

S409

Thermal Mass Flow Direction Switch

Insertion



NO MECHANICAL WEAR PARTS
Robust Design



FLOW DIRECTION
Reliable indication



EASY INSTALLATION
Under pressure



RELAY OUTPUT
1 relay for each direction



Benefits

- ✓ Accurate and fast detection of the flow direction
- ✓ Detects smallest changes < 0.1 m/s referred to 20 °C and 1000 hpa
- ✓ No mechanical wear parts for long term stable measurements
- ✓ Easy installation under pressure without stopping the operation

1 Robust Materials

IP65 casing provides robust protection in rough industrial environments to ensure reliable measurement results.

2 Flexible Installation

Through a 1/2"G-type ball valve the switch can be inserted into the pipe under pressure without shutting down the system.

3 Thermal Mass Flow Sensor

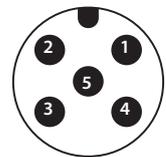
The thermal mass flow sensor element comes with main advantages:

- Very robust and completely of stainless steel
- Fast response times and wide measuring range at high accuracy
- Minimal pressure loss



4 Connection

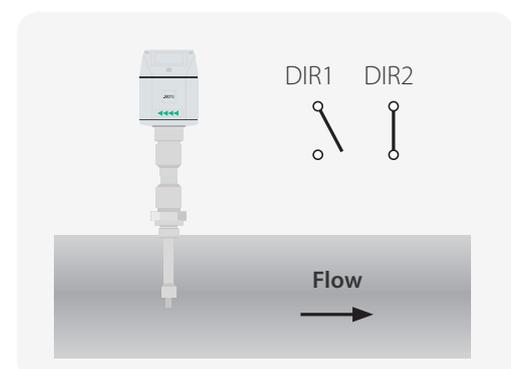
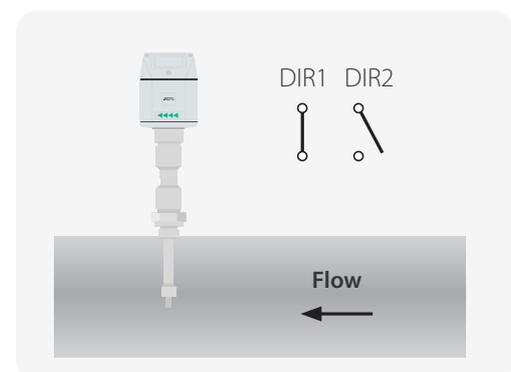
Pin assignment connector



Pin arrangement of flow switch

	Pin1	Pin2	Pin3	Pin4	Pin5
A	SDI	-VB	+VB	DIR1	DIR1
B	SDI	-VB	+VB	DIR2	DIR2

Relay output at switch

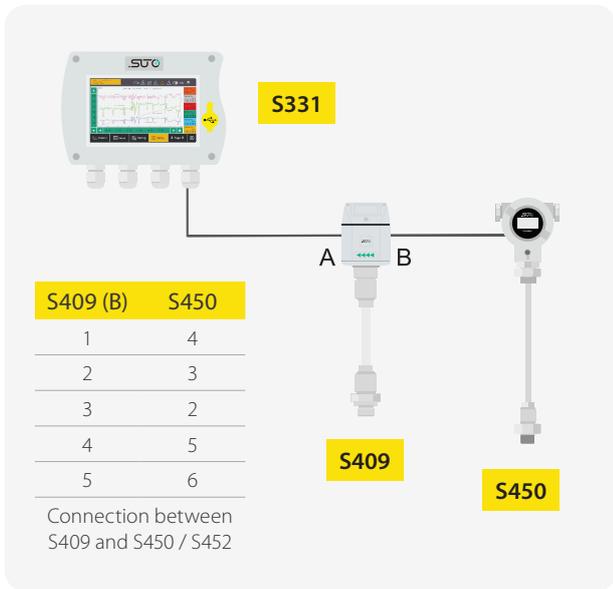


Operation Principle

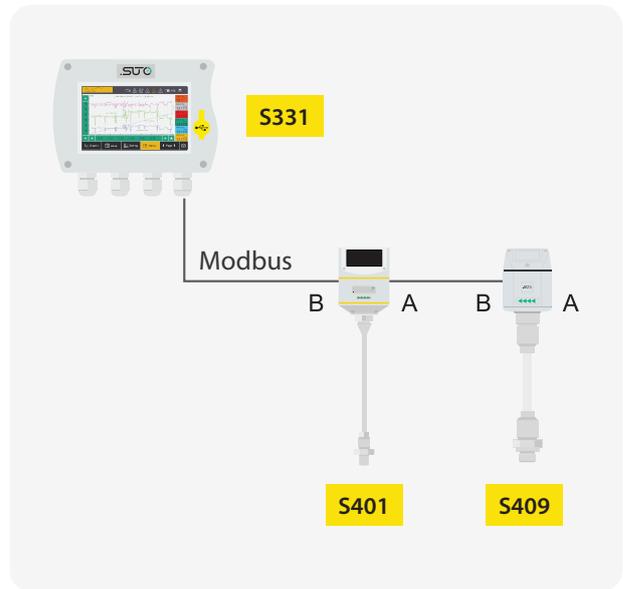
The thermal mass flow direction switch S409 allows the detection of direction of the flow. It can be used in compressed air and non-corrosive gases.

The flow and direction information is output through 2 normally open relay switches. The signals can be transferred to the SUTO flow sensor to activate and deactivate the flow measurement depending on the flow direction, as well as triggering which consumption counter is used.

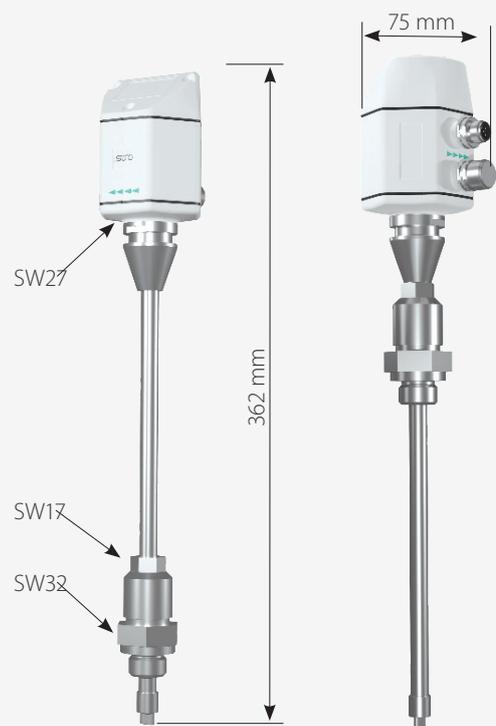
Connection of S330 to S450 via flow switch



Connection of S330 to S401 with flow switch



Attention: Flow sensors S450 / S401 need to have the bi-directional calibration option to operate in both directions



Technical Data

Measurement

Flow Direction Detection

Accuracy	0.05 m/s
Measuring range	0.02 ... 25 m/s @ 7 barg, 20 °C
Sensor	2 x Pt 1000

Signal / Interface & Supply

Switch output

Relay	2 x isolated direction switches
Rating	60 VDC, 1 A

Supply

Voltage supply	24 VDC
Current consumption	160 mA

General data

Material

Process connection	G½" (ISO 228-1)
Housing	PC + ABS
Sensor	Ceramic sensor, glass coated
Metal parts	Stainless steel 1.4404 (SUS 316L)

Miscellaneous

Electrical connection	2 x M12 5-pole
Protection class	IP65
Approvals	CE
Process connection	½" G (ISO 228-1)
Weight	500 g

Operating conditions

Medium	Air, gases
Medium quality	ISO 8573: 4.4.3 or better
Medium temperature	-20 ... +80 °C
Medium humidity	< 100 % (no condensation)
Operating pressure	0 ... 1.6 MPa
Ambient temperature	-20 ... +70 °C
Ambient humidity	< 99 % (no condensation)
Storage temperature	-40 ... +70 °C
Transport temperature	-40 ... +70 °C
Pipe sizes	½ to 12 (bigger diameters on request)

Ordering

Please use the following table to assist in placing your order with our sales staff.

S409 Thermal Mass Flow Direction Switch (Insertion)

Order No. Description

S695 0409	S409 Thermal Mass Flow Direction Switch, insertion type
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S409 Accessories

Order No. Description

A553 0104	Sensor cable 5 m, with M12 connector, open wires, AWG 24 (0.2 mm ²)
A553 0105	Sensor cable 10 m, with M12 connector, open wires, AWG 24 (0.2 mm ²)



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