Honeywell

Gas pressure switches C6097A, C6097B

OPERATING INSTRUCTIONS

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1 SAFETY

1.1 Read the operating instructions before use

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.

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.

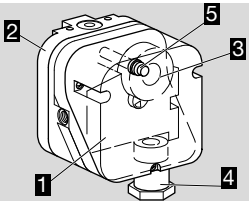
2 CHECKING THE USAGE

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

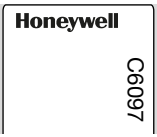
Pressure switches with manual reset lock off after switching. They can be unlocked using the manual reset.
This function is only guaranteed when used within the specified limits – see page 4 (10 Technical data). Any other use is considered as non-compliant.

2.1 Part designations



1 Upper housing section with cover
2 Lower housing section
3 Hand wheel
4 1/2" conduit coupling
5 Manual reset
(only on C6097A3012, C6097A3038, C6097A3095, C6097A3111, C6097B3002, C6097B3028, C6097B3051 and some customer-specific variants)

2.2 Type label



Approval and type: see type label.
For detailed information on the adjusting range, mean switching differential, max. inlet pressure, lock-off, medium and switching properties, see page 4 (10 Technical data).

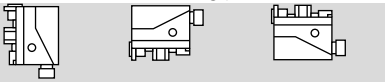
3 INSTALLATION

⚠ 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_2S or ozone concentrations exceeding 200 µg/m³ accelerate the ageing of elastomer materials and reduce the service life.
– Check max. ambient temperature – see page 4 (10 Technical data).
– When using silicone tubes, only use silicone tubes which have been sufficiently cured.
– Vapors containing silicone can adversely affect the functioning of electrical contacts.
– Condensation or vapors containing silicone must not be allowed to get into the housing. At subzero temperatures, malfunctions/failures due to icing can occur.
– For outdoor installations, the C6097 shall be installed in a roofed location and protected from direct sunlight to maintain its IP65 and NEMA 4 rating.
– Avoid strong impact on the unit.

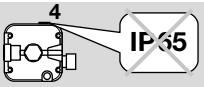
Installation position

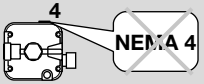
➔ Installation position as required, preferably with vertical diaphragm. Then the switching point p_S corresponds to the scale value SK set on the hand wheel. In other installation positions, the switching point p_S will change and no longer correspond to the scale value SK set on the hand wheel. Check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



⚠ CAUTION

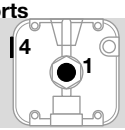
If port **4** is located at the top, compliance with the IP65 and NEMA 4 ingress protection ratings cannot be ensured.





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



1 for positive pressure (¼" NPT)

4 for negative pressure (⅛" NPT)

Pressure	Connect	Free
Positive	**1**	**4**
Negative	**4**	**1**
Differential	**1** for higher absolute pressure. **4** for lower absolute pressure.	

⚠ CAUTION

Port **4** is connected the upper diaphragm chamber with the micro switch. For this reason, pipes carrying gas must not be connected to port **4**.

➔ The pressure switches are supplied with an integrated vent limiter. In the event of a diaphragm tear, the vent limiter limits the escape of gas to less than 1.0 CFH of natural gas at 7 psi. If necessary, port **4** (1/8" NPT) can be used to connect the venting line.

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

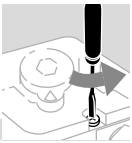
4 WIRING

⚠ CAUTION

To ensure that the C6097 is not damaged during operation, note the switching capacity, see page 4 (10 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.



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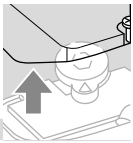

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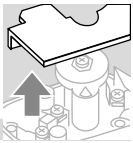

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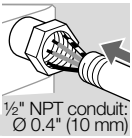

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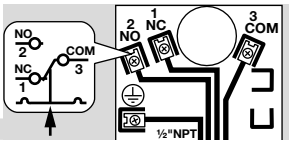

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➔ C6097A: The NO-to-COM connection is interrupted if the pressure drops (contacts **3** and **2** open).
C6097B: The NC-to-COM connection is interrupted if the pressure rises (contacts **3** and **1** open).

5 ADJUSTMENT

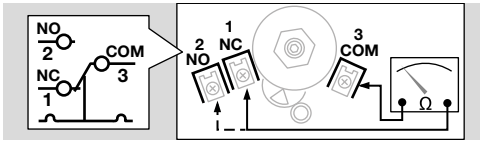
➔ The switching point is adjustable via hand wheel.

1 Disconnect the system from the electrical power supply.

2 Unscrew the housing cover.

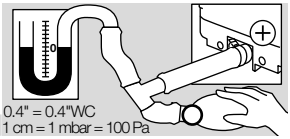
➔ Once the settings have been adjusted successfully, fit the housing cover again. Note the tightening torques, see page 4 (10 Technical data).

3 Connect an ohmmeter.



4 Set the switching point using the hand wheel.

5 Connect a pressure gauge.



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7 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

➔ Adjusting range, switching differential and max. inlet pressure, see page 4 (10 Technical data).

6 PRESSURE SWITCHES WITH MANUAL RESET

➔ C6097A3012, C6097A3038, C6097A3095, C6097A3111 lock off if the pressure drops to the set value.

➔ C6097B3002, C6097B3028, C6097B3051 lock off if the pressure rises to the set value.

Reset the pressure switch using the manual reset.

➔ Requirement for reset:
C6097A: The pressure must have risen at least to the set switching point plus the pressure differential between the switching pressure and possible lock-off.
C6097B: The pressure must have dropped at least to the set switching point minus the pressure differential between the switching pressure and possible lock-off.

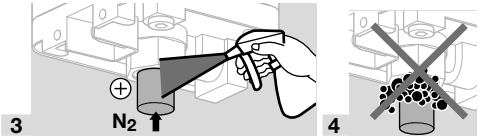
➔ For details of the pressure differential between the switching pressure and possible lock-off, see page 4 (10 Technical data).

7 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.



8 MAINTENANCE

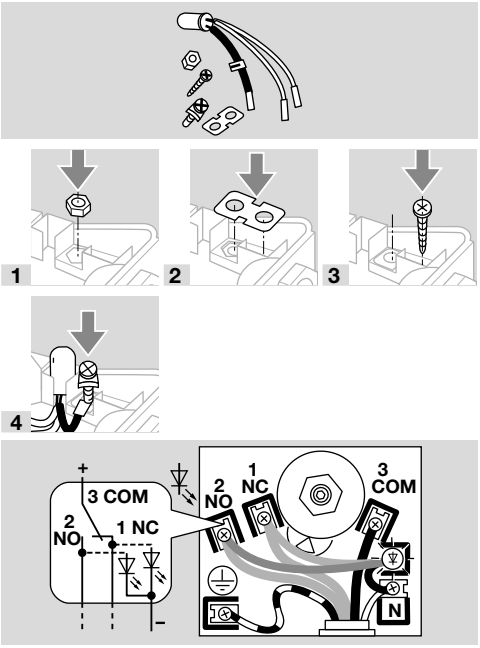
In order to ensure smooth operation, check the tightness and function of the pressure switch every year, or every six months if operated with biogas.

9 ACCESSORIES

For further accessories, see the Technical Information, TI Gas pressure switch C6097, Accessories.

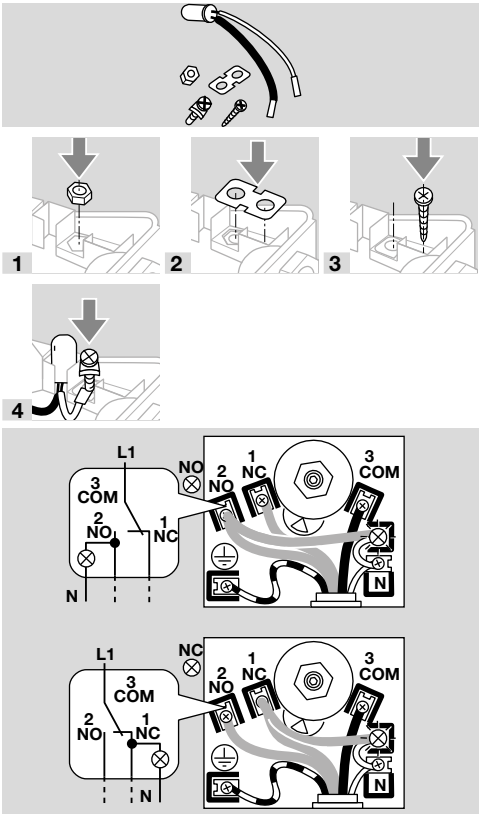
9.1 Red/green LED for 24 V DC/AC or 110–230 V AC

24 V DC, I = 16 mA; 24 V AC, I = 8 mA,
Order No.: 32003048-003/U.
110 to 230 V AC, Order No.: 32003049-003/U.



9.2 Pilot LED, blue

115/230 V AC, I = 0.24 mA (110 V), I = 0.5 mA (230 V), Order No.: 32003047-003/U.



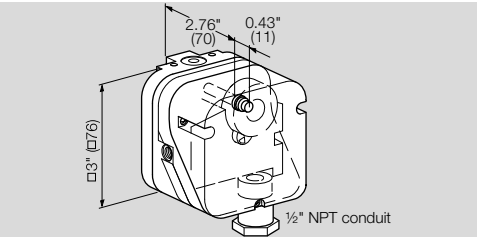
10 TECHNICAL DATA

Gas type: natural gas, town gas, LPG (gaseous), flue gas, biogas (max. 0.1 %-by-vol. H_2S) and air.
Maximum medium and ambient temperatures: -40 to +140°F (-40 to +60°C).
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 -22°F (-30°C).
Storage temperature: -4 to +104°F (-20 to +40°C).
Switching capacity:

	U	cos φ = 1 [A]	cos φ = 0.6 [A]
C6097	24–240 V AC	max. 5	max. 0.5

Cable diameter: AWG 24 to AWG 13 (0.02 to 0.07" (0.5 to 1.8 mm)).
Line entrance: ½" NPT conduit.
Electrical connection type: screw terminals.
Diaphragm pressure switch, silicone-free.
Diaphragm: NBR.
Housing: glass fiber reinforced PBT plastic with low gas release.
Lower housing section: AlSi 12.
Enclosure: IP65 and NEMA 4. Safety class: Class I.
Weight: 9.5 to 11.3 oz (270 to 320 g).

10.1 Dimensions



10.2 Recommended tightening torque

Component	Tightening torque [lb"]
Cover screws	5
½" NPT conduit	15
1/4" NPT connection on aluminium lower section	115
1/8" NPT connection on upper housing section	22
Clamping terminal screws	7

10.3 C6097A type table

Switching properties at setpoint value: NO-to-COM connection is interrupted if the pressure drops.

Type	Adjusting range*	Mean switching differential at min. and max. setting	Max. inlet pressure		Lock-off	Difference between switching pressure and possible lock-off	Medium	NPT
	"WC (mbar)	"WC (mbar)	with venting line, psi (mbar)	without venting line, psi (mbar)		"WC (mbar)		
C6097A3004	0.4–4 (1–10)	0.1–0.16 (0.25–0.4)	8.5 (600)	7 (480)	No	–	Air/ gas	1/4"
C6097A3012	1–20 (2.5–50)	–	8.5 (600)	7 (480)	Yes	0.4–0.8 (1–2)	Air/ gas	1/4"
C6097A3038	12–60 (30–150)	–	8.5 (600)	7 (480)	Yes	0.8–4.8 (2–12)	Air/ gas	1/4"
C6097A3053	1–20 (2.5–50)	0.3–0.6 (0.75–1.5)	8.5 (600)	7 (480)	No	–	Air/ gas	1/4"
C6097A3079	12–60 (30–150)	1.2–2 (3–5)	8.5 (600)	7 (480)	No	–	Air/ gas	1/4"
C6097A3095	0.4–4 (1–10)	–	8.5 (600)	7 (480)	Yes	0.16–0.4 (0.4–1)	Air/ gas	1/4"
C6097A3111	40–200 (100–500)	–	8.5 (600)	7 (480)	Yes	2–7.2 (5–18)	Air/ gas	1/4"
C6097A3137	40–200 (100–500)	3.2–6.8 (8–17)	8.5 (600)	7 (480)	No	–	Air/ gas	1/4"

** Adjusting tolerance = ± 15% of the scale value.*

10.4 C6097B type table

Switching properties at setpoint value: NC-to-COM connection is interrupted if the pressure rises.

Type	Adjusting range*	Mean switching differential at min. and max. setting	Max. inlet pressure		Lock-off	Difference between switching pressure and possible lock-off	Medium	NPT
	"WC (mbar)	"WC (mbar)	with venting line, psi (mbar)	without venting line, psi (mbar)		"WC (mbar)		
C6097B3002	12–60 (30–150)	–	8.5 (600)	7 (480)	Yes	0.8–4.8 (2–12)	Air/ gas	1/4"
C6097B3028	1–20 (2.5–50)	–	8.5 (600)	7 (480)	Yes	0.4–0.8 (1–2)	Air/ gas	1/4"
C6097B3051	40–200 (100–500)	–	8.5 (600)	7 (480)	Yes	2–7.2 (5–18)	Air/ gas	1/4"
C6097B3085	12–60 (30–150)	1.2–2 (3–5)	8.5 (600)	7 (480)	No	–	Air/ gas	1/4"
C6097B3101	40–200 (100–500)	3.2–6.8 (8–17)	8.5 (600)	7 (480)	No	–	Air/ gas	1/4"
C6097B3119	1–20 (2.5–50)	0.3–0.6 (0.75–1.5)	8.5 (600)	7 (480)	No	–	Air/ gas	1/4"

** Adjusting tolerance = ± 15% of the scale value.*

11 CERTIFICATION

11.1 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.

11.2 FM approved

Factory Mutual (FM) Research Class: 3510 Flow and pressure safety switches. Designed for applications pursuant to NFPA 85 and NFPA 86.

11.3 UL listed

USA and Canada

Underwriters Laboratories – UL 353 “Limit Controls”.

12 LOGISTICS

Transport

Protect the unit from external forces (blows, shocks, vibration).
Transport temperature: see page 4 (10 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 4 (10 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, Kromschröder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.

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