

Pressure switches for gas DG..T

OPERATING INSTRUCTIONS

Cert. Version 04.20 · Edition 01.22 · EN · 03251549



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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.

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 DG..T for monitoring increasing and decreasing gas or air pressure.

Type	Positive pressure	Negative pressure
DG..T, DG..FT	Gas, air, flue gas, biogas	Air, flue gas
DG..HT, DG..NT	Gas, air, flue gas, biogas	Air, flue gas
DG..ST	NH ₃ , O ₂ , air	–

DG..NT and DG..HT lock off after switching. They can be unlocked using the manual reset.

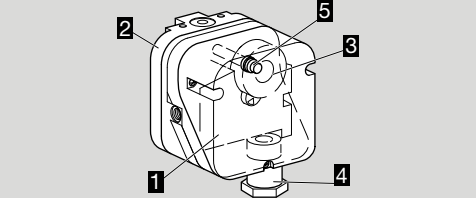
This function is only guaranteed when used within the specified limits – see page 5 (10 Technical data). Any other use is considered as non-compliant.

2.1 Type code

DG	Pressure switch for gas
6	Adjusting range 0.2–2.4 “WC (0.5-6 mbar)
10	Adjusting range 0.4–4 “WC (1-10 mbar)
50	Adjusting range 1–20 “WC (2.5-50 mbar)
150	Adjusting range 12–60 “WC (30-150 mbar)
500	Adjusting range 40–200 “WC (100-500 mbar)
H	Switches and locks off with rising pressure
N	Switches and locks off with falling pressure
F	Switches with falling positive pressure
S	Switches with rising and falling positive pressure; for O ₂ , NH ₃ and air; without approval
T	T-product
G	With gold-plated contacts
-2	Electrical connection via screw terminals, 1/2" NPT Conduit, NEMA 4 (IP 65)
-4	Electrical connection via screw terminals, cable gland, NEMA 4 (IP 65)
-9	Electrical connection via 4-pin plug, with socket, NEMA 4 (IP 65)
1	NPT connection 1x 1/4"
2	NPT connection 2x 1/4"
N	Blue pilot lamp for 120 V AC
T2	Red/green pilot LED for 110 to 230 V AC
K2	Red/green pilot LED for 24 V DC/AC
A	External adjustment

Letter H, N, F, S omitted = DG..T switches with rising pressure

2.2 Part designations



- 1 Upper housing section with cover
- 2 Lower housing section
- 3 Hand wheel
- 4 1/2" conduit coupling
- 5 Manual reset (DG..NT and DG..HT only)

2.3 Type label



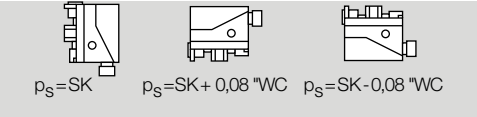
Approval and type: see type label.
For detailed information on the adjusting range, mean switching differential, max. inlet pressure, lock-off, medium and switching properties, see page 5 (10 Technical data) und and the table on page 3 (5 Adjustment).

3 INSTALLATION

⚠ CAUTION

- Please observe the following to ensure that the DG..T 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. H₂S or ozone concentrations exceeding 200 µg/m³ accelerate the ageing of elastomer materials and reduce the service life. Check max. ambient temperature – see page 5 (10 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 DG..T in a roofed area and protect from direct sunlight (even IP 65 version).
 - Avoid strong impact on the unit.

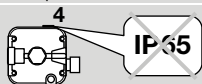
Installation position



→ 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.

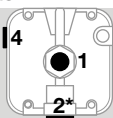
⚠ CAUTION

If port **4** is at the top, IP 65 will not be satisfied.



- The DG..T 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 or 2 for positive pressure (1/4" NPT)
4 for negative pressure (1/8" NPT)

Pressure	Connect	Free
Positive	1 or 2*	4
Negative	4	1 or 2*
Differential	1 or 2* for higher absolute pressure. 4 for lower absolute pressure.	

*Port **2** only on DG..T..2 with 2x 1/4" NPT connections.

⚠ CAUTION

Port **4** connects the upper diaphragm chamber with the micro switch. Do not connect port **4** to pipes carrying gas.

- 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 2.4 psi (DG..6T) or 7 psi (DG..10T – DG..500T). 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 DG..T from dirt particles in the surrounding air or in the medium.
- Filter pad for port **4**: The web app PartDetective for selecting spare parts is available at www.ad-latus.org.

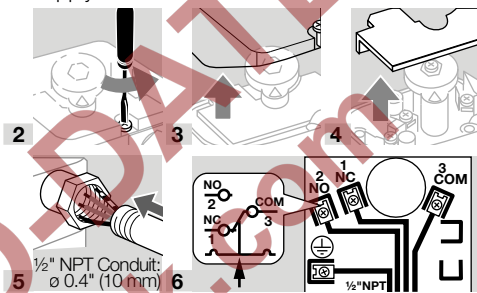
4 WIRING

⚠ CAUTION

- To ensure that the DL is not damaged during operation, note the switching capacity, see page 5 (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.

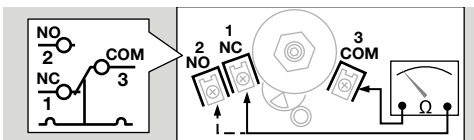
- 1** Disconnect the system from the electrical power supply.



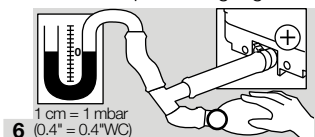
- DG..FT, DG..NT: the NO-to-COM connection is interrupted if the pressure drops (contacts **3** and **2** open). DG..T, DG..HT: the NC-to-COM connection is interrupted if the pressure rises (contacts **3** and **1** open).

5 ADJUSTMENT

- The switching point is adjustable via hand wheel.
- 1** Disconnect the system from the electrical power supply.
- 2** Detach the housing cover.
- Tightening torques, see page 5 (10 Technical data).
- 3** Connect an ohmmeter.



- 4** Set the switching point using the hand wheel.
- 5** Connect a pressure gauge.



- 7** Apply pressure. In doing so, monitor the ohmmeter and the pressure gauge.
- If the DG..T does not trip at the desired switching point, correct the adjusting range using the hand wheel. Relieve the pressure and repeat the process.

Pressure switches (DG..T, DG..FT, DG..ST):

Type	Adjusting range ¹⁾ "WC (mbar)	Mean switching differential ²⁾ "WC (mbar)	Max. inlet pressure psi (mbar)	
			With venting line ³⁾	No venting line
DG 6T	0.2–2.4 (0.5–6)	0.08–0.12 (0.2–0.3)	8.5 (600)	2.4 (165)
DG 10T	0.4–4 (1–10)	0.1–0.16 (0.25–0.4)	8.5 (600)	7 (480)
DG 50T	1–20 (2.5–50)	0.32–0.6 (0.8–1.5)	8.5 (600)	7 (480)
DG 150T	12–60 (30–150)	1.2–2 (3–5)	8.5 (600)	7 (480)
DG 500T	40–200 (100–500)	3.2–6.8 (8–17)	8.5 (600)	7 (480)

Pressure switches with manual reset (DG..HT, DG..NT):

Type	Adjusting range ¹⁾ "WC (mbar)	Reset pressure ⁴⁾ "WC (mbar)	Max. inlet pressure psi (mbar)	
			With venting line ³⁾	No venting line
DG 10T	0.4–4 (1–10)	0.16–0.4 (0.4–1)	8.5 (600)	7 (480)
DG 50T	1–20 (2.5–50)	0.4–0.8 (1–2)	8.5 (600)	7 (480)
DG 150T	12–60 (30–150)	2–6 (5–15)	8.5 (600)	7 (480)
DG 500T	40–200 (100–500)	6–10 (15–25)	8.5 (600)	7 (480)

1) Adjusting tolerance = $\pm 15\%$ of the scale value.

2) Mean switching differential at min. and max. setting "WC (mbar).

3) Connect the venting line to port 4. Connections, see page 2 (3 Installation).

4) Difference between switching pressure and possible reset.

6 PRESSURE SWITCHES WITH MANUAL RESET

- DG..NT locks off if the pressure drops to the value set using the hand wheel.
- DG..HT locks off if the pressure rises to the value set using the hand wheel.

1 Reset the pressure switch using the manual reset.

→ Requirement for reset:

DG..NT: the pressure must have risen at least to the set switching point plus the pressure differential between the switching pressure and possible lock-off.
DG..HT: 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 reset, see table on page 3 (5 Adjustment).

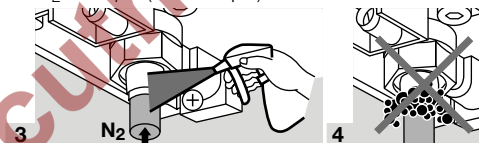
7 TIGHTNESS TEST

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

2 Open the valve and the gas supply.

→ Check all used ports for tightness.

→ N₂ = 13 psi (max. 29 psi) < 15 minutes



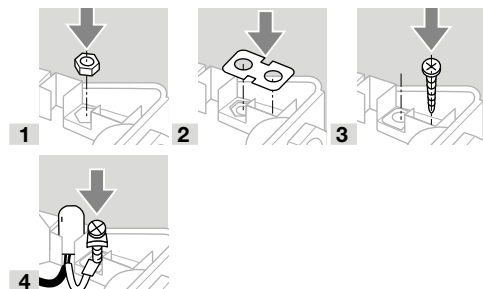
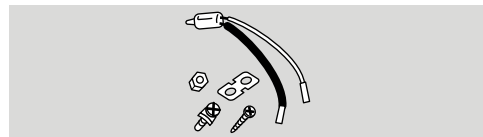
8 MAINTENANCE CYCLES

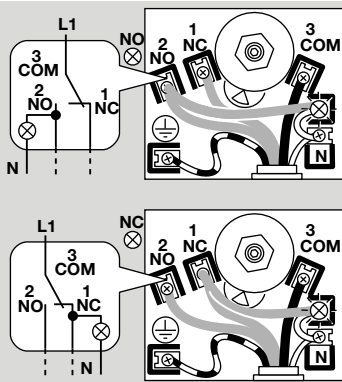
Check for external tightness at least once per annum, at least twice per annum for operation with biogas.

9 ACCESSORIES

9.1 Blue pilot lamp for 110/120 V AC

110/120 V AC, I = 1.2 mA, Order No.: 74916121.

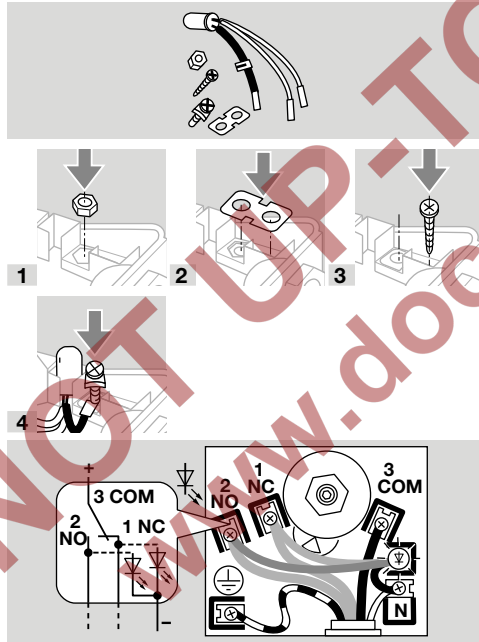




9.2 Red/green pilot LED for 24 V DC/AC or for 110 V AC to 230 V AC

24 V DC, I = 16 mA; 24 V AC, I = 8 mA, Order No.: 74921089.

110 V AC to 230 V AC, Order No.: 74923275.



9.3 Further accessories

Further information about accessories can be found in Technical Information bulletin DG (identical to DG..T) – www.docuthek.com.

10 TECHNICAL DATA

10.1 Safety information

Safety information, see Safety manual DG (identical to DG..T) – www.docuthek.com.

10.2 Ambient conditions

Maximum medium and ambient temperatures:

DG: -40 to +140°F (-40 to +60°C).

DG..S: 5 to +140°F (-15 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 palpably change in media and ambient temperatures below -22°F (-30°C).

Transport temperature = ambient temperature.

Storage temperature: -4 to +104°F (-20 to +40°C).

Enclosure: IP 65.

This unit is not suitable for cleaning with a high-pressure cleaner and/or cleaning products.

10.3 Mechanical data

Gas types: natural gas, town gas, LPG (gaseous), flue gas, biogas (max. 0.1 %by-vol. H₂S) and air.

Max. inlet pressure p_{max.} = withstand pressure:

8.5 psi (600 mbar).

Max. test pressure for testing the entire system:

temporarily (< 15 minutes) 29 psi (2 bar).

Diaphragm pressure switch, silicone-free.

Diaphragm: DG: NBR, DG..S: IIR.

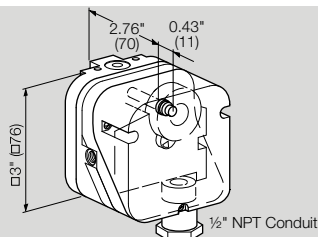
Housing: glass fibre reinforced PBT plastic with low gas release.

Lower housing section: AISI 12.

Weight: 9.5 to 11.3 oz (270 to 320 g).

Recommended tightening torque:

Component	Tightening torque [Ncm]
Cover screws	65
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



10.4 Electrical data

Safety class: 1.

Switching capacity:

	U	cos φ = 1 [A]	cos φ = 0.6 [A]
DG..T	max. 240 V AC	max. 5	max. 0.5
DG..TG*	< 30 V AC/DC	max. 0.1	max. 0.05

* With gold contacts

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.

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.

FM approved



Factory Mutual Research Klasse: 3510 Flow and pressure safety switches. Designed for applications pursuant to NFPA 85 and NFPA 86. www.approvalguide.com

UL listed



Underwriters Laboratories – UL 353 „Limit Controls“, MH 64186. www.ul.com

12 LOGISTICS

Transport

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

Transport temperature: see page 5 (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 5 (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, Kromschroder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.
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