

## Pressure switch setting references

### Pressure switches

Pressure switches are typically used to maintain pressure in a tank (or similar closed system) between a pre-set upper and lower pressure value. In a "standard action" or Normally Closed (NC) pressure switch application, the upper pressure value at which a pressure switch breaks an electric circuit is called the cut-out pressure. The lower pressure value by which the pressure switch makes an electric circuit is called the cut-in pressure. Both cut-out and cut-in pressures within a given range can be adjusted on the pressure switch. In a "reverse action" or Normally Open (NO) pressure switch application, the upper setting point makes an electric circuit and the lower setting point breaks the electric circuit. The pressure switch related difference between cut-in and cut-out pressures is called "hysteresis". Every pressure switch allows the natural differential or hysteresis to be increased by a differential adjustment screw. An easy two-point control with a pressure switch is thus feasible.

### Control pressure switches

Control pressure switches represent a special group within pressure switches. These devices are especially suitable for monitoring and controlling purposes. Depending on the model, SPDT's with or without gold flashed contacts, for example, for PLC applications or isolated NO and NC contacts are available. Depending on the pressure switch type, loads with a max. power consumption of 1.1 kW can be started directly.

### Unloader valves- (EV) and delayed unloader valves (AEV)

Air compressor applications particularly reciprocating compressors, often use what is called an unloader valve. The function of the unloader valve is to remove the pressure from the piston of a compressor so that when it re-starts it can move freely and prevent the motor from stalling. The delayed unloader valve, on the other hand, additionally assists the motor when starting in that it remains open until a certain pressure (approx. 2 bars) is reached, thus giving the motor additional time to reach its full speed and torque.

The Installation instructions for our unloader valves, containing all the technical data and variations, are available for download on our homepage.

### Pressure switch settings

Please make sure all power is disconnected before attempting to adjust pressure settings! When calibrating the pressure switch it will be necessary to apply pressure to the device. Use a calibrated pressure gage to adjust the switches set points.

When the main pressure spring is adjusted, the cut-in and cut-out value of all pressure switches change proportionally. In other words, the differential pressure remains the same. If the range between cut-in and cut-out value is to be increased, the differential pressure screw must be used.

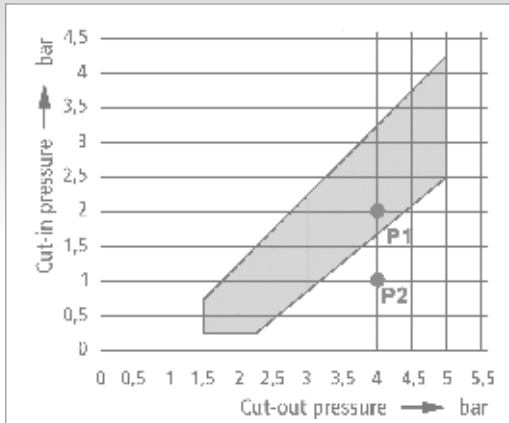
When carrying out a differential pressure adjustment on the pressure switch types MDR 1, MDR 11, MDR 2 and MDR 21 the cut-out pressure value changes and the cut-in pressure value remains constant. For all other pressure switch types the cut-in pressure value changes and the cut-out pressure value remains constant.

In the pressure diagram, each pair of cut-in and cut-values are represented by a point. If the point is within the shaded area of the diagram, then these pair of values can be set on the pressure switch. If the point is outside the shaded area, then these pair of values cannot be set on the pressure switch.

On **YouTube** you will find instructions for pressure adjustment as well as other information videos - QR-Code.



## Example of a pressure setting using the MDR 5 pressure diagram



The coordinates of a cut-out pressure of 4 bar and a cut-in pressure of 2 bar intersect at a point P1 which lies within the shaded pressure range (pressure diagram of the respective pressure switch).

These two values can be adjusted on the pressure switch MDR 5/5. The coordinates of a cut-out pressure of 4 bar and a cut-in pressure of 1 bar intersect at a point P2 which lies outside the shaded pressure range of the diagram. Accordingly, this pair of pressure values cannot be adjusted on the pressure switch MDR 5/5.

## Flange versions

Many pressure switches are available with different flanges. The (first) dimension refers always to the main pressure port. All other ports are always 1/4" ports.

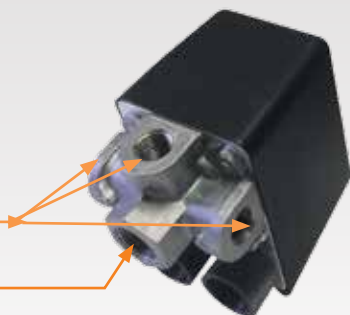
The name F4 1/2" means that there is a flange with 4 ports, in which the main pressure port is 1/2" female and the remaining 3 ports are 1/4" female. The example illustrates this fact:

### Flange F4 1/2"

→ 4 ports

3 x G 1/4"

1 x G 1/2" - Main pressure port

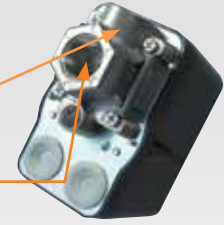


### Manometerflange 1/2"

→ 2 ports

1 x M 1/4"

1 x G 1/2" - Main pressure port



### Flange 1/2"

→ 1 port

1 x G 1/2" - Main pressure port



## Repeatability

The permissible tolerance of the switching values (repeatability) is < 3% less than the upper range value.

## Service

Our service offers you the possibility of carrying out pressure settings depending on your requirements.

Of course, we can also mount any accessories you may need on demand, profiting at the same time from a complete warranty.