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03251549

Honeywell

USA CAN MEX
→ www.docuthek.com

# Operating instructions
# Pressure switches for gas DG..T




**Cert. version 05.18**

## Safety

**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.

**Explanation of symbols**

**•, 1, 2, 3**... = Action
▷ = Instruction

**Liability**

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

**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.

**Conversion, spare parts**

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

## Changes to edition 09.18

The following chapters have been changed:
– Logistics

## Checking the usage

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

| | 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 (Technical data). Any other use is considered as non-compliant.

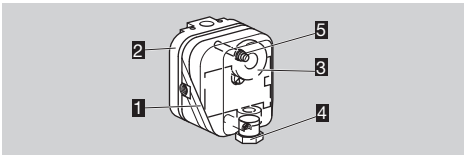
**Type code**

| Code | Description |
|---|---|
| **DG** | Gas pressure switch |
| **6 – 500** | Max. setting in mbar |
| **F*** | Switches with falling pressure |
| **H*** | Locks off with rising pressure |
| **N*** | Locks off with falling pressure |
| **S*** | Switches with rising and falling pressure; for $NH_3$, $O_2$ (without approval) |
| **T** | T-product |
| **G** | With gold-plated contacts |
| | Electrical connection |
| **-2** | via screw terminals |
| **-4** | via screw terminals, IP 65 |
| **-9** | 4-pin plug, with socket, IP 65 |
| **1** | 1x ¼" NPT connection |
| **2** | 2x ¼" NPT connections |
| **K2** | Red/green pilot LED for 24 V DC/AC |
| **T2** | Red/green pilot LED for 110 to 230 V AC |
| **N** | Blue pilot lamp for 120 V AC |
| **A** | External adjustment |

* If "none", this specification is omitted; DG..T switches with rising pressure.

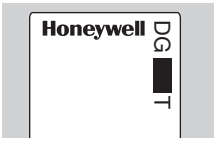
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**Part designations**




1 Upper housing section with cover
2 Lower housing section
3 Hand wheel
4 ½" conduit coupling
5 Manual reset
(DG..NT and DG..HT only)

**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 (Technical data) and the table on page 3 (Adjustment).

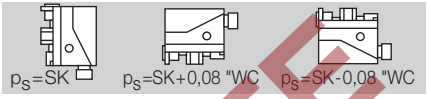
## Installation

**! CAUTION**

Please observe the following to ensure that the DG..T is not damaged during installation and operation:

- 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.
- Use approved sealing material only.
- Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
- Check max. ambient temperature – see page 5 (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 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.



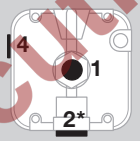

**! CAUTION**

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 Shut off the gas supply.
3 Ensure that the pipeline is clean.

**Ports**




**1** or **2** for positive pressure (¼" NPT)

**4** for negative pressure (⅛" NPT)

| | Connect | Free |
|---|---|---|
| Positive pressure DG..T | **1** or **2*** | **4** |
| Negative pressure DG..T | **4** | **1** or **2*** |
| Differential pressure DG..T | **1** or **2*** for higher absolute pressure. **4** for lower absolute pressure. | |

* Port **2** only on DG..T..2 with 2x ¼" 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 2.8 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.

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▷ 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**, see PartDetective.

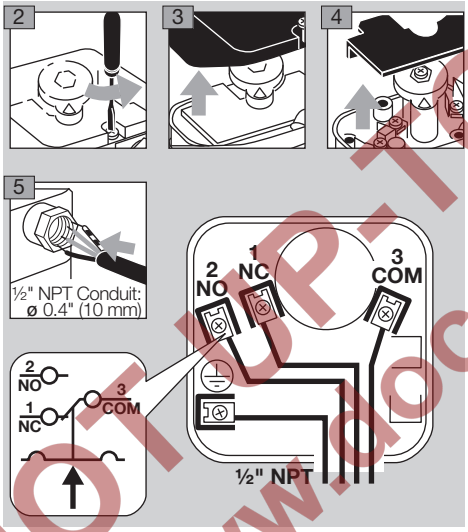
## Wiring

**! CAUTION**

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

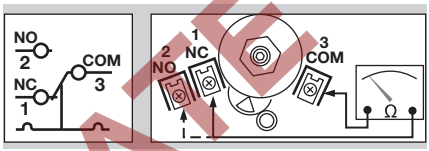
**1** Disconnect the system from the electrical power supply.



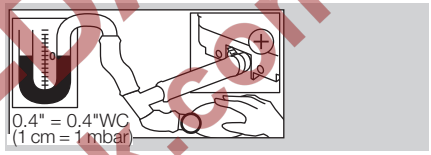

▷ DG..FT, DG..NT: the NO-to-COM connection is interrupted if the pressure drops (contacts **3** and **2** open).
DG..T, DG..HT: the NC-to-COM connection is interrupted if the pressure rises (contacts **3** and **1** open).

## 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 Technical Information bulletin DG at www.docuthek.com.
**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 ohmmeter and the pressure gauge.

**Pressure switches without manual reset (DG..T, DG..FT, DG..ST)**

| Type | Adjusting range* "WC (mbar) | Mean switching differential at min. and max. setting "WC (mbar) | Max. inlet pressure $p_{max.}$ psi (mbar) | |
|---|---|---|---|---|
| | | | No venting line | With venting line[1)] |
| DG 6T | 0.2 – 2.4 (0.5–6) | 0.08 – 0.12 (0.2 – 0.3) | 2.4 psi (165) | 8.5 psi (600) |
| DG 10T | 0.4 – 4 (1–10) | 0.1 – 0.16 (0.25–0.4) | 7 psi (480) | |
| DG 50T | 1 – 20 (2.5–50) | 0.4 – 0.8 (1–2) | | |
| DG 150T | 12 – 60 (30–150) | 1.2 – 2 (3–5) | | |
| DG 500T | 40 – 200 (100–500) | 3.2 – 6.8 (8–17) | | |

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

| Type | Adjusting range* "WC (mbar) | Reset pressure** "WC (mbar) | Max. inlet pressure $p_{max.}$ psi (mbar) | |
|---|---|---|---|---|
| | | | No venting line | With venting line[1] |
| DG 10T | 0.4 – 4 (1–10) | 0.16 – 0.4 (0.4–1) | 7 psi (480) | 8.5 psi (600) |
| DG 50T | 1 – 20 (2.5–50) | 0.4 – 0.8 (1–2) | | |
| DG 150T | 12 – 60 (30–150) | 0.8 – 4.8 (2–12) | | |
| DG 500T | 40 – 200 (100–500) | 2 – 7.2 (5–18) | | |

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

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

** Difference between switching pressure and possible reset.

▷ 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 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.

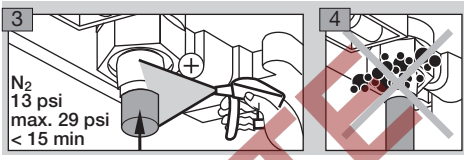
▷ For details of the pressure differential between the switching pressure and possible reset, see table on page 3 (Adjustment).

## 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.

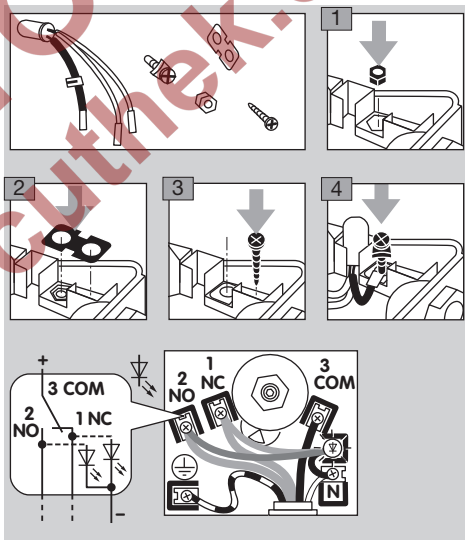



## Maintenance

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

## Accessories

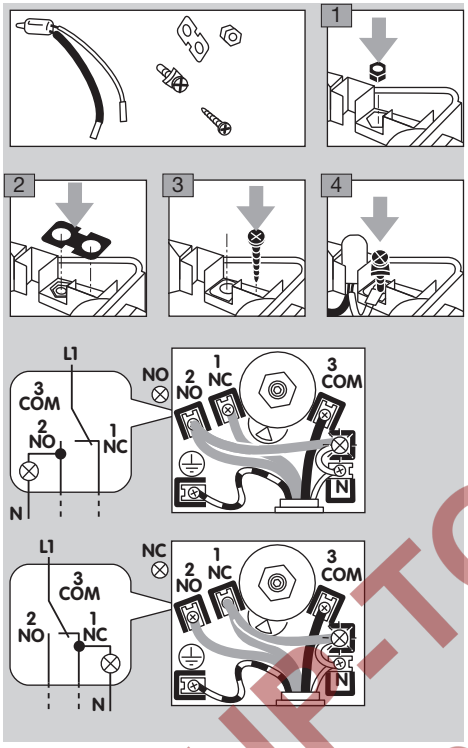
**LED set, red/green**




24 V DC, I = 16 mA; 24 V AC, I = 8 mA,
Order No.: 74921089.
110 to 230 V AC,
Order No.: 74923275.

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**Pilot lamp set, blue**




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

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

## Technical data

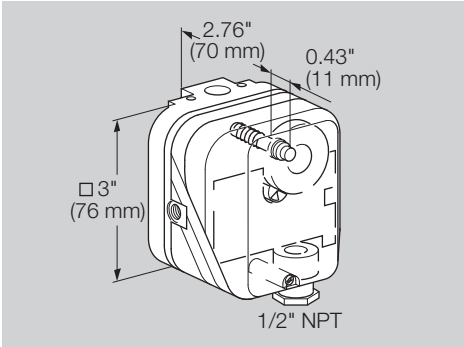
Safety information, see Safety manual DG (identical to DG..T) – www.docuthek.com.

**Ambient conditions**

This unit is not suitable for cleaning with a high-pressure cleaner and/or cleaning products.
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 palpably change in media and ambient temperatures below -22°F (-30°C).
Enclosure: IP 65. Safety class: 1.

**Mechanical data**

Gas type: natural gas, town gas, LPG (gaseous), flue gas, biogas (max. 0.1 %-by-vol. $H_2S$) and air.
Max. inlet pressure $p_{max.}$ = withstand pressure, see page 3 (Adjustment).
Max. test pressure for testing the entire system: temporarily (< 15 minutes) 29 psi (2 bar).
Diaphragm pressure switch, silicone-free.
Diaphragm: NBR.
Housing: glass fibre reinforced PBT plastic with low gas release.
Lower housing section: AlSi 12.
Max. tightening torque, see Technical Information bulletin DG.
Weight: 9.5 to 11.3 oz (270 to 320 g).




**Electrical data**

Switching capacity:

| | U | I (cos φ = 1) | I (cos φ = 0.6) |
|---|---|---|---|
| DG..T | max. 240 V AC | max. 5 A | max. 0.5 A |
| DG..TG* | < 30 V AC/DC | max. 0.1 A | max. 0.05 A |

* 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.

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## Logistics

**Transport**

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

Transport temperature: -40 to +140°F (-40 to +60°C).

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, see page 2 (Part designations).

**Storage**

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

Storage is subject to the ambient conditions described.

Storage time: 6 months before using for the first time.

**Packaging**

The packaging material is to be disposed of in accordance with local regulations.

**Disposal**

Components are to be disposed of separately in accordance with local regulations.

## Certification

**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 Class: 3510 Flow and pressure safety switches.

Designed for applications pursuant to NFPA 85 and NFPA 86.

**UL listed**

UL 353 Limit control.

Underwriters Laboratories

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## Contact

If you have any technical questions, please contact your local branch office/agent. The addresses are available on the Internet or from Elster GmbH.

We reserve the right to make technical modifications in the interests of progress.

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