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Honeywell

krom/schroder

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Operating instructions
Pressure switches for air
DL 2E, DL 4E, DL 14E, DL 35E

Cert. version 05.18

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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 ... = 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 11.17

The following chapters have been changed:
– Checking the usage
– Declaration of conformity

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Checking the usage

DL 2E, DL 4E, DL 14E, DL 35E

For monitoring positive, negative or differential air or flue gas pressures.

This function is only guaranteed when used within the specified limits – see page 5 (Technical data).

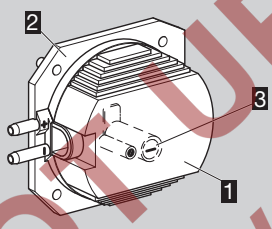
Any other use is considered as non-compliant.

Type code

Code	Description
DL	Air pressure switch
	Adjusting range
2[1)]	20–200 Pa
4[1)]	50–400 Pa
14	300–1400 Pa
35	1200–3500 Pa
	With flat plugs, tube connection, adjusting screw
EH	-40 to +110°C (-40 to +230°F)
E	-20 to +85°C (-4 to +185°F)
T	T-product
G	Gold contacts
-1	AMP plug connection
W	Z-angle bracket

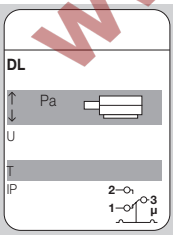
1) Adjusting range: DL..2EH: 45 – 200 Pa, DL..4EH: 70 – 400 Pa.

Part designations



1 Cover
2 Housing
3 Adjusting screw

Type label



▷ Max. inlet pressure p_{max} = withstand pressure, mains voltage, switching pressure, ambient temperature and enclosure: see type label.

▷ Installation position: see switching pressure (Pa) on type label.

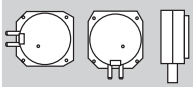
Installation

! CAUTION

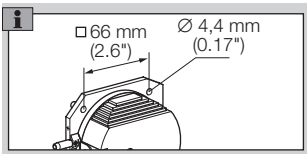
Please observe the following to ensure that the DL is not damaged during installation and operation:

– Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
– Note the max. medium and ambient temperatures, see page 5 (Technical data).
– Condensation must not be allowed to get into the housing (if possible, install pipework with an ascending gradient). Otherwise, there is a risk of icing of condensation at subzero temperatures, the switching point shifting or corrosion in the device which can lead to malfunctions.
– Protect the connections against dirt or moisture in the medium to be measured or the surrounding air. If necessary, install a filter.
– Avoid strong impact on the unit.
– In case of highly fluctuating pressures, install a damping nozzle.
– In the case of an uneven mounting surface, secure the pressure switch to the mounting plate or air duct with only two screws on the same side in order to avoid subjecting the pressure switch to mechanical stress.
– When using silicone tubes, only use silicone tubes which have been sufficiently cured. Vapours containing silicone can adversely affect the functioning of electrical contacts.
– In the case of high humidity, we recommend using a pressure switch with gold contact due to its higher resistance to corrosion. Closed-circuit current monitoring is recommended under difficult operating conditions.

▷ Installation position as required; adjustment as indicated on the type label. If installed in another position, the switching point p_S will change.

p_s = S	S + 13 Pa [+ 0.052 "WC]	S - 13 Pa [- 0.052 "WC]
		

1 Install the DL using screws, a securing clip or an angle bracket.



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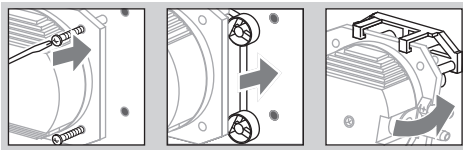
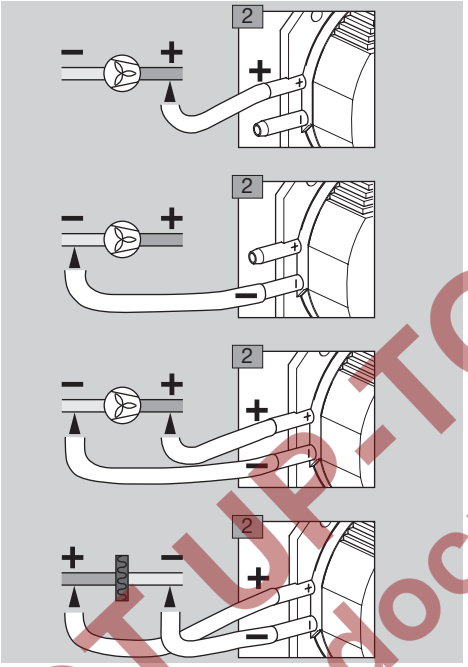


▷ Tube connection Ø 6 mm (0.236").
▷ Max. inlet pressure or differential pressure, see page 5 (Technical data).



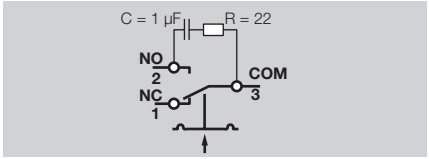
Wiring

▷ If the DL..G (DL..TG) has switched a voltage > 24 V (> 30 V) and a current > 0.1 A at cos φ = 1 or > 0.05 A at cos φ = 0.6 once, the gold plating on the contacts will have been burnt through. It can then only be operated at this power rating or higher power rating.

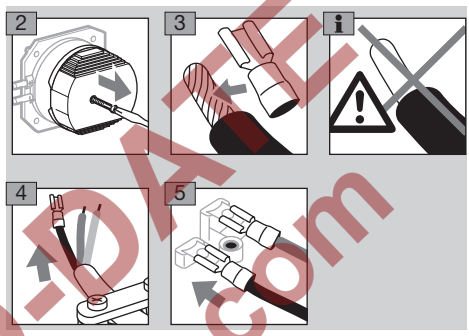
! CAUTION

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

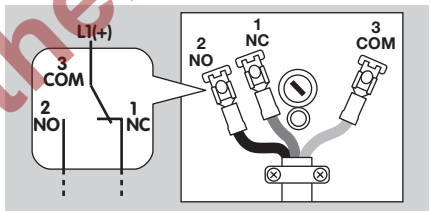
▷ In the case of low switching capacities, such as 24 V, 8 mA, for example, we recommend using an RC module (22 Ω, 1 µF) in air containing silicone or oil.



1 Disconnect the system from the electrical power supply.



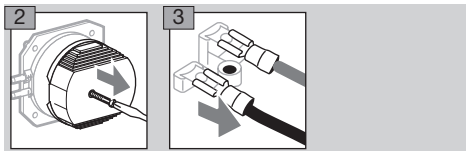
▷ Contacts **3** and **2** close when subject to increasing pressure. Contacts **1** and **3** close when subject to falling pressure.



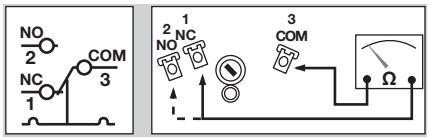
Adjustment

▷ The switching point can be adjusted using the adjusting screw.

1 Disconnect the system from the electrical power supply.



4 Connect an ohmmeter.



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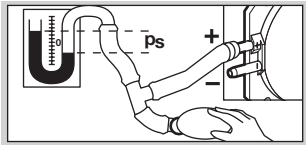
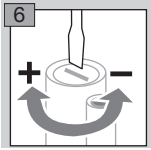
5 Connect a pressure gauge.





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

Type	Adjusting range [Pa]		Mean switching differential at min. and max. setting [Pa]		Deviation from the switching point during testing pursuant to EN 1854 or by agreement
	min.	max.	min.	max.	
DL 2E, DL 2ET	30	200	15	25	±15%, min. 6 Pa
DL 2EH	45	200	15	25	±15%, min. 8 Pa
DL 4E, DL 4ET	50	400	20	50	±15%, min. 8 Pa
DL 4EH	70	400	20	50	±15%, min. 12 Pa
DL 14E, DL 14ET	300	1400	30	60	±15%, min. 40 Pa
DL 35E, DL 35ET	1200	3500	60	100	±15%, min. 90 Pa

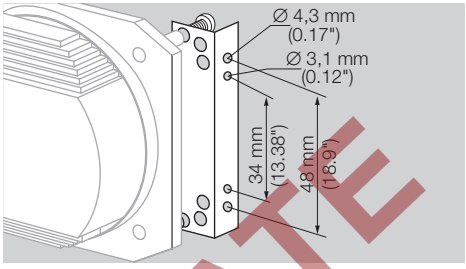
Type	Adjusting range ["WC]		Mean switching differential at min. and max. setting ["WC]		Deviation from the switching point during testing pursuant to EN 1854 or by agreement
	min.	max.	min.	max.	
DL 2ET	0.12	0.8	0.05	0.1	±15%, min. 0.024 "WC
DL 4ET	0.2	1.6	0.08	0.2	±15%, min. 0.031 "WC
DL 14ET	1.2	5.6	0.12	0.24	±15%, min. 0,156 "WC
DL 35ET	4.8	14.1	0.24	0.4	±15%, min. 0,353 "WC

Function check

▷ We recommend a function check once a year.

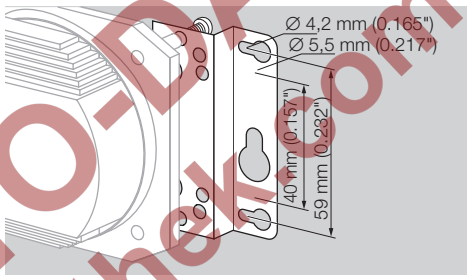
Accessories

L-angle bracket



Order No.: 74919825.

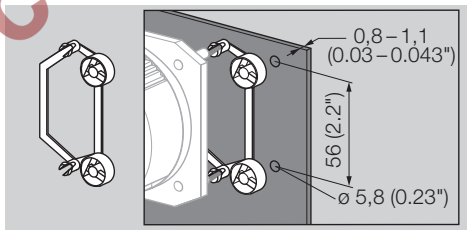
Z-angle bracket



Order No.: 74919824.

Securing clip S

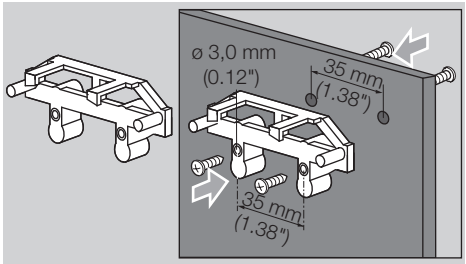
Only two holes in the mounting plate or air duct are required for secure mounting.



Order No.: 34335764.

Securing clip D

For pressure-resistant mounting, the D clip is fitted to the mounting plate from the front or from the back. Simply push the pressure switch onto the clip.



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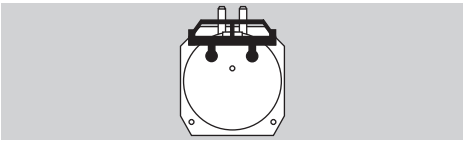
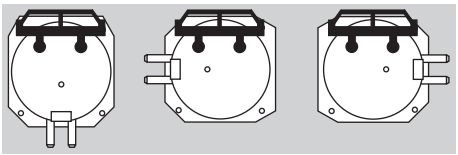
For attachment to the side of the pressure port, white clip, Order No.: 74921513.

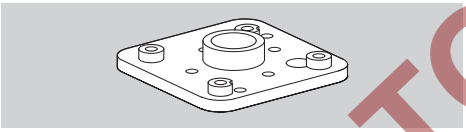


For attachment to the three other sides, blue clip, Order No.: 74921512.



Motor flange adapter

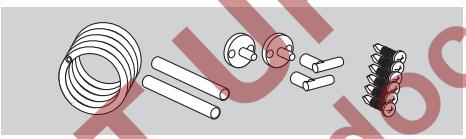
Set including retaining screws for direct mounting on the fan motor.



Order No.: 74920415.

Tube set

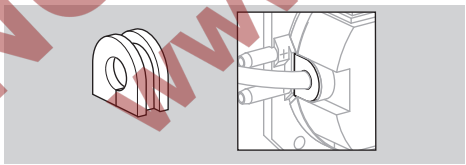
2 m PVC tube, 2 duct connection flanges with screws, including angle connectors and extension.



Order No.: 74919272.

Cable grommet

Grommet for enclosure IP 42/44 pursuant to EN 60529.



Order No.: 34919801.

Technical data

Gas type: air or flue gas, no flammable gases, no aggressive gases.
Micro switch to EN 61058-1.
Max. inlet pressure p_{max} = withstand pressure or differential pressure:
DL..E = 5000 Pa (20 "WC),
DL..EH = 1500 Pa (6 "WC),
DL..ET = 5000 Pa (20 "WC).
Switching capacity:
DL..: 24 V (min. 0.05 A) to 250 V AC (max. 5 A, at cos φ 0.6 = 1 A).
DL..G: 5 V (min. 0.01 A) to 250 V AC (max. 5 A, at cos φ 0.6 = 1 A),
5 V (min. 0.01 A) to 48 V DC (max. 1 A),
DL..T: 30 – 240 V AC, 50/60 Hz,
5 A resistive or 0.5 A inductive (cos φ = 0.6),
DL..TG: < 30 V AC/DC,
0.1 A resistive or
0.05 A inductive (cos φ = 0.6).
Contact gap < 3 mm (μ).
Safety class II to VDE 0106-1.
Maximum medium and ambient temperatures:
DL..E: -20 to +80°C (-4 to +176°F),
DL..EH: -40 to +110°C (-40 to +230°F),
DL..T: -40 to +60°C (-40 to +140°F).
Storage temperature:
DL..E: -20 to +40°C (-4 to +104°F),
DL..EH: -20 to +60°C (-4 to +140°F),
DL..T: -20 to +40°C (-4 to +104°F).
Diaphragm pressure switch, tempered LSR diaphragm system.
Housing: glass fibre reinforced PBT plastic with low gas release.
Enclosure to IEC 60529:
IP 00 = without cover,
IP 10 = any installation position with cover,
IP 21 = opening in cover points downwards,
IP 42/44 = cover with cable grommet.
Weight: 83 g (2.9 oz).
Recommended tightening torques:
Cover screw: 65 Ncm
Strain relief facility: 65 Ncm

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 pressure switches: 10 years.
You can find further explanations in the applicable rules and regulations and on the afecor website (www.afecor.org).
This procedure applies to heating systems. For thermoprocessing equipment, observe local regulations.

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Logistics

Transport
Protect the unit from external forces (blows, shocks, vibration). On receipt of the product, check that the delivery is complete, see page 2 (Part designations). Report any transport damage immediately.

Storage
Store the product in a dry and clean place.
Storage temperature: see page 5 (Technical data).
Storage time: 6 months 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.

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

Declaration of conformity

We, the manufacturer, hereby declare that the product DL with product ID No. CE-0085AP0466 complies with the requirements of the listed Directives and Standards.
Directives:
– 2014/30/EU – EMC
– 2014/35/EU – LVD
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

Scan of the Declaration of conformity (D, GB)–see www.docuthek.com

FM approval

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

UL approval

UL 353 Limit control

Eurasian Customs Union

The product DL meets the technical specifications of the Eurasian Customs Union.

AGA

Australian Gas Association, Approval No.: 5484

RoHS compliant

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

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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