

Paddle Type Flow Switch PIA

Flow switch with AL-housing according to the paddle principle



D-EN-PIA-20190131

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



Flow switch with AL-housing according to the paddle principle

Description

The PIA series is a paddle flow switch product line with field adjustable paddle length for a variety of flow conditions and pipe sizes. The PIA paddle flow switch utilizes the force of the fluid flow in a pipe to move the paddle. As the fluid flow moves the paddle an internal spring is compressed, which moves a magnetic element. With no flow, or with an empty pipe condition, the paddle flow switch spring is fully expanded and the magnetically activated reed switch contact is open, indicating that a noflow or empty pipe condition exists. As flow increases, the spring is compressed and the magnetic element moves toward the reed switch. When the flow moves the paddle in an upward angle of at least approximately 20°~30° (or more) the magnet moves into proximity of the reed switch and activates it and the contact closes to indicate that a fluid flow condition exists.

Characteristics

- · Standard and explosion proof versions
- Field customizable paddle length, 1~3" (25.4~76.2mm)
- Maximum pressure up to 355psi (25bar) and operating temperature to 302°F (150°C)
- 1" PT threaded process connection
- SPDT output contact, 60W@220VAC/200VDC rating

Applications

USE

- Detect adequate fluid flow for operation of downstream process
- Protect machinery requiring coolant flow

INDUSTRY

- HVAC chillers
- Petrochemical
- Power
- Food processing
- Many others



Paddle Type Flow Switch PIA

Flow switch with AL-housing according to the paddle principle

Principle

Flow Switch can detect liquid movement in pipes. When the liquid is static or nonexistent, the spring is fully extended pulling the magnet downward and opening the switch. As flow occurs and the paddle is thrusted forward 20BC~30 C (or more) the paddle will push the magnet upward and actuate the switch (closing the circuit). The length of paddle can be adjusted to the pipe's diameter.



Switch on in case of liquid flowing in pipes



Switch off in case of no moving liquid in pipes

D-EN-PIA-20190131

Sectional Drawings



PIA 1710 Explosion proof model (L-Housing)

PIA 1800 Standard model (E-Housing)





•Optional part





Paddle Type Flow Switch PIA

Flow switch with AL-housing according to the paddle principle

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		

Flow control range table (Flow volume Galion/min*)												
Paddle length	1"		11⁄2"		2"		21⁄2"		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				
11⁄2"			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		
21⁄2"							13.9	10	20.4	15.4		
3"									17.1	12.8		

*1 Galion = 3.7854 Liter



Flow switch with AL-housing according to the paddle principle

Installation

- 1. The paddle length is dependent on the lowest paddle point to actuate the switch. Cut the paddle at appropriate pipe size mark or wherever desired. The minimum is 1".
- 2. The paddle must be at a right angle to the direction of flow
- 3. The FLOW mark on the screw must be parallel to the pipe.
- 4. Before installing the unit to a tee pipe, apply thread seal tape to the screw and then tighten.
- Not recommended for 1" or smaller NPT plastic pipes.



Caution

- 1. The pressure and temperature ranges as shown here, must not be exceeded and also take the abrupt pressure and temperature into considerations.
- 2. Large sudden changes in liquid temperature and density (specific gravity) changes will influence the flow switch accuracy.
- 3. Although highly rigid and durable, shock and vibration should be minimized.
- 4. Excessive fluid debris might inhibit paddle operation. Occasionally remove switch and clean off any debris.
- 5. Sealing electrical connections and the connection will reduce moisture damage.

D-EN-PIA-20190131 Important instructions!

Technical changes and errors reserved.

Pictures can be similar.

The operating instructions belonging to this device must be observed! Download at www.schmidt-messtechnik.com.