

## Gas pressure switches C6097A, C6097B

### OPERATING INSTRUCTIONS

Cert. Version 02.20 · Edition 01.24 · EN · 03251518



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### 1 SAFETY

#### 1.1 Please read and keep in a safe place



Please read through these instructions carefully before installing or operating. Following the installation, pass the instructions on to the operator. This unit must be installed and commissioned in accordance with the regulations and standards in force. These instructions can also be found at [www.docuthek.com](http://www.docuthek.com).

#### 1.2 Explanation of symbols

**1, 2, 3, a, b, c** = Action

→ = Instruction

#### 1.3 Liability

We will not be held liable for damage resulting from non-observance of the instructions and non-compliant use.

#### 1.4 Safety instructions

Information that is relevant for safety is indicated in the instructions as follows:



#### DANGER

Indicates potentially fatal situations.



#### WARNING

Indicates possible danger to life and limb.



#### CAUTION

Indicates possible material damage.

All interventions may only be carried out by qualified gas technicians. Electrical interventions may only be carried out by qualified electricians.

#### 1.5 Conversion, spare parts

All technical changes are prohibited. Only use OEM spare parts.

## 2 CHECKING THE USAGE

Gas pressure switches C6097 for monitoring increasing and decreasing gas or air pressure.

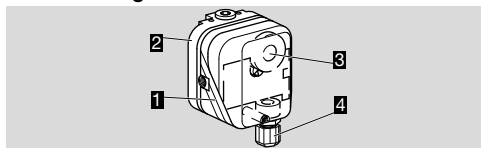
C6097A: switches with falling pressure,

C6097B: switches with rising pressure.

	Positive pressure	Negative pressure
C6097A	Gas, air, flue gas, biogas	Air, flue gas
C6097B	Gas, air, flue gas, biogas	Air, flue gas

This function is only guaranteed when used within the specified limits – see page 6 (9 Technical data). Any other use is considered as non-compliant.

### 2.1 Part designations



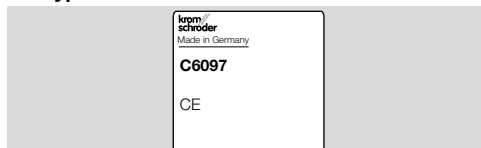
1 Upper housing section with cover

2 Lower housing section

3 Hand wheel

4 M16 cable gland

### 2.2 Type label



Max. inlet pressure = withstand pressure, mains voltage, ambient temperature, enclosure: see type label.

## 3 INSTALLATION

### ⚠ CAUTION

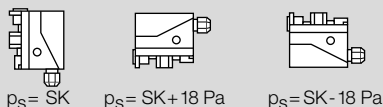
Please observe the following to ensure that the C6097 is not damaged during installation and operation:

- Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
- Use approved sealing material only.
- Continuous operation with gases containing more than 0.1 %-by-vol. H<sub>2</sub>S or ozone concentrations exceeding 200 µg/m<sup>3</sup> accelerate the ageing of elastomer materials and reduce the service life.
- Check max. ambient temperature – see page 6 (9 Technical data).
- When using silicone tubes, only use silicone tubes which have been sufficiently cured.
- Vapours containing silicone can adversely affect the functioning of electrical contacts.

- Condensation or vapours containing silicone must not be allowed to get into the housing. At subzero temperatures, malfunctions/failures due to icing can occur.
- When installing outdoors, place the C6097 in a roofed area and protect from direct sunlight (even IP 65 version).
- Avoid strong impact on the unit.
- In case of highly fluctuating pressures, install a damping nozzle/restrictor orifice.

### Installation position

→ Installation position as required, preferably with vertical diaphragm. Then the switching point  $p_S$  corresponds to the scale value SK set on the hand wheel. In other installation positions, the switching point  $p_S$  will change and no longer correspond to the scale value SK set on the hand wheel. Check the switching point.



→ The C6097 must not be in contact with masonry. Minimum clearance 25 mm (1").

→ Ensure that there is sufficient installation space.

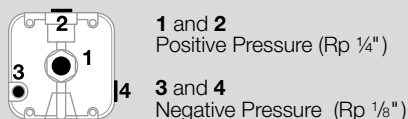
→ Ensure unobstructed view of the hand wheel.

1 Disconnect the system from the electrical power supply.

2 Close the gas supply.

3 Ensure that the pipeline is clean.

### Ports



Pressure	Connect	Seal	Free
Positive	1	2	3 or 4
Positive	2	1	3 or 4
Negative	3	4	1 or 2
Negative	4	3	1 or 2
Differential	1 or 2 for higher absolute pressure. 3 or 4 for lower absolute pressure. Seal the ports that are not in use.		

### ⚠ CAUTION

Ports 3 and 4 are connected to the upper diaphragm chamber with the micro switch. For this reason, pipes carrying gas must not be connected to port 3 or 4.

→ A filter pad at port 4 protects the electrical contacts in the C6097 from dirt particles in the surrounding air or in the medium.

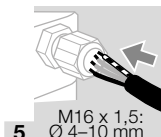
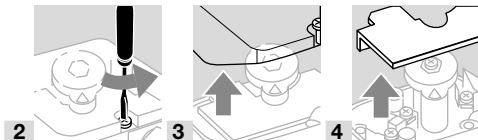
## 4 WIRING

### ⚠ CAUTION

- To ensure that the C6097 is not damaged during operation, note the switching capacity, see page 6 (9 Technical data).

In the case of low switching capacities, such as 24 V, 8 mA, for example, we recommend using an RC module (22 Ω, 1 μF) in air containing silicone or oil.

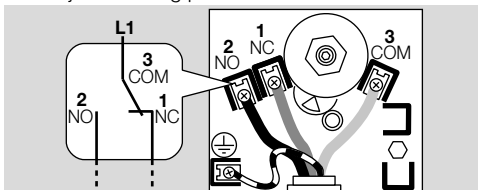
- 1 Disconnect the system from the electrical power supply.



- 5 Wire as shown on the connection diagram.

- 7 Tighten the M16 gland.

→ Contacts 3 and 2 close when subject to increasing pressure. Contacts 1 and 3 close when subject to falling pressure.



## 5 ADJUSTMENT

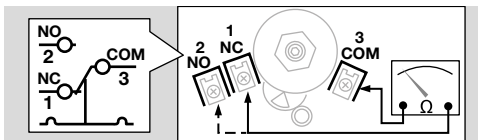
→ The switching point is adjustable via hand wheel.

- 1 Disconnect the system from the electrical power supply.

- 2 Unscrew the housing cover.

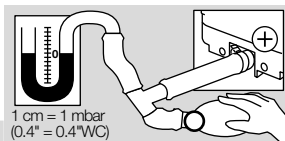
→ Once the settings have been adjusted successfully, fit the housing cover again. Note the tightening torques, see page 6 (9 Technical data).

- 3 Connect an ohmmeter.



- 4 Set the switching point using the hand wheel.

- 5 Connect a pressure gauge.



- 6 Apply pressure. In doing so, monitor the switching point on the ohmmeter and the pressure gauge.

- 8 If the C6097 does not trip at the desired switching point, correct the adjusting range using the hand wheel. Relieve the pressure and repeat the process.

## 5.1 Adjusting range

Type	Adjusting range <sup>1)</sup>	Switching differential <sup>2)</sup>
C6097A4010	40–600 Pa (0.4–6 mbar)	20–30 Pa (0.2–0.3 mbar)
C6097A4110	100–1000 Pa (1–10 mbar)	25–40 Pa (0.25–0.4 mbar)
C6097A4210	0.25–5 kPa (2.5–50 mbar)	0.08–0.15 kPa (0.8–1.5 mbar)
C6097A4310	3–15 kPa (30–150 mbar)	0.3–0.5 kPa (3–5 mbar)
C6097A4410	10–50 kPa (100–500 mbar)	0.8–1.7 kPa (8–17 mbar)

Type	Max. inlet pressure p <sub>max</sub> .
C6097A4010	10 kPa (100 mbar)
C6097A4110	50 kPa (500 mbar)
C6097A4210	50 kPa (500 mbar)
C6097A4310	60 kPa (600 mbar)
C6097A4410	60 kPa (600 mbar)

1) Adjusting tolerance = ± 15% of the scale value.

2) Mean switching differential at min. and max. setting.

→ Deviation from the switching point during testing pursuant to EN 1854 Gas and air pressure switches: ± 15%.

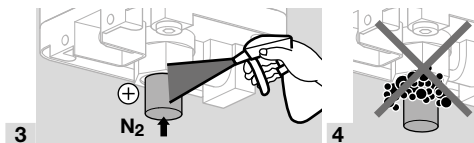
## 6 TIGHTNESS TEST

Check all gas ports used for tightness.

- 1 Shut off the downstream gas pipeline close to the valve.

- 2 Open the valve and the gas supply.

→ N<sub>2</sub> = 900 mbar, max. 2 bar (13 psi, max. 29 psi) < 15 min.



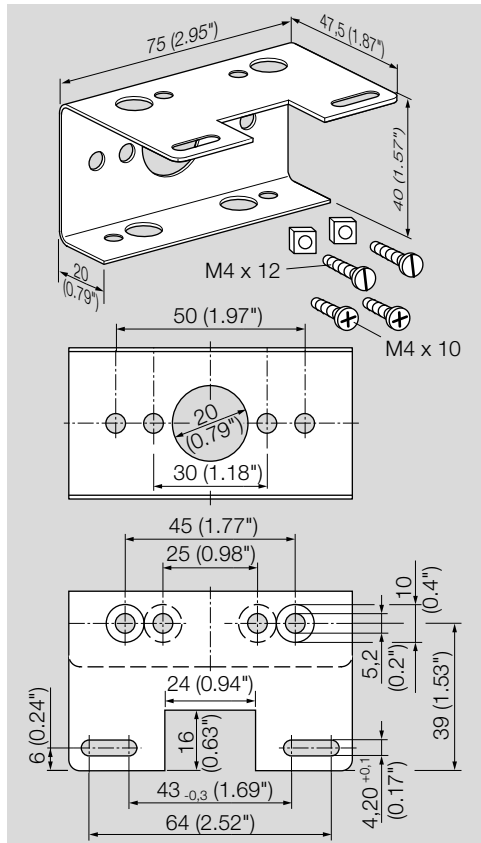
## 7 MAINTENANCE

In order to ensure smooth operation, check the tightness and function of the pressure switch every year, or every six months if operated with biogas.

- A function check can be carried out in case of falling pressure monitoring, e.g. with the PIA.
- After carrying out the maintenance work, check for tightness, see page 3 (6 Tightness test).

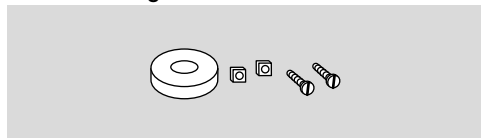
## 8 ACCESSORIES

### 8.1 Fastening set with screws, U-shape bracket



Order No.: 32003042-003/U.

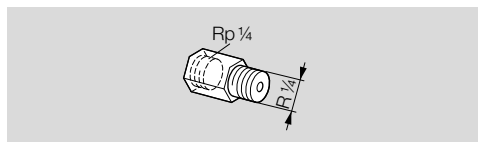
### 8.2 Connecting set



For monitoring a minimum and maximum inlet pressure with two pressure switches attached to one another.

Order No.: 32003043-003/U.

### 8.3 Restrictor orifice



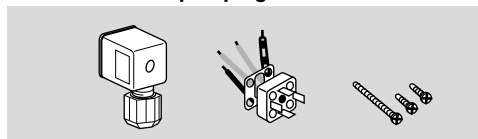
For CE certified pressure switches.

In the case of high pressure fluctuations, we recommend using a restrictor orifice (contains non-ferrous metals).

Hole diameter 0.2 mm, Order No.: 32003051-003/U,

Hole diameter 0.3 mm, Order No.: 32003052-003/U.

### 8.4 Standard coupler plug set



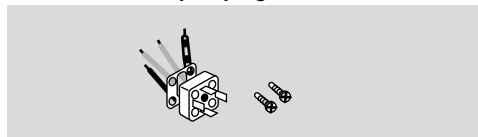
For CE certified pressure switches,

Order No.: 32003053-003/U.

For FM, UL certified pressure switches,

Order No.: 32003054-003/U.

### 8.5 Standard coupler plug



For CE certified pressure switches,

Order No.: 32003055-003/U.

For FM, UL certified pressure switches,

Order No.: 32003056-003/U.

### 8.6 Pilot lamp, red/blue

Pilot lamp, red:

110/120 V AC, I = 1.2 mA, Order No.: 32003044-003/U.

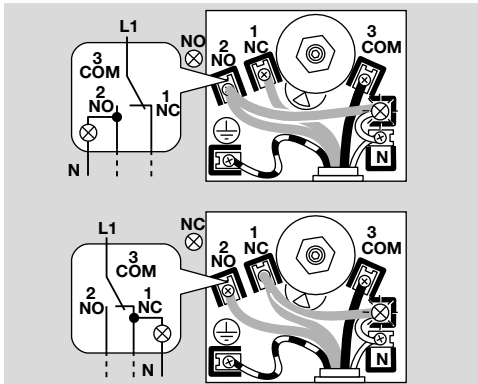
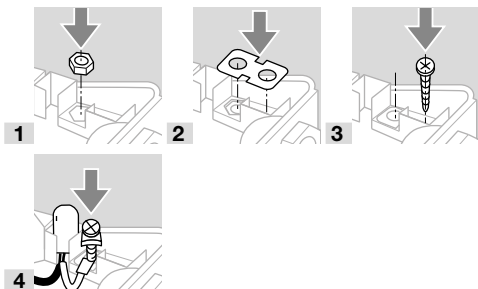
230 V AC, I = 0.6 mA, Order No.: 32003046-003/U.

Pilot lamp, blue:

110/120 V AC, I = 1.2 mA, Order No.: 32003045-003/U.

230 V AC, I = 0.6 mA, Order No.: 32003047-003/U.



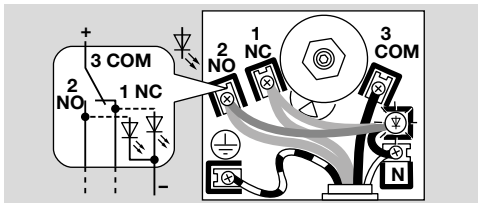
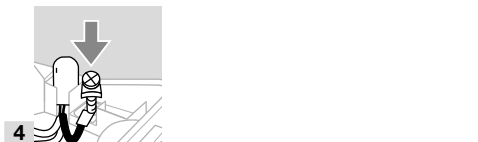
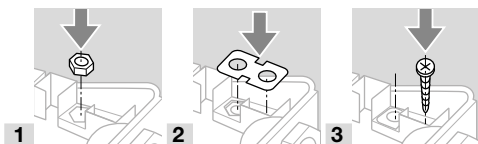
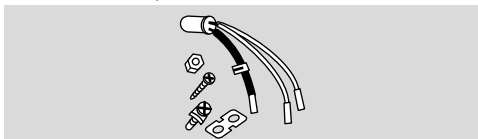


### 8.7 Red/green LED for 24 V DC/AC or 110-230 V AC

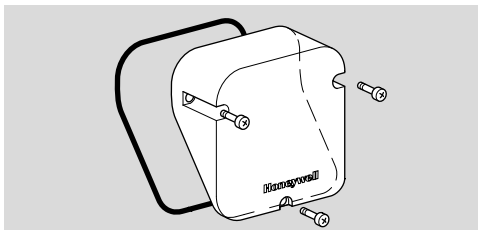
24 V DC,  $I = 16 \text{ mA}$ ; 24 V AC,  $I = 8 \text{ mA}$ ,

Order No.: 32003048-003/U.

110 to 230 V AC, Order No.: 32003049-003/U.

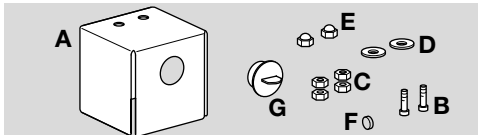


### 8.8 Cover for auto reset



Order No.: 32003040-003/U.

### 8.9 Weather protection cover



In the case of outdoor installation, the weather protection cover provides permanent protection against condensation and weathering of housing parts.

The weather protection cover is made of 1 mm (0.04") thick stainless steel.

Installation position: vertical, with the cable gland pointing downwards.

Scope of delivery:

**A** 1 x cover, 100 x 100 x 100 mm

**B** 2 x M4 x 16 screws

**C** 4 x nuts

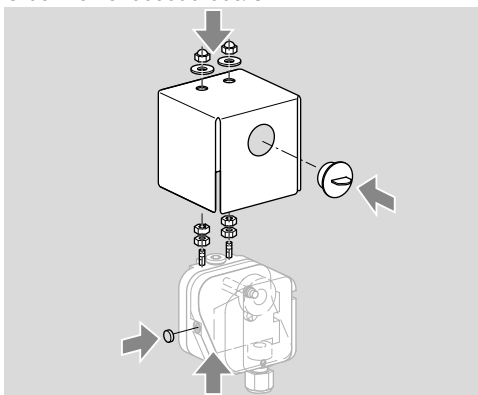
**D** 2 x washers

**E** 2 x cap nuts

**F** 1 x filter pad (1/8" port)

**G** 1 x pull-tab plug

Order No.: 32003050-003/U



## 9 TECHNICAL DATA

Gas type: natural gas, town gas, LPG (gaseous), flue gas, biogas (max. 0.1 %-by-vol. H<sub>2</sub>S) and air.  
 Electrical connection: screw terminals.  
 Diaphragm pressure switch, silicone-free.  
 Diaphragm: NBR.  
 Housing: glass fibre reinforced PBT plastic with low gas release.  
 Lower housing section: AISi 12.  
 Enclosure: IP 65. Safety class: 1.  
 Storage temperature: -20 to +40°C (-4 to +104°F).  
 Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).  
 The set switching point may noticeably change in media and ambient temperatures below -30°C (-22°F).  
 Weight: 270 to 320 g (9.5 to 11.3 oz) depending on equipment.

### 9.1 EU certified pressure switches

Max. inlet pressure  $p_{max}$  = withstand pressure, see adjusting range, page 3 (5.1 Adjusting range).  
 Max. medium and ambient temperatures: -20 to +80°C (-4 to +176°F).  
 Switching capacity:  
 U = 24–250 V AC,  
 I = 0.05–5 A at  $\cos \varphi = 1$ ,  
 I = 0.05–1 A at  $\cos \varphi = 0.6$ .  
 Line entrance:  
 M16 x 1.5 cable gland,  
 clamping range: diameters of 4 to 10 mm,  
 Cable diameter: AWG 24 to AWG 13,  
 0.5 to 1.8 mm (0.02 to 0.07").

### 9.2 Recommended tightening torque

Component	Tightening torque [Ncm]
Cover screws	65
M16 x 1.5 cable gland	50
½" NPT conduit	170 (15 lb")
Rp 1/8 pipe connection on aluminium lower section	250
Rp 1/4 connection (1/4" NPT) on aluminium lower section	1300
Rp 1/8 connection on upper housing section	250
Clamping terminal screws	80
T15 test point screw	150

## 10 DESIGNED LIFETIME

This information on the designed lifetime is based on using the product in accordance with these operating instructions. Once the designed lifetime has been reached, safety-relevant products must be replaced.

Designed lifetime (based on date of manufacture) in accordance with EN 13611, EN 1854 for C6097:

Medium	Designed lifetime	
	Switching cycles	Time (years)
Gas	50,000	10
Air	250,000	10

You can find further explanations in the applicable rules and regulations and on the afecor website ([www.afecor.org](http://www.afecor.org)).

This procedure applies to heating systems. For thermoprocessing equipment, observe local regulations.

## 11 CERTIFICATION

### 11.1 Certificate download

Certificates – see [www.docuthek.com](http://www.docuthek.com)

### 11.2 Declaration of conformity



We, the manufacturer, hereby declare that the products C6097 with product ID No. CE- 0085AP0467 comply with the requirements of the listed Directives and Standards.

Directives:

- 2014/35/EU – LVD
- 2014/30/EU – EMC
- 2011/65/EU – RoHS II
- 2015/863/EU – RoHS III

Regulation:

- (EU) 2016/426 – GAR

Standards:

- EN 13611:2015+AC:2016
- EN 1854:2010

The relevant product corresponds to the tested type sample.

The production is subject to the surveillance procedure pursuant to Regulation (EU) 2016/426 Annex III paragraph 3.

Elster GmbH

### 11.3 UKCA certified



Gas Appliances (Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019)  
 BS EN 13611:2015+AC:2016, BS EN 1854:2010

## 11.4 REACH Regulation

The device contains substances of very high concern which are listed in the Candidate List of the European REACH Regulation No. 1907/2006. See Reach list HTS at [www.docuthek.com](http://www.docuthek.com).

## 11.5 China RoHS

Directive on the restriction of the use of hazardous substances (RoHS) in China. Scan of the Disclosure Table China RoHS2, see certificates at [www.docuthek.com](http://www.docuthek.com).

# 12 LOGISTICS

## Transport

Protect the unit from external forces (blows, shocks, vibration).

Transport temperature: see page 6 (9 Technical data).

Transport is subject to the ambient conditions described.

Report any transport damage on the unit or packaging without delay.

Check that the delivery is complete.

## Storage

Storage temperature: see page 6 (9 Technical data).

Storage is subject to the ambient conditions described.

Storage time: 6 months in the original packaging before using for the first time. If stored for longer than this, the overall service life will be reduced by the corresponding amount of extra storage time.

# 13 DISPOSAL

Devices with electronic components:

## WEEE Directive 2012/19/EU – Waste Electrical and Electronic Equipment Directive



At the end of the product life (number of operating cycles reached), dispose of the packaging and product in a corresponding recycling centre. Do not dispose of the unit with the usual domestic refuse.

Do not burn the product.

On request, old units may be returned carriage paid to the manufacturer in accordance with the relevant waste legislation requirements.

## FOR MORE INFORMATION

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschöder and Maxon. To learn more about our products, visit [ThermalSolutions.honeywell.com](https://ThermalSolutions.honeywell.com) or contact your Honeywell Sales Engineer.

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