



Flow switch

QVE81.13

for liquids and gases
for piping DN 1...8" (25...200 mm)

Use

In HVAC plant for monitoring the flow of fluids or gaseous media in hydraulic systems, especially in refrigeration, heat pump and heating plants, e.g. for use with condensers, compressors, heat exchangers, etc.



Warning!

The flow switch is not suited for use with ammonia as a medium!

Ordering

When ordering, please give name and type reference: flow switch **QVE81.13**

Mode of operation

The unit detects the flow of the medium to be monitored by means of a paddle. If the flow velocity in the piping falls below the adjusted switch-off value, the paddle actuates a microswitch with a potential-free contact (S.P.D.T.). In that case, contact 1–4 will close. When the flow velocity reaches the switch-on value again, contact 1–2 will close. The switching point is adjustable.

Table of switching values for water at 20 °C

DN	A <i>min.</i>	E	A <i>max.</i>	E	DN	A <i>min.</i>	E	A <i>max.</i>	E
1"	0.6	1.0	2.0	2.1	4"Z	6.1	8.0	17.3	18.4
1¼"	0.8	1.3	2.8	3.0	5"	22.9	28.4	53.3	55.6
1½"	1.1	1.7	3.7	4.0	5"Z	9.3	12.9	25.2	26.8
2"	2.2	3.1	5.7	6.1	6"	35.9	43.1	81.7	85.1
2½"	2.7	4.0	6.5	7.0	6"Z	12.3	16.8	30.6	32.7
3"	4.3	6.2	10.7	11.4	8"	72.6	85.1	165.7	172.5
4"	11.4	14.7	27.7	29.0	8"Z	38.6	46.5	90.8	94.2

Legend

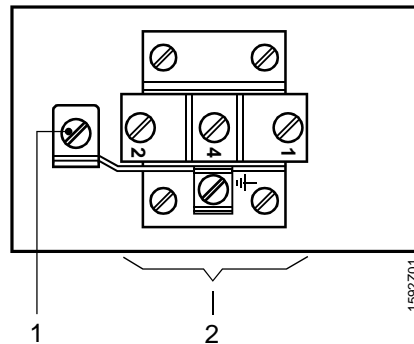
- DN Nominal size of piping (inside dia.)
- A Switch-off value in m³/h
- E Switch-on value in m³/h

With DN sizes using suffix "Z", the paddle supplied with the flow switch must be used.

Mechanical design

The unit comprises a base with attached screw-in body R1" and cover. The base houses the microswitch, transfer lever with adjusting screw (rang screw) and paddle holder. The paddle holder is supplied with three detachable paddles of different lengths. A fourth paddle is enclosed. The cover has an opening for the cable entry. It is secured to the base with three screws.

Setting element and connection terminals



Legend:

- 1 Adjusting screw for switch-off value (rang screw)
- 2 Connection terminals

The unit is supplied with the switch-off value set to the minimum (A_{min.}).

Engineering notes

- On site, a T-junction to DIN 2950 is required.
- All dimensions and data given in the table of switching values are based on water at 20 °C, the use of T-junctions to DIN 2950 and horizontal piping
- Before and after the mounting location of the flow switch, a smoothing path of at least five times the nominal pipe diameter is required

Fitting notes

- Prior to mounting the flow switch, the enclosed cable gland and T-junction R1" must be fitted on site
- When mounting the flow switch, observe the direction of flow (note the two arrows on the screw-in body R1")
- **For reasons of stability, the shorter paddles may not be removed with the larger pipe diameters**

Installationshinweise

- Observe all regulations of the electric utilities and, if required, the waterworks
- Allow for an extra loop of the connecting cable to ensure the switching value can be adjusted

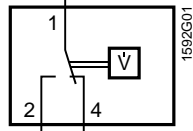
Commissioning notes

- By turning the adjusting screw (rang screw) for the switch-off value in clockwise direction, a higher switch-off value will be set. The actual flow rate is of no importance, but must be higher than the switch-on value given in the table of switching values
- When mounting the flow switch in vertical piping, the weight of the paddles must be compensated for on the adjusting screw (rang screw) for the switch-off value which, however, will lead to different response values

Technical data

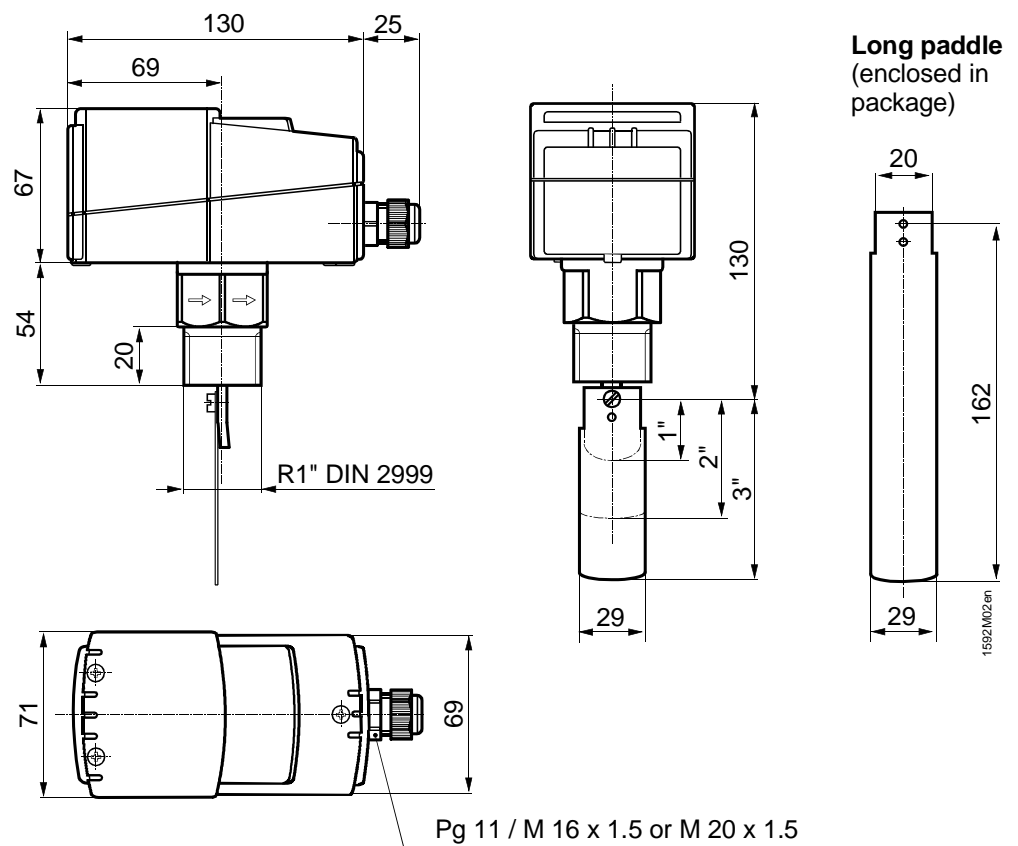
Functional data	Field of use	
	Suitable media	all liquids and gases, with the exception of ammonia
	Piping diameter	DN 1...8" (25...200 mm)
	Type of switch	potential-free microswitch (S.P.D.T.)
	Contact rating	15 (8) A, AC 24...250 V
	Adjustment of switching point	manually, supplied with min. switch-off value
	Setting range	refer to table
	Perm. medium temperature	-40...+120 °C
	Perm. operating pressure	PN 8
	Pressure drop	5...22 mbar
Protective data	Degree of protection	IP 65 to EN 60 529
	Safety class	I to EN 60 730
Environmental conditions	Operation and storage	-40...+85 °C
	Ambient humidity	<95 % r. h.
Norms und standards	CE conformity to	
	EMC directive	89/336/EEC
	Low voltage directive	73/23/EEC
	TÜV certified	TÜV S.98-16 (JSF-1...4 E)
Materials / Colors	Base	galvanized steel / anthracite grey RAL 7016
	Screw-in body R1"	brass
	Cover	impact-resistant plastic / light grey RAL 7035
	Paddle	highgrade steel (V4A)
Weight	Flow switch	silicon-free
	without packaging	0.690 kg

Internal diagram



- 1-2 Flow velocity \geq switch-on value
- 1-4 No flow or flow velocity has fallen below the adjusted switch-off value

Dimensions



Dimensions in mm