



Air differential pressure switches

QPD15...

The differential pressure switches are used for monitoring air pressures and air flows.

When the pressure falls below or exceeds the adjusted switching point, the respective electrical circuit will be opened or changes over.

The QPD15 and this Data Sheet are intended for use by OEMs which integrate the pressure switches in their products.

Use

- For the supervision of air pressures or air flows of oil or gas-fired equipment (burners, boilers, furnaces)
- QPD15 are suitable as absolute or differential pressure
- Adjustable working pressure ranges up to 5 kPa (depending on pressure range)
- Able for a permanent operation pressure up to 50 kPa
- Suited for air

Warning notes



To avoid injury to persons, damage to property or the environment, the following warning notes must be observed!

Do not open sealed or by rivet closed compartments, interfere with, or modify the pressure switch!

- All activities (mounting, installation, and service work, etc.) must be performed by authorized staff
- Before making any wiring changes in the connection area, completely isolate the unit from the mains supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If not disconnected, there is a risk of electric shock hazard
- Fall or shock can adversely affect the safety functions. Such QPD15 must not be put into operation, even if they do not exhibit any damage
- Do not use the QPD15 in inflammable or explosive gas atmospheres
- Before using QPD15 read the Data Sheet. The QPD15 must be installed in accordance with applicable regulations

Engineering notes

Setting the switching point

To set the required switching point, remove the cover from the pressure switch and turn the setting knob clockwise to increase the set value, or counterclockwise to decrease it (see scale under «Dimensions»). Replace the cover and secure it to prevent tampering.



Particularly important!

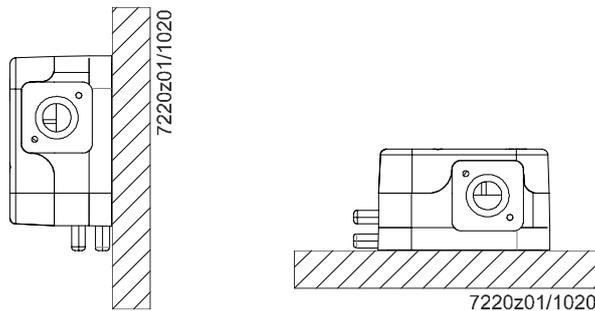
The switching point must be checked in the application against the actual intended switching pressure applied and adjusted if necessary.

The direction of the pressure rise / pressure drop must be observed here.

Mounting notes

- Ensure that the relevant national safety regulations are complied with
- Check connections ensure that there are no leaks
- To prevent the pressure connection from being blocked by contamination on the plant, a suitable preventive precaution must be used
Example: Installation of a fine mesh or filter
- The QPD15 can be mounted either horizontally or vertically, but not in a suspended position (scale must not pointing downward). This can have an influence on the switching point especially with low pressure level adjustments
- The QPD15 are connected via flexible hoses (e.g. internal \varnothing 5 mm)
- The following must be observed by the OEM:
At pressures above 5 kPa, precautions must be taken to prevent the plugged tube connections from slipping off. Kinging of the hoses must be avoided.

Mounting position



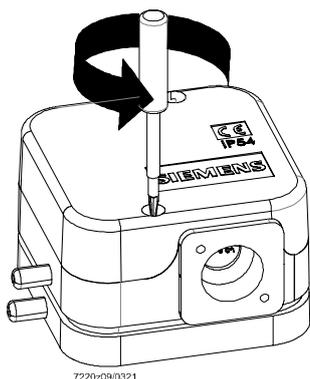
Note!

Switching point adjustment!

The switching point setting must be carried out and checked after assembly in the assembly position.

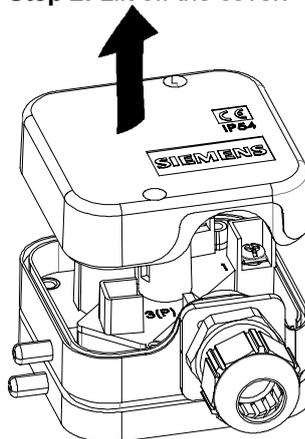
Mounting instruction

Step 1: Unscrew the cover.



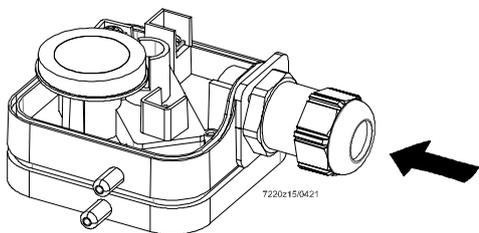
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Step 2: Lift off the cover.



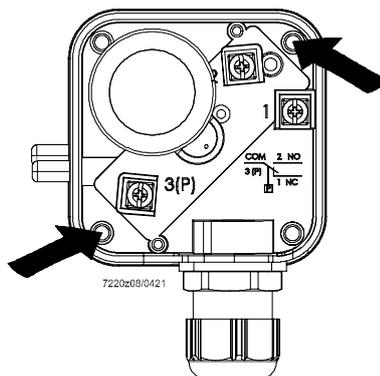
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Step 3: Attach the M20 cable gland (the cable gland is not included in the scope of delivery).



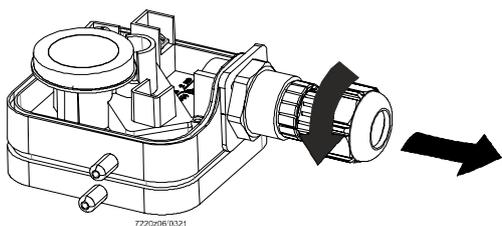
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Step 4: Screw on the pressure switch diagonally with at least 2 screws. 4 screws must be used for degree of protection IP54. Use suitable M4 screws (maximum torque 1 Nm) or comparable screws for fastening



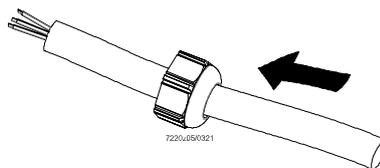
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Step 5: Loosen the M20 cable gland



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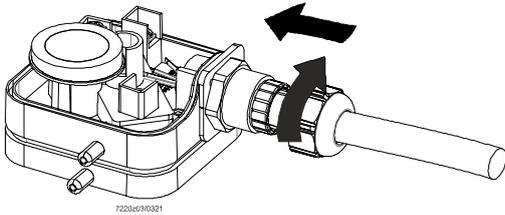
Step 6: Insert the cable through the M20 cable gland



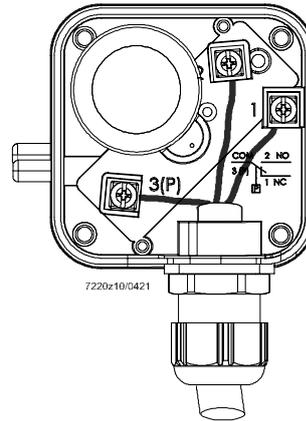
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Mounting instruction (cont'd)

Step 7: Insert the M20 cable gland together with the cable and tighten the M20 cable gland (maximum torque 4.5 Nm)



Step 7: Screw the cable cores to terminals 1, 2 and 3 (maximum torque 0.5 Nm)



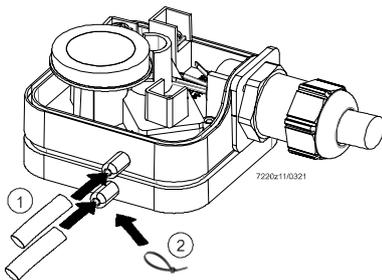
Step 9: Stick on the hoses



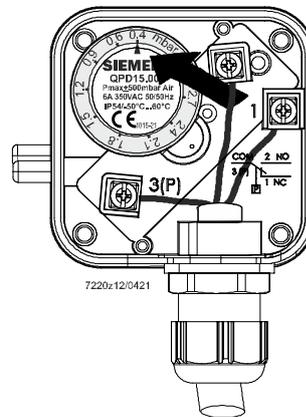
Note!

Securing the hoses ①!

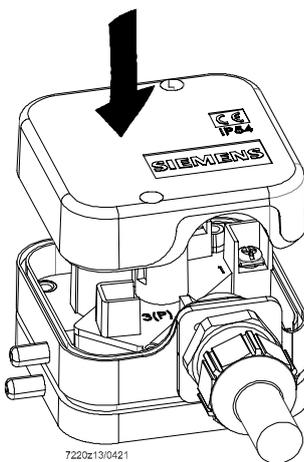
At pressure >5 kPa, the hoses ① must be secured against slipping, e.g. secure with cable ties ②.



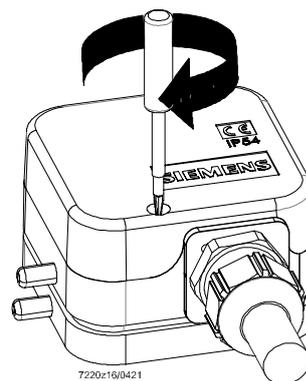
Step 10: Set the switching pressure



Step 11: Put on the cover



Step 11: Screw tight the cover (maximum torque 1 Nm)





Caution!

The QPD15 also has to be replaced when replacing other air supplying components.

It is recommended to replace the QPD15 after over 50,000 cycles or a service life of 10 years due to the designed lifetime for pressure switches according to AFECOR. It is not recommended to reinstall these.

Standards and certificates



Applied directives:

- Low-voltage directive 2014/35/EU
- Gas Appliances Regulation (EU) 2016/426

Compliance with the regulations of the applied directives is verified by the adherence to the following standards / regulations:

- Pressure sensing devices for gas burners and gas burning appliances EN 1854:2010
- Safety and control devices for burners and appliances burning gaseous and/or liquid fuels - General requirements EN 13611
- Automatic electrical controls Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements EN 60730-2-6:2016+A1:2020

The relevant valid edition of the standards can be found in the declaration of conformity!



EAC Conformity mark (Eurasian Conformity mark)



China RoHS

Hazardous substances table:

<http://www.siemens.com/download?A6V10883536>



<http://www.szutest.cz>

Lifetime

The pressure switch has a designed lifetime* of 50,000 burner startup cycles, which, under normal operating conditions in heating mode, correspond to approx. 10 years of usage (starting from the production date given on the type field). This is based on the endurance tests specified in the standard EN 1854. A summary of the conditions has been published by the European Control Manufacturers Association (Afecor) (www.afecor.org).

The designed lifetime is based on use of the pressure switch according to the manufacturer's data sheet. After reaching the designed lifetime in terms of the number of burner startup cycles, or after the corresponding usage time, the pressure switch must be replaced by authorized personnel.

* The designed lifetime is not the warranty time specified in the Terms of Delivery.

Disposal notes

The unit contains electrical and electronic components and must not be disposed of together with domestic waste. Local and currently valid legislation must be observed.

Mechanical design

- Housing design in protection class II made of durable plastic
- Adjustable switching point
- Automatic reset

The switching point (setpoint) of the QPD15 is to be set with the adjusting knob located under the securing cover.

Type summary

When ordering, please give type reference according to *Type summary*.

QPD15 with automatic reset:

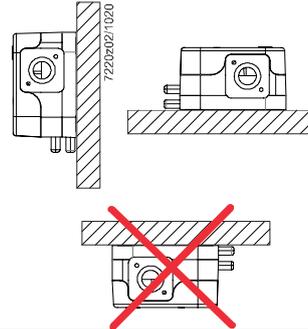
Order number	Inner tube diameter <5 mm	S55722-S301-A100	S55722-S302-A100	S55722-S303-A100	S55722-S304-A100
Type / Connection		QPD15.003	QPD15.005	QPD15.010	QPD15.050
Permissible operating pressure		50 kPa			
Working pressure range		0.04...0.3 kPa	0.05...0.5 kPa	0.1...1 kPa	0.25...5 kPa
Switching differential		0.03 kPa	0.04 kPa	0.06 kPa	0.2 kPa
Factory setting		0.04 kPa	0.05 kPa	0.1 kPa	0.5 kPa

Accessories

Accessories must be ordered as separate items

Technical data

General data	Switching voltage	AC effective max. 250 V DC 24...48 V
	Switching current	AC eff max. 6 A at $\cos\varphi$ 1 AC eff. max. 2 A at $\cos\varphi$ 0.6 AC eff. min. 20 mA DC max. 1 A DC min. 20 mA
	Adjustable operating pressure range	0.3...5 kPa (different ranges, refer to «Type summary»)
	Operating pressure (continuously)	Max. 50 kPa
	Weight	Approx. 142 g
	Mounting position	Horizontal or vertical, but not suspended



Safety class II	According to EN 60730-1:2016
Control function class B	According to EN 13611:2019
Degree of protection IP54	According to EN 60529:1991
Switching pressure deviation	± 15 %, referred to the setpoint (scale) (diaphragm in vertical position)
Medium	Air
Classification	According to EN 1854:2010 PSD-M (50,000 cycles)
Drift of set value during the lifetime	± 15 %
Permissible operating pressure	See «Type summary»
Working pressure range	See «Type summary»
Switching differential	See «Type summary»
Factory setting	See «Type summary»

Technical data (cont'd)

Environmental conditions	Storage	
	Temperature range	-20...+80 °C
	Humidity	< 95 % r.h.
	Transport	
	Temperature range	-20...+80 °C
	Humidity	< 95 % r.h.
	Operation	
	Temperature range	-15...+60 °C
	Humidity	< 95 % r.h.
	Installation altitude	Max. 2,000 m above sea level



Caution!
Condensation, formation of ice and ingress of water are not permitted!

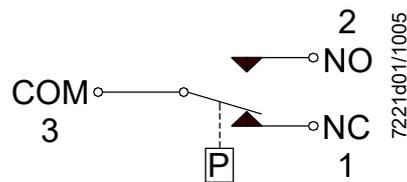
Mechanical conditions	Vibration test	According to IEC 60068-2-6:2008 with accelerations of 10 m/s ²
	Shock tests	According to IEC 60068-2-27:2021 with peak accelerations of 100 m/s ²

Connection diagram

Function
 when used as ...

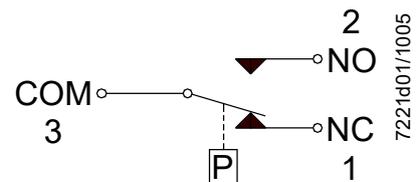
Minimum pressure switch

When the pressure falls below the set value, NO opens and NC closes



Maximum pressure switch

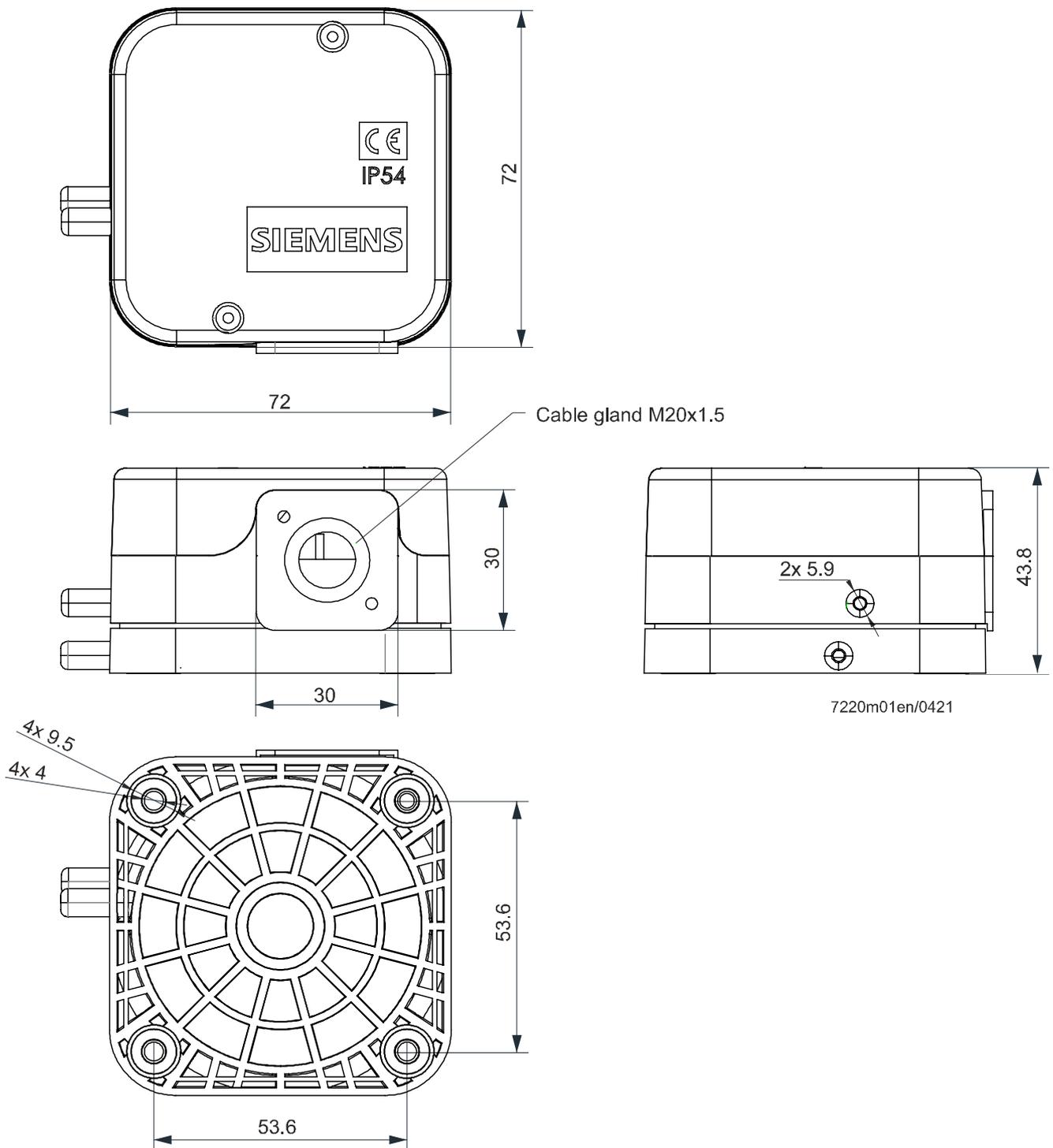
When the pressure exceeds the set value, NC opens and NO closes



Dimensions

Dimensions in mm

QPD15



Note!
Dimensions for reference only