

EARL Air flow switches

Type 167 for pipes $\geq 80 \times 80$ mm

Type 172 for pipes \geq DN 80

Application

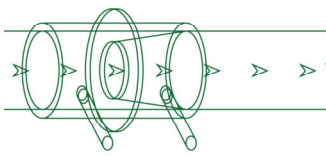
Tough and unaffected by non-adhesive impurities in the medium these **flow switches** control the flow of gases regardless of high operating pressures. For units to control the flow of liquids see type 107.

- **Type 167**, the units are mounted by a flanged boss (provided by the installer) either to horizontal pipes or sideways to vertical square channel. Flow direction upwards only with special flange.
- **Type 172**, the units are mounted by a flanged boss (provided by the installer) either to horizontal pipes or sideways to vertical pipes with direction of flow upwards only. A special model with balance weight for direction of flow downwards is available (type 172 only).



Operation

When the medium enters in the direction of flow indicated by the arrow it moves the vane in the direction of flow. A permanent magnet is situated at the vane and operates the switch contact. The set point is not adjustable.



Advantages

- The bearing used make the units suitable for use with media containing dust particles.
- Sensitive control for set points from 0.6 m/s.
- Suitable for high pressures up to PN 160. (type 172).
- Explosionproof models available to several standards (type 172).
- For high flow velocities or larger line sizes the units are equipped with a stop for the vane.
- Special models available for temperatures up to 250 °C.
- Long-term continuity of spares availability.

Suitability

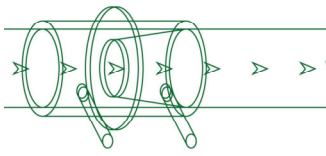
- Flow control in chemical processes.
- Control of exhaust gas in conventional and nuclear power stations.
- Control of undesired back-flow in compressed air installations.
- Flow control in gas supply networks.
- Control of feed and exhaust air in mines.
- Ventilation control in machines or enclosed electrical installations.
- Exhaust gas control in heating installations.
- Suction-sided control of ventilators and compressors.

Models available

- Type 172K solid plastic construction for aggressive media.
- Type 172(Ex) explosion proof model Ex de II CT6 according to ATEX
- Type 167 with fixed set point at 2,5 m/s with falling flow.

Technical data

Media	Gas
Pipe sizes	Type 167, 172 channel or pipe \geq DN 80 or 3".
Control range	Type 167; 172 standard model \geq 2.5 m/s. Type 172 special model \geq 0.6 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 +/- 20 % to 50 % of required value, for lower set points the higher value is valid.
Operating pressure	Type 167 up to 100 mbar; Type 172 PN 10 to PN 160.
Operating temperature	Standard model up to 100 °C temperature of the medium. Exd.-model up to 50 ° temperature of the medium type 172(Ex). Special model Ht up to 250° temperature of the medium type 172 Ht.



Ambient air temperature - 25 to + 70°C.
- 20 to + 40°C (explosionproof model Ex de).
- 20 to + 50°C (explosionproof model Ex ib).

Required
steadying distance according to EN ISO 5167. (measurement via orifice)

Size „x“ Centre line pipe to upper edge connecting flange
Type 172 50 + DN/2

■ Standard models

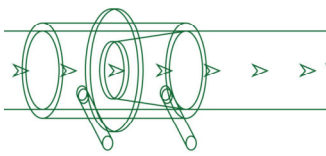
Type 167: housing and bearing made of aluminium, other wetted parts Material No. 1.4571.
Type 172; flange and wetted parts made of material no. 1.4571, magnet made of Cobalt-Samarium, switch housing aluminium.

■ Alternative materials Hastelloy C4; SMO; PVC; PVDF; PTFE.

Protection class switch
housing according to DIN 60529 IP 65.

Cable entry M20 x 1,5 or to customers requirements.

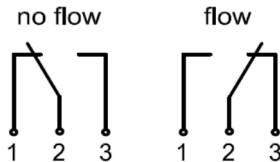
Explosionproof (Ex) II 2 G Ex de II CT6; EG design certificate:TÜV 03 ATEX 2163
(Ex) de 1/2 GD Ex c deT85°C; EG design certificate:TÜV 05 ATEX 2731
(Ex) ib; simple electrical equipment acc. DIN EN 60097-11/5.7



Magnetic contact type for 167 ; 172 (S.P.D.T.)

Type	Contact-material	U max	I max	P max
GWW / GWW ht	AgSnO	250 V AC/DC	3 A	450 VA / 300 W
GWG / GWG ht	Gold	42 V AC/DC	300 mA	13 VA / 13 W
177 GWW	AgSnO	250 V AC/DC	2 A	450 VA / 300 W
177 GWG	Gold	42 V AC/DC	300 mA	13 VA / 13 W

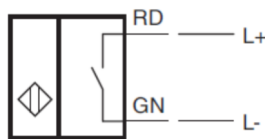
Wiring diagram for S.P.D.T.contact



Inductive proximity sensor(S.P.S.T.) (Namur or direct switching 2- performance).

$U_i = 16V$; $I_i = 25 \text{ mA}$; $P_i = 64 \text{ mW}$

Wiring diagram for inductive proximity switch (S.P.S.T)



The naming of the flow switch is depending on the controlled pipe size and not on the size of the connection flange. For example Type 172 DN 100 with connection flange DN 80 PN 16.