

Variable area flow switch

Viscosity-compensated, stainless steel 1.4571, up to 350 bar

Series: S-4SZY



Overview

Product type	Variable area flow switch with adjustable switch point
Medium	Oils and other liquids with 30 to 600 cSt; water versions for water and water-based liquids
Switching ranges	0.4 to 110 l/min over 18 models (smallest range 0.4-1.8, largest 35-110 l/min), see models
Connection	G 1/2" or G 1" female thread
Body material	Stainless steel 1.4571
Pressure rating	350 bar (≈5080 psi) (G 1/2"), 300 bar (≈4350 psi) (G 1")
Contact	Normally open reed contact, potential-free

Description

This flow switch closes a contact when the flow reaches an adjustable set point. It monitors a minimum or maximum flow, for example in lubrication, hydraulic or cooling circuits, and signals a PLC (programmable logic controller), an alarm or a control system. The switch has no flow display; for a local flow reading with a switch contact, choose a variable area flow meter with switch contact.

A spring-loaded float moves with the flow and operates a reed contact outside the medium. For oil, specially shaped measuring bores compensate for viscosity, so the set point stays valid for oils from 30 to 600 cSt (centistokes). The water versions are calibrated for water and water-based liquids. The contact is potential-free and needs no power supply.

Features

- ▶ Adjustable switch point for a minimum or maximum flow
- ▶ Viscosity-compensated oil versions, no set-point adjustment when the oil or pressure changes
- ▶ Separate versions for water and water-based liquids
- ▶ Potential-free normally open reed contact for direct connection to a PLC input
- ▶ Stainless steel 1.4571 body rated to 350 bar (G 1/2") or 300 bar (G 1")
- ▶ Any mounting position, preferably with upward flow
- ▶ DIN plug connector to EN 175301-803, IP65

Technical data

Medium	Oil versions: mineral oils and other liquids with a viscosity of 30 to 600 cSt. Water versions: water and water-based liquids
Switching range	Each model has its own switching range. Oil: 0.5 to 110 l/min (smallest range 0.5-1.6, largest 35-110 l/min). Water: 0.4 to 90 l/min (smallest 0.4-1.8, largest 30-90 l/min). See models
Measuring principle	Spring-loaded float (variable area) with reed contact
Connection	G 1/2" or G 1" female thread (DIN 228)
Wrench size	G 1/2": 27 mm, G 1": 40 mm
Pressure rating	G 1/2": 350 bar (≈5080 psi), G 1": 300 bar (≈4350 psi)
Medium temperature	-20 to +120 °C (≈-4 to 248 °F)
Ambient temperature	Max. +80 °C (≈176 °F)
Mounting position	Any, preferably with upward flow
Flow direction	One direction only, from the low to the high scale value on the body
Protection class	IP65
Weight	G 1/2": approx. 0.3 kg, G 1": approx. 1.0 to 1.2 kg

Electrical data

Contact	Reed contact, normally open: it closes when the rising flow reaches the set point and opens again when the flow falls below it (hysteresis not specified)
Switching capacity G 1/2"	230 V AC, 60 VA; 230 V DC, 60 W; max. 3 A. All limits apply together: at 230 V the 60 VA or 60 W limit allows about 0.26 A
Switching capacity G 1"	250 V AC, 100 VA; 250 V DC, 100 W; max. 3 A. All limits apply together: at 250 V the 100 VA or 100 W limit allows about 0.4 A
Electrical connection G 1/2"	Angled plug connector DIN 43650 / EN 175301-803 form C, size 0C, 3-pole
Electrical connection G 1"	Angled plug connector DIN 43650 / EN 175301-803 form A, size 3, 3-pole
Wiring	Normally open contact on pins 1 and 2
Power supply	Not required (potential-free contact)

Materials

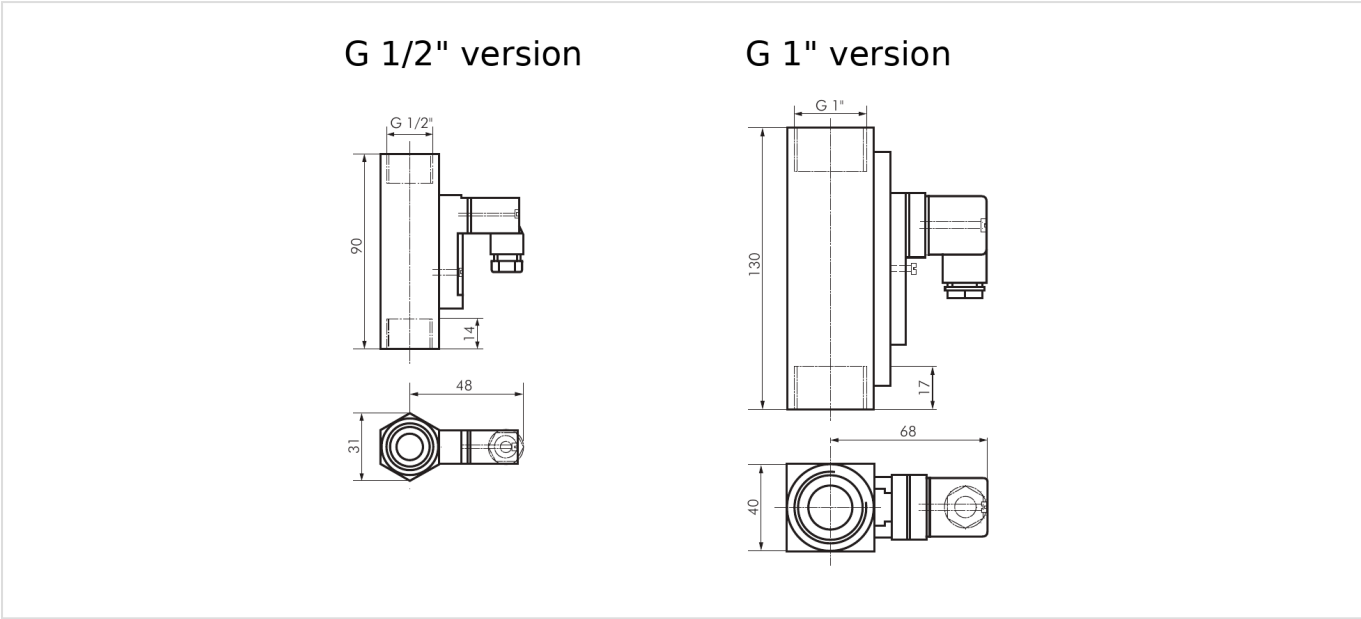
Body	Stainless steel 1.4571
Spring	Stainless steel 1.4571
Seals	FKM

Models

Choose the model whose switching range includes the required switch point. Water versions are only for water and water-based liquids; oil versions only for oils and other liquids of 30 to 600 cSt (centistokes).

Tameson SKU	Medium	Switching range	Connection	Pressure rating	Plug, rating	Weight
M289C	Oil	0.5 - 1.6 l/min	G 1/2" female	350 bar	Form C, 60 VA	0.31 kg
M289D	Oil	0.8 - 3 l/min	G 1/2" female	350 bar	Form C, 60 VA	0.29 kg
M289E	Oil	2 - 7 l/min	G 1/2" female	350 bar	Form C, 60 VA	0.29 kg
M289F	Oil	3 - 10 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg
M289G	Oil	5 - 15 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg
M289H	Oil	8 - 24 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg
M289J	Oil	10 - 30 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg
M285T	Oil	15 - 45 l/min	G 1" female	300 bar	Form A, 100 VA	Approx. 1.0 kg
M285U	Oil	20 - 60 l/min	G 1" female	300 bar	Form A, 100 VA	Approx. 1.0 kg
M289K	Oil	30 - 90 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg
M285V	Oil	35 - 110 l/min	G 1" female	300 bar	Form A, 100 VA	Approx. 1.0 kg
M289M	Water	0.4 - 1.8 l/min	G 1/2" female	350 bar	Form C, 60 VA	0.31 kg
M289N	Water	0.8 - 3.2 l/min	G 1/2" female	350 bar	Form C, 60 VA	0.31 kg
M289P	Water	2 - 7 l/min	G 1/2" female	350 bar	Form C, 60 VA	0.31 kg
M289Q	Water	10 - 30 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg
M289R	Water	15 - 45 l/min	G 1" female	300 bar	Form A, 100 VA	1.2 kg
M289S	Water	20 - 60 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg
M289T	Water	30 - 90 l/min	G 1" female	300 bar	Form A, 100 VA	1.1 kg

Dimensions



Dimension	G 1/2" version	G 1" version
Overall length	90 mm	130 mm
Thread depth	14 mm	17 mm
Wrench size	27 mm	40 mm
Body width	31 mm (across corners)	40 mm
Pipe axis to end of plug connector	48 mm	68 mm
Weight	Approx. 0.3 kg	Approx. 1.0 to 1.2 kg

Installation

- 1

Check the medium

The medium must not carry solid particles. Magnetic particles can also cause faults; fit a dirt trap with a double screen or a magnetic filter upstream.
- 2

Provide straight pipe runs

10 × D upstream and 5 × D downstream of the device (D = nominal pipe diameter) to avoid switching errors.
- 3

Observe the flow direction

The flow must run from the low to the high value of the scale on the body.
- 4

Keep distance from magnetic fields

Do not install the device in an induction field, a strong magnetic field or closer than approx. 50 mm to iron parts.
- 5

Use suitable threads and sealant

All threads are G threads to DIN 228. Use only matching fittings and sealant; unsuitable ones affect function and tightness.
- ⚠ Warning**

When screwing in fittings, hold the device against the torque with a suitable open-end wrench on the wrench flats. The screw connection must not turn against the body, or the device can leak.
- 6

Mounting position

Any; upward flow from bottom to top is preferred.

Setting the switch point

The body carries a scale in l/min. Align the arrow on the switch housing with the flow at which the contact must switch. The water versions are scaled for water, the oil versions for oils of 30 to 600 cSt.

Contact behavior

The normally open contact is closed while the flow is at or above the set point. How the controller uses this signal depends on the function:

Function	Flow above the set point	Flow below the set point
Minimum-flow monitoring (for example dry-running protection)	Contact closed: flow OK	Contact open: alarm
Maximum-flow monitoring	Contact closed: alarm	Contact open: flow OK

Electrical connection

The normally open contact is on pins 1 and 2 of the plug connector. Never exceed the electrical ratings on the switch housing, not even briefly: the reed contact is very sensitive to overload. The reed contacts are gold or rhodium coated, so a direct connection to PLC inputs is possible.

⚠ Warning

Inductive loads such as valve or relay coils can draw switch-on and switch-off currents of up to 10 times their rated current. For these loads, fit a contact protection relay (not included) or a similar device.

Maintenance

The device has only a few moving parts, so maintenance is limited to occasional cleaning. Keep solid and magnetic particles out of the medium with a dirt trap or magnetic filter upstream. Before cleaning, switch off the connected circuit and depressurize and drain the line.

⚠ Warning

Do not exceed the maximum pressure (350 bar for G 1/2", 300 bar for G 1") and temperature (+120 °C medium, +80 °C ambient). Depressurize and drain the line before removing the device. Electrical connection work must be done by qualified personnel with the power switched off.

Tameson B.V.	Contact Information	Document Information
Torenallee 20, 5617 BC Eindhoven, The Netherlands CoC: 72902531 VAT: NL859280263B01	support@tameson.com tameson.com	Version: 1.0
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