressure Rp 1/8" internal pipe thread.  
All connections according to ISO 7-1

#### Set point accuracy

15% of the full scale (when pressure is increased)

NOTE: The knob readings are approximations of the actual settings.

#### Torsion and bending stress

Pipe connections meet group 2, according to EN161 requirements.

#### Contact ratings

Resistive load: 250 Vac, 5A  
Inductive load: 250 Vac, 3A (power factor 0.6)  
Minimum contact current and voltage: 50 mA, 24 Vac

#### Material of pressure receiving parts

NBR single diaphragm

#### Material of housing

Aluminium die-cast

#### Material of case

Polybutylene terephthalate

#### Material of cover

Polycarbonate

#### Ambient temperature range

-15 ... 60 C  
Relative humidity: max. 90% at 40 C (non-condensing)

#### Sensed medium temperature range

-15 ... 80 C

#### Electrical connection

Plug connection according to PG11 or three pin plug connector ("DIN plug")  
Protection against electrical shock: class I

#### Wire connection terminals

M3.5 screw terminals, including earth connection

## APPLICATION

The gas pressure switch C6097A is used to detect the pressure of city gas, natural gas, LP gas or air etc.

When the gas pressure changes, the diaphragm of the pressure receiving part detects it and operates the (SPDT) switch to ON/OFF control of the external electrical circuit.

These switches are widely used to detect the upper limit or lower limit pressure of gas or air to be supplied to a gas burner, or to detect the clogging of the interlock filter of a burner blower.

## SPECIFICATIONS

#### Product range

There are two versions available: stand alone and flange mounted, see table 1. and 2.

Table 1. C6097A flanged mounted models

Model	Operating pressure range (mbar)	Nominal operating differential (mbar)	Maximum working pressure (mbar)
C6097A2200	2.5 ... 50	0.6	300
C6097A2300	30 ... 150	2.8	500
C6097A2400	100 ... 500	7.0	600

## Enclosure

IP54

## Seals and gaskets

Hydrocarbon resistant NBR rubber type

## Standards and Approvals

The C6097A pressure switch conforms with the following EC directives:

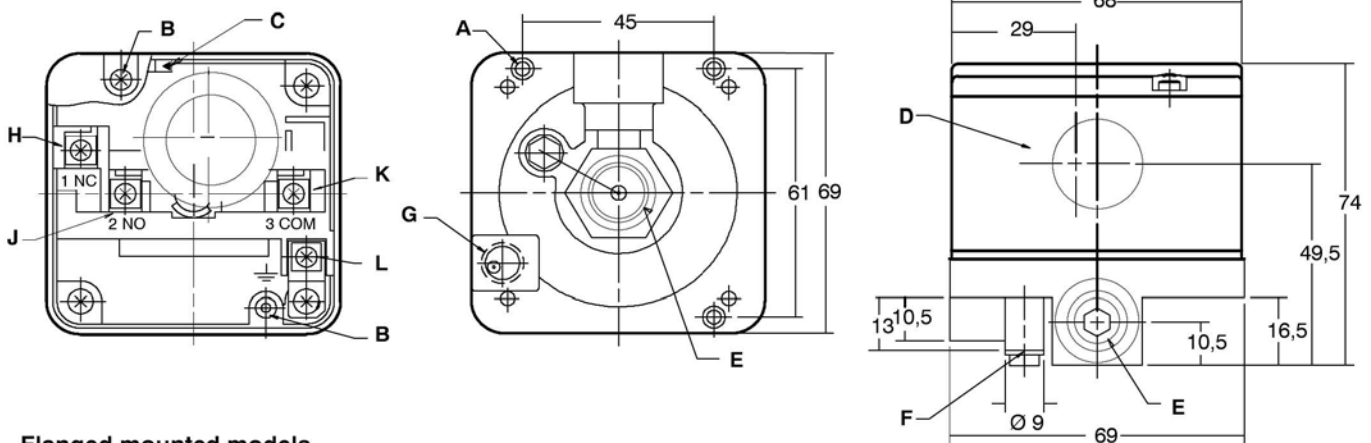
- Gas Appliance Directive (90/396/EEC)  
PIN: CE-0063AR1571
- Low Voltage Directive (73/23/EEC)
- Electro Magnetic Compatibility Directive (89/336/EEC)

# INSTALLATION

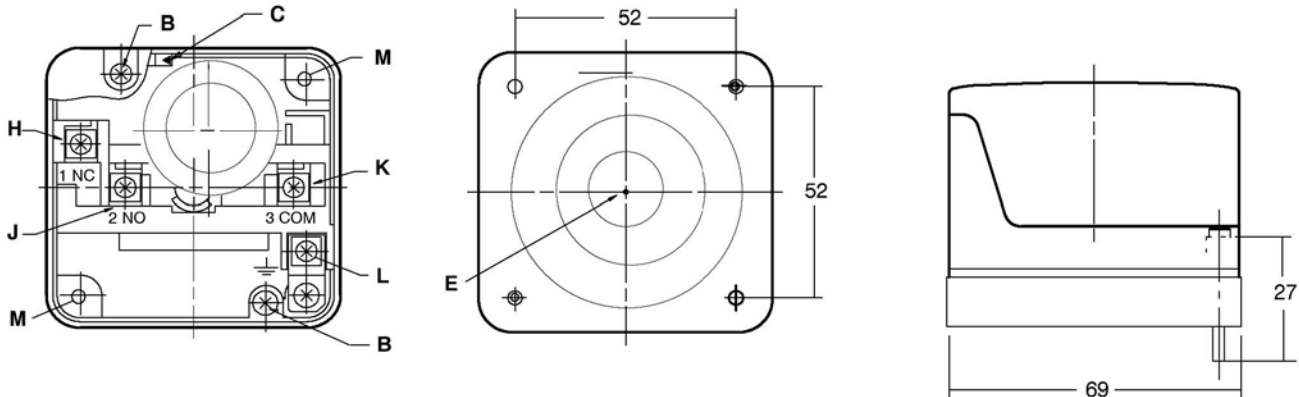
1. Read these instructions carefully. Failure to follow the instructions could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.

3. The installation has to be carried out by qualified personnel only.
4. Carry out a thorough checkout when installation is completed.
5. Electrical installation must be in accordance with local requirements.

### Stand alone models



### Flanged mounted models



- A Bracket mounting hole (3), M4 tapping, depth 5 mm
- B Cover screw
- C Dial indicator
- D Conduit hole 22 mm (for plug connection PG11) or, three pin (DIN) plug connection
- E Inlet positive pressure (Rp 1/4")
- F Pressure test nipple (Ø 9)

- G Differential pressure (Rp 1/8")
- H } wire connection terminal
- J } wire connection terminal
- K } wire connection terminal
- L Earth connection terminal
- M Mounting screw holes (2 x 4.5 mm) for flanged versions

Fig. 1. Installation drawing C6097A gas pressure switch

### Mounting and orientation

In vertical, or horizontal plane with the setting dial facing upwards. Make sure that dirt or humidity does not get into the connection open for ventilation (G in Figure. 1.).



## WARNING

- Turn off gas supply before installation.
- Disconnect power supply to the pressure switch before beginning the installation to prevent electrical shock and damage to the equipment.
- Do not remove the seal over the pressure inlets, until ready to connect piping.

### Connecting positive pressure inlet (stand alone)

1. Take care that dirt does not enter the pressure switch during handling.
2. Remove the dust seal from the positive pressure inlet.
3. Apply a moderate amount of good quality compound to the pipe for fitting only, leaving the end thread bare, PTFE tape may be used as an alternative.
4. Use a sound taper fitting with thread according to ISO 7-1 (BS21, DIN 2999) or new, properly reamed pipe, free from swarf.
5. Screw the pressure switch onto the pipe, using the wrench boss incorporated in the housing.
6. Complete the electrical connections as instructed in the Electrical connections section.

### Connecting positive pressure inlet (flange mounted)

1. Take care that dirt does not enter the pressure switch during handling.
2. Remove the dust seal from the positive pressure inlet.
3. Place the O-ring. If necessary grease it slightly to keep it in place.
4. Mount the pressure switch on the valve body and screw it tightly with the two M4 mounting screws.
5. Complete the electrical connections as instructed in the Electrical connections section.

### Electrical connection



## WARNING

- Switch off power supply before making electrical connections.
- Take care that the wiring is in accordance with local regulations.

Use lead wire that can withstand 105 °C ambient.

The electrical ON/OFF operator is provided with a terminal block for electrical connections.

#### Wiring

Follow the instructions supplied by the appliance manufacturer. Refer to Figure 2. and 3. Connection diagram C6097A.

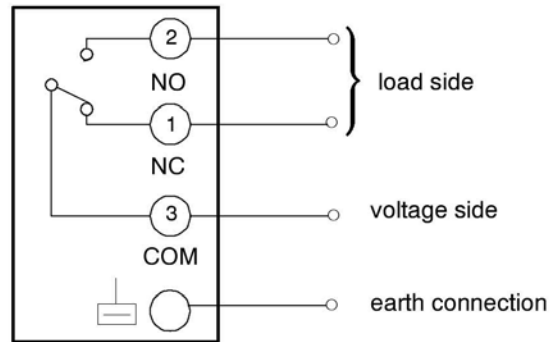


Fig. 2. C6097A connection diagram

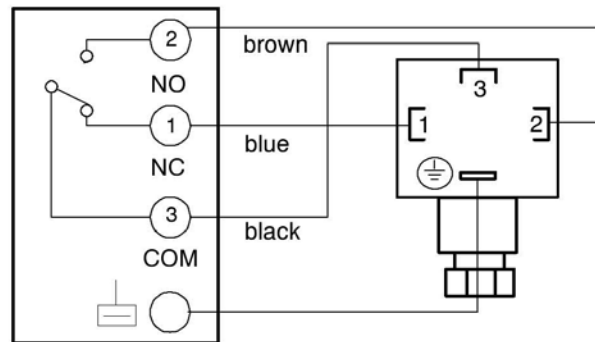


Fig. 3. C6097A connection diagram with DIN plug

#### Working principle

On pressure rise, terminals between COM and NO are closed.  
On pressure fall, terminals between COM and NC are closed.



## WARNING

#### Tightness test after installation

- Spray a moderate amount of good quality leak detection spray on all pipe connections.
- Start the application and check for bubbles. If a leak is detected in a pipe connection, remake the joint.

## ADJUSTMENT AND CHECKOUT



## WARNING

- The adjustment and checkout has to be carried out by qualified personnel only.
- Terminals are accessible, no protection against electrical shock.

### Pressure set point adjustment

(tolerance  $\pm 15\%$  over total scale)

NOTE: The knob readings are approximations of the actual settings.

1. Remove the cover of the pressure switch.
2. Turn the dial clockwise to increase or counter-clockwise to decrease the pressure set point.
3. Replace the cover.

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## **Accurate pressure set point adjustment (stand alone only)**

**(tolerance < 3% over total scale)**

1. Remove the screw from the test nipple inlet.
2. Connect the tube of the pressure measurement device to the nipple (Fig. 1. F).
3. Remove the cover of the pressure switch.
4. Slowly release pressure of the main gas supply line until the desired value is reached.
5. Turn dial slowly until contact 1-3 opens and contact 2-3 closes.
6. Replace the cover.
7. Disconnect the pressure measurement device and replace the screw.

## **Checkout**

### **Checking cut-off pressure**

After the installation is completed, continue with the following procedures:

1. Slowly close manual main valve with the burner in operation. Shut down should occur when the pressure drops below the set point and the alarm (if connected) should be energized.
2. Re open the manual main valve. The pressure should rise and exceed the set point value, the burner should start up and the alarm turn off after the reset button is depressed.

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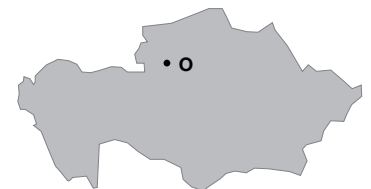
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