

Pressure switches for air DL..ALT

OPERATING INSTRUCTIONS

Cert. Version 05.20 · Edition 05.21 · EN · 03251610



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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, a, b, c = 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.

CHECKING THE USAGE

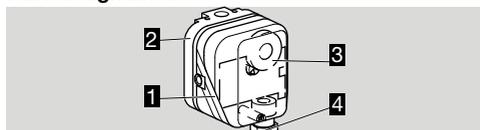
Pressure switches for air DL..ALT for monitoring increasing and decreasing air pressure.

| | Positive pressure | Negative pressure |
|---------|-------------------|-------------------|
| DL..ALT | Air, flue gas | Air, flue gas |

Type code DL..ALT

| | |
|------------|-----------------------------------------------------------------------------|
| DL | Pressure switch for air |
| 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) |
| AL | Aluminium lower housing section, 1/4" NPT connection, hand wheel |
| T | T-product |
| G | With gold contacts for voltages < 30 V AC/DC |
| -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 with plug, 4-pin, with socket, NEMA 4 (IP 65) |
| 1 | One 1/4" NPT connection |
| 2 | Two 1/4" 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 |

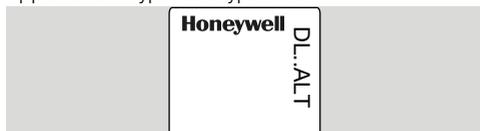
Part designations



- 1 Upper housing section with cover
- 2 Lower housing section
- 3 Hand wheel
- 4 1/2" NPT conduit coupling

Type label

Approval and type: see type label.



→ For detailed information on the adjusting range, mean switching differential, max. inlet pressure, medium and switching properties, see page 5 (Technical data) and page 4 (Adjustment).

INSTALLATION

⚠ CAUTION

Incorrect installation

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

- 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.
- 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 DL..ALT in a roofed area and protect from direct sunlight (even NEMA 4 (IP 65) version).
- Avoid strong impact on the unit.

Installation position

- Installation in the vertical or horizontal position, or sometimes upside down, preferably with vertical diaphragm. If installed in a vertical position, the switching point p_S will correspond to the scale value SK set on the hand wheel. If installed in another position, the switching point p_S will change and no longer correspond to the set scale value SK. Switching point p_S must be checked.
- The set switching point may palpably change in media and ambient temperatures below -22°F (-30°C).



⚠ CAUTION

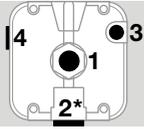
Incorrect installation

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

- Ensure that an open port (3 or 4) does not point upwards. This mounting position is not allowed.
- The DL..ALT 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 (1/4" NPT)
 4 or 3 for negative pressure (1/8" NPT)

| | Connect | Free |
|-------------------------------|------------------------------------------------------------------------------|---------|
| Positive pressure DL..ALT | 1 or 2* | 4 or 3 |
| Negative pressure DL..ALT | 4 or 3 | 1 or 2* |
| Differential pressure DL..ALT | 1 or 2* for higher absolute pressure. 4 or 3 for lower absolute pressure. | |

* Port 2 only on DL..ALT..2 with 2x 1/4" NPT connections.

CAUTION

Incorrect installation
 Please observe the following to ensure that the DL..ALT is not damaged during installation and operation.

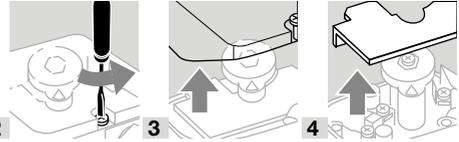
- A filter pad at port 4 or 3 protects the electrical contacts in the DL..ALT from dirt particles in the surrounding air or in the medium.
- Filter pad for port 4: A web app for spare parts selection is available at www.adlatus.org.

WIRING

CAUTION

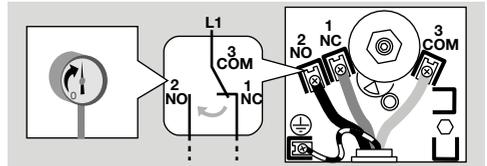
Please observe the following to ensure that the DL..ALT is not damaged during operation:

- 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.



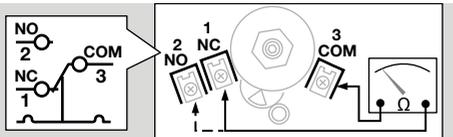
5 1/2" NPT Conduit: ø 0.4" (10 mm)

- The NC-to-COM connection is interrupted if the pressure rises (contacts 3 and 1 open).

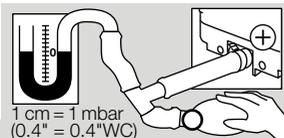


ADJUSTMENT

- 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 page 5 (Technical data).
- 3 Connect an ohmmeter.



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



- 6
- 7 Apply pressure. In doing so, monitor the ohmmeter and the pressure gauge.

| Type | Adjusting range* "WC (mbar) | Mean switching differential at min. and max. setting "WC (mbar) | Max. inlet pressure p_{max} . psi (mbar) |
|----------|-----------------------------------|--------------------------------------------------------------------|--------------------------------------------------|
| DL..6T | 0.2–2.4 (0.5–6) | 0.08–0.12 (0.2–0.3) | 8.5 (600) |
| DL..10T | 0.4–4 (1–10) | 0.1–0.16 (0.25–0.4) | 8.5 (600) |
| DL..50T | 1–20 (2.5–50) | 0.4–0.8 (1–2) | 8.5 (600) |
| DL..150T | 12–60 (30–150) | 1.2–2 (3–5) | 8.5 (600) |
| DL..500T | 40–200 (100–500) | 3.2–6.8 (8–17) | 8.5 (600) |

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

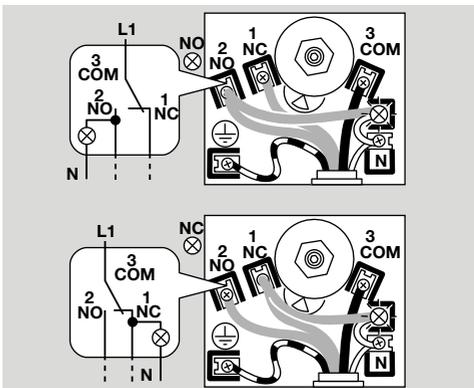
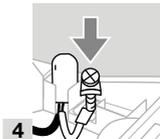
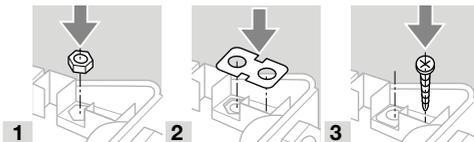
** Difference between switching pressure and possible reset.

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

ACCESSORIES

Blue pilot lamp for 110/120 V AC

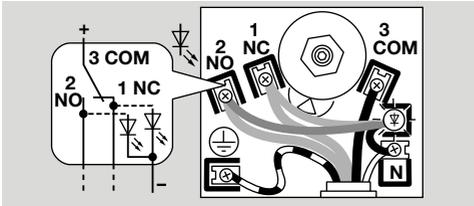
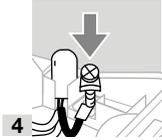
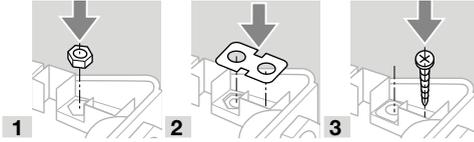
110/120 V AC, $I = 1.2$ mA, Order No.: 74916121.



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.



MAINTENANCE

In order to ensure smooth operation, check the function every year.

TECHNICAL DATA

Ambient conditions

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).

Transport temperature: -4 to +176 °F (-20 to +80 °C).

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

Enclosure: NEMA 4 (IP 65).

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

Mechanical data

Gas types: air or flue gas, no flammable gases, no aggressive gases.

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).

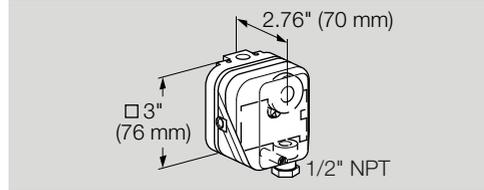
Diaphragm pressure switch, silicone-free.

Diaphragm: NBR.

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 |
| M16 x 1.5 cable gland | 50 |
| 1/2" 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 |

Electrical data

Safety class: 1.

Switching capacity:

| | U | $\cos \phi = 1 [A]$ | $\cos \phi = 0.6 [A]$ |
|---------|---------------|---------------------|-----------------------|
| DL..T | max. 240 V AC | max. 5 | max. 0.5 |
| DL..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: 1/2" NPT conduit.

Electrical connection type: screw terminals.

CERTIFICATION

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

UL listed



Underwriters Laboratories – UL 353 “Limit control.”

LOGISTICS

Transport

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

Transport temperature: see page 5 (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 (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.

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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