



## Operation Manual

### Paddle Type Flow Switch PIA

Flow switch with AL-housing according to the paddle principle



B-EN-PIA-20190308

- Standard and explosion proof versions
- Field customizable paddle length
- Maximum pressure up to 355psi (25bar)



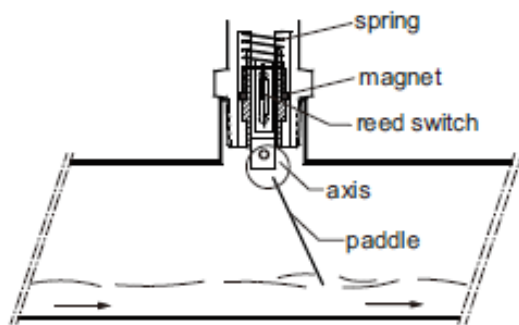
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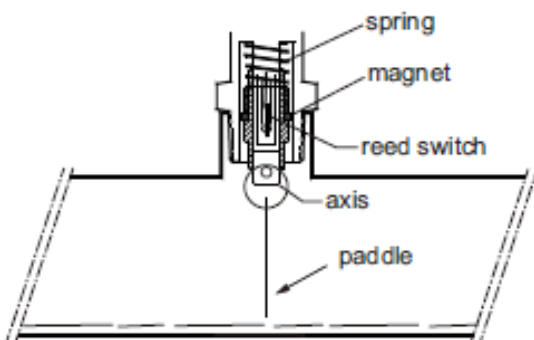
### Principle

Flow switch PIA utilizes the force of liquid flow to propel its paddle in order to delete the incoming flow or moving of the existing liquid in pipe. In condition of static liquid or no liquid, the spring is expanding and press the magnet downward vertically. Reed switch contact is N.O.

As flow occurs and the paddle is thrust and raised at an upward angle of  $20^{\circ}\text{C}\sim 30^{\circ}\text{C}$ , the eccentric of paddle will push the magnet upward to actuate the reed switch which is thus in a close circuit. The length of paddle can be adjusted with the diameter of a pipe.



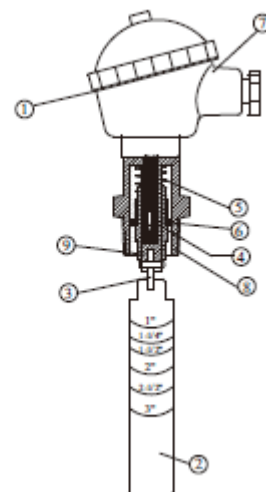
Switch on in case of liquid flowing in pipes



Switch off in case of no moving liquid in pipes

### Sectional Drawings

1. O-Ring
2. Paddle
3. Axis
4. Reed switch
5. Spring
6. Magnet
7. Housing
8. Screw
9. Center rod





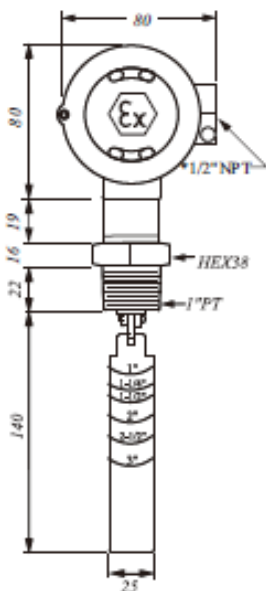
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Flow switch with AL-housing according to the paddle principle

### Dimensions

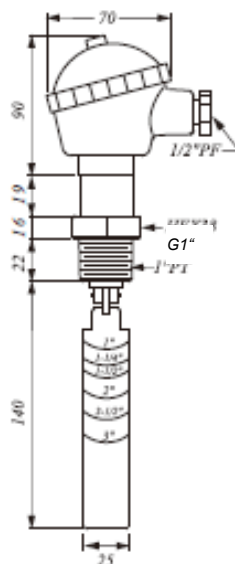
#### PIA 1710

Explosion proof model  
(L-Housing)



#### PIA 1800

Standard model  
(E-Housing)



\*Explosion proof conduit is optional.

Specification		
Spec.	PIA 1710	PIA 1800
Housing material	Aluminium Alloy, Ex d IIC T6-T4	Aluminium Alloy, IP65
Operation temp.	-30°C – 100°C	-30°C – 150°C
Wetted material	1.4301	1.4301
Operation pressure	Max. 355 PSIG	Max. 355 PSIG
Pressure drop allowance	3 PSIG	3 PSIG
Set point tolerance	±25%	±25%
Repeatability tolerance	±5%	±5%
Contact capacity	60W 220VAC/200VDC, SPDT	60W 220VAC/200VDC, SPDT

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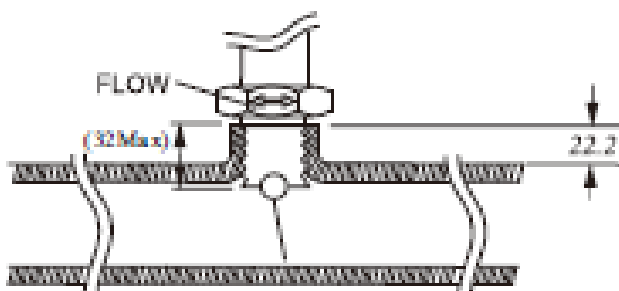
Flow switch with AL-housing according to the paddle principle

Flow control range table (Flow volume Galion/min*)										
Paddle length	1"		1½"		2"		2½"		3"	
	Act.	De-Act.	Act.	De-Act.	Act.	De-Act.	Act.	De-Act.	Act.	De-Act.
1"	4.7	3.9	10.9	8.3	19.9	16.1				
1¼"			7.7	6.1	16.5	12.3	31.3	22.8		
1½"			5.7	4.5	13.4	9.5	25.2	18.5		
2"					8.4	6.3	15.1	12.8	29.7	21.9
2½"							13.9	10	20.4	15.4
3"									17.1	12.8

\*1 Galion = 3.7854 Liter

### Installation

- The paddle length conditions actuation point. Paddle length is confined by conduit length and de-sired actuation point. Then cut the paddle from the properly marked line. (User may also mark the desired length and cut.)
  - The paddle must be parallel to the sectional area of a pipe and the mounting screw is 1" NPT.
  - The FLOW mark on the screw hexagon must be parallel to the pipe and the ground.
  - Before installing the unit to T pipe, be sure to apply tape seal to the screw and then tighten up.
- It is not recommended to use the 1" NPT plastic pipe. (Please refer to below for installation.)



### Caution

- Please confine to the pressure and temperature ranges listed in the catalog. The surge pressure and temperature should be confined as well.
- Operating temperature changes do affect switch set points. In case of the liquid temperature would vary with the specific gravity changes during processing, please contact us for assistance.
- The flow switch is designed for shock and vibration resistance. However, shock and vibration should be minimized as low as possible.
- Excessive contamination in fluid might inhibit paddle operation, occasional wipe down would be necessary.
- Electrical entry and mounting require sealing from moisture.
- Please don't modify the outlook of product..

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#### **Important notes!**

Technical changes and errors excepted.

These operating instructions are an integral part of the device and must be kept accessible to the personnel in the immediate vicinity of the device at all times. Persons who install, operate or service this device must read and understand these operating instructions carefully before starting any work. All safety instructions and instructions in this manual must be adhered to. In addition, the local accident prevention regulations and general safety regulations for the area of application of the device as well as all national and international legal regulations and technical standards apply.

All illustrations in this operating manual serve the basic understanding. Photos can be examples of a variant. The illustrations may differ from the actual design of the units. No claims can be deduced from any deviations.

The device has been designed and constructed exclusively for the intended use described here.

Persons installing, operating or maintaining this device must be technically qualified personnel and must comply with the applicable accident prevention regulations.

#### **limitations of liability**

All information and instructions in this operating manual have been compiled taking into account the applicable standards and regulations, the state of the art as well as our many years of knowledge and experience. Schmidt Mess- und Regeltechnik accepts no liability for damage due to

- Failure to observe this manual
- Improper use of the device
- Working by untrained personnel with this device
- Unauthorized modifications or technical modifications not approved by the manufacturer
- Use of unauthorized spare parts