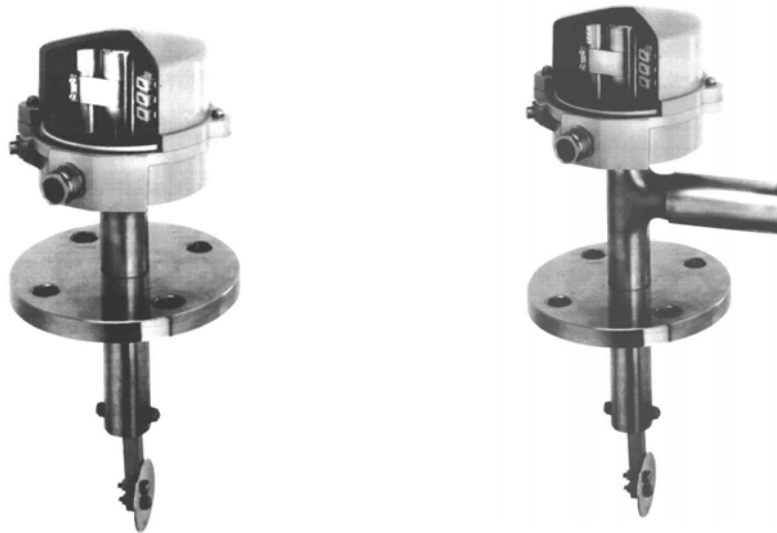


Flow switch with pendulum
Series 107 weighted pendulum
Series 107hv with spring supported pendulum



The construction of these pendulum units has been developed over more than 30 years operational usage. These reliable units are virtually maintenance free and are suited to the protection of high-value installations and machines. The units control the flow of liquids and gases in either horizontal or vertical pipes \geq DN 15 with pressure ranges PN 10 to PN 320. The units are mounted either to horizontal pipes or vertical pipes by a flanged boss installed at 90° to the pipeline (provided by the installer), or by suitable T-piece, (available on request).

Operation

Series 107 with weighted pendulum

When the medium enters in the direction of flow indicated by the arrow it moves the pendulum with target disc and weight against the force of the weight, in the direction of flow. A permanent magnet is situated at the upper end of the lever which operates either one or two switch contacts, these are located adjacent to the system tube. The set point is fixed. For adjustable set points see type *107hve*.

Series 107hv with spring supported pendulum

Similar in principle to the 107 above but utilising a spring in place of a weight as the opposing force of the flow. This allows higher set points to be achieved, and by altering the spring tension the adjustment of the set point.

Advantages

- Works on highly reliable pendulum principle.
- Resistant to wear and tear.
- Suitable for use with media containing impurities.
- Design approved to VdTÜV-Merkblatt Strömung 100.
- Various explosionproof ratings available.
- Materials for aggressive media.
- Low pressure loss (Type 107vS).
- Models available for use in maritime and humid tropical climates.
- Simple installation and connection.

Suitability

Guards against pumps running dry, monitors lubricating oil-, cooling water-; cooling air- and hydraulic-circulation systems as well as the circulation of cooling agents in refrigeration plants. Boiler feed water control, burst pipe control; overflow control; flow control on steam generating boilers and heat exchangers with type approved certificate. Control of the direction of flow in water supply net works, fire alarm in offshore-sprinkler systems; minimum gas flow control in the steel producing industry; record of pipe breakage.

Models

Type 107v

As inline unit DN 15 to DN 32 with T-piece and as online units from DN 40 to DN 1000 with flanged connection DN PN according to DIN and ANSI. One SPCO reed contact.

Set point fixed according to customers requirements. Set points see general technical data.

Type 107m

Same as type 107v but with micro switch. Available with flange from DN 40.

Type 107ind

Same as type 107v but with inductive switch according to Namur. Available with flange from DN 40

Optional extras and type key for type 107:

Option	acronym	107v	107m	107ind
Thread	vG	x	x	x
Spring supported pendulum	hv	x	x	x
Adjustable set point	e	x	x	x
Hinged target disc	S	x		
High temperature model	ht	x		
Indication	hvaz	x		
Analogue output	hvafi	x		x
Flameproof/ II 2 G EEx dIIC T6	Ex	x		
Intrinsically safe	Ex i	x		

The options ht and Ex can not be combined!

Option **vG**

Unit with threaded process G1.

Option **hv**

Unit with spring supported pendulum for set points $\geq 0,35$ m/s

Option **e**

Same as option **hv**, but with adjustable set point in the range 1 : 2, z B. 0.35 to 0.7 or 1.0 to 2.0 m/s. The set point is adjustable at jobsite.

Option with hinged target disc **S**

For low set points, low pressure loss with high flow velocities

Option **ht**

For media temperatures to 300 resp. to 500°C. Not to be combined with Ex-model!

Option **hvaz**

Unit with local mechanical indication of actual flow. Indicating range depending on the size of the connecting flange. Indicating range. 1 : 2.5, from 0,3 m/s, e.g. 0.5 - 1.25 m/s.

Option **hvafi**

Unit with analogue electrical output signal 0 - 10 V- or 0/4 - 20 mA.. Measuring range max. 1 : 2.5, from 0,3 m/s, e.g. 0,5 - 1.25 m/s.

Type 107v hve x.xx.x

Design approved model according to "VdTÜV-Merkblatt Strömung 100/03.1990", identification TÜV.SWbB 03-031 to be used as flow limit with electrical locking.

Type 107A F/G

Unit with threaded process G1 or flanged connection DN 50 PN11. With spring supported pendulum disc and magnet operated switches. Models in brass and stainless steel available.

Further models

Additional bellows

For applications with contaminated or aggressive media an additional bellows made of PTFE can be installed to protect the bearing and guarantee the unrestricted movement of the pendulum.

General technical data

Media

Liquids or gas.

Pipe diameter

≥ DN 15.

Set points type 107v

Connecting flange	DN 40/50	DN 80	DN 100
min. [m/s H ₂ O]	0,15	0,10	0,08
max. [m/s H ₂ O]	0,35	0,50	0,70

Set points type 107vhv

from 0.35 to 10.0 m/s

Admissible deviation of actual set point:

+/- 5 % of required set point.

Repeatability of adjusted set point

+/- 2 % of switching value.

Hysteresis

between on and off switching: 0 - 15 % of switching value of max. flow (from DN 50).

Pressure range

PN 10 to PN 320, higher values on request.

Operating temperature

Standard up to 100 °C temperature of the medium.
(Ex)-model up to 80 °C temperature of the medium.
Special model Ht up to 350 °C temperature of the medium also for intrinsically safe circuits(Ex)i.
For temperatures exceeding 100 °C the switch contact is encapsulated

Pressure loss

< 0.2 bar, from DN 100 negligible with max. flow velocities up to 2.5 m/s.

Required steadying distance upstream and downstream:

according to DIN 1952.

Overload protection:

Due to the rugged construction the unit will not be destroyed if flow velocities of 10 m/s and more arise.

Dimension x (Centre of pipe to upper edge of connecting flange)

see drawing

Materials

Standard

Flange and other wetted parts of corrosion and acid resistant stainless steel, material no. 1.4571 (similar AISI 316Ti); switch housing of aluminium.

Alternative materials

Wetted parts of either: Bronze, Monel; SMO; Hastelloy C; Titanium; PVC; PVDF and/or PTFE.
Switch housing of stainless steel 1.4408

Protection class of switch housing:

according to DIN 40 050, IP 65.

Cable entry:

according to customers requirements.

Switch contacts

Metal encapsulated S.P.C.O. snap action reed contacts

- *Type GW with silver-palladium contacts.*
Capacity: 250 V AC/1 A, p = max. 250 VA, or 250 V DC/1 A, p = max. 100 W.
- *Type GWW with AgSnO-contacts.*
Capacity: 250 V AC/3 A, p = max. 750 VA, or 250 V DC/3 A p = max. 300 W.
- *Type GWG with gold contacts.*
Capacity: 42 V AC/300 mA, p = max. 13 VA, or 42 V DC/300 mA, P = max. 13 W.
- *Type 177(Ex) GWW or GWG*
Protection class: Ex II 2 G Ex de II CT6, TÜV 03 ATEX 2163.
Capacity type 177 Ex GWW: 250 V AC/2A, p = max. 300 VA or 250 V DC.
p = max. 200 W.
Capacity type 177 Ex GWG 42 VAC/0,3 A, p = max. 13 VA or 42 VDC/0.3A,
p = max. 13 W
- *Inductive proximity sensor (Namur or direct switching 2- and 3-wire performance).*
- *Pneumatic contacts.*

Wiring diagram

Reed contact and micro switch

