



## VA 409

### Flow direction switch for compressed air

The new thermal flow direction switch VA 409 with direction indication serves for determination of the flow direction of compressed air and gases especially in closed circular pipelines.

By means of VA 409 with flow direction indication the flow direction of the compressed air can be determined quickly and safely. Compared with the former mechanical paddle flow switches VA 409 is able to detect even the smallest changes in the flow direction quickly and without any mechanical movement.

The direction information in form of a potential-free contact (normally closed max. 60 VDC, 0.5 A) is transferred to the consumption sensors VA 400/VA 420 or to a separate building management system (mbs). Two LEDs show the flow direction.

In connection with 2 consumption sensors VA 400/VA 420 incoming and outflowing compressed air in closed circular pipelines can be measured precisely.



#### Special features

- detects smallest changes < 0.1 m/s referred to 20 °C and 1000 mbar
- no mechanical wear parts
- easy installation under pressure



#### Technical data VA 409

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|--|--|
| <b>Detection range recognition flow direction:</b> | < 0.1 m/s referred to 20°C and 1000 mbar   |
| <b>Measuring principle:</b>                        | calorimetric measurement   |
| <b>Sensor:</b>                                     | Pt 30/Pt 700/Pt 330  |
| <b>Measuring medium:</b>                           | air, gases   |
| <b>Operating temp.:</b>                            | 0...50 °C probe tube<br>-20...70 °C housing  |
| <b>Operating pressure:</b>                         | up to 16 bar   |
| <b>Power supply:</b>                               | 24 VDC, 40 mA  |
| <b>Power input:</b>                                | max. 80 mA up to 24 VDC  |
| <b>Protection class:</b>                           | IP 54  |
| <b>EMV:</b>  | acc. to DIN EN 61326   |
| <b>Connection:</b>                                 | 2 x M12, 5-pole, plug A and plug B   |
| <b>2 potential-free contacts:</b>                  | 2 x U max. 60 VDC, I max 0.5 A (normally closed); on request: Normally open                      |
| <b>Housing:</b>                                    | polycarbonate  |
| <b>Probe tube:</b>                                 | stainless steel, 1,4301, length 160 mm, Ø 10 mm, safety ring Ø 11.5 mm, longer probes on request |
| <b>Mounting thread:</b>                            | G 1/2"   |
| <b>Diameter housing:</b>                           | 65 mm  |
| <b>Flow direction:</b>                             | 2 LEDs   |

| Description   | Order no. |
|---|-----------|
| Flow direction switch VA 409                          | 0695 0409 |
| Mains unit in wall housing                            | 0554 0108 |
| Connection cable VA/FA Series 400, 5 m with M12 plug  | 0553 0104 |
| Connection cable VA/FA Series 400, 10 m with M12 plug | 0553 0105 |

## Flow station DS 300 with direction indication in one direction

By connecting the flow direction switch VA 409 to the flow station DS 300 only the consumption in one direction is measured. So it is guaranteed that the back-flowing compressed air is not counted twice.

### Special features

- precise consumption measurement in one direction
- when doing the cost calculation of the compressed air it is avoided that back-flowing compressed air is counted twice



## Flow station DS 300 with flow direction indication in both directions

In case the flow direction switch VA 409 indicates the flow direction and forwards this information to the flow station DS 300.

Each of both flow stations DS 300 exclusively measures the flow in one direction. The flow direction switch VA 409 is mounted in the middle between both flow stations in order to avoid flow turbulences.

For this reason two flow stations DS 300 are used for precise consumption measurement of both flow directions.

### Special features

- precise consumption measurement in both directions
- separate indication of the actual consumption (m<sup>3</sup>/h resp. m<sup>3</sup>/min etc...) separate summing of the total consumption (m<sup>3</sup> resp. l)
- forwarding of the analogue output and of the pulse output for the respective flow direction

