

# Paddle Bellows Flow Switch for Liquids



measuring  
•  
monitoring  
•  
analyzing

FPS



- Switching Ranges:  
0.9... 4.4 GPM up to  
375... 760 GPM water
- $p_{\max}$ : 435 PSIG,  $t_{\max}$ : 250°F
- Process Connection: 1" NPT
- Material: Brass or Stainless Steel
- Micro Switch: 250 V, 15 (8) A
- Universal Mounting Position
- Switching Range Adjustable via Easily Accessible Range Screw



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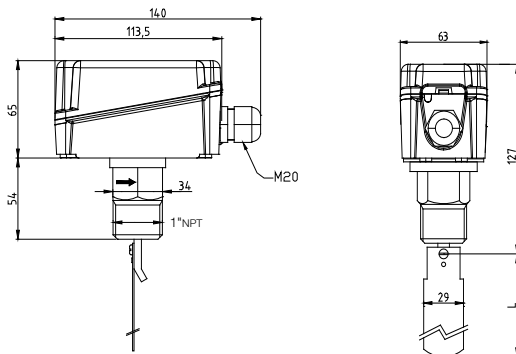
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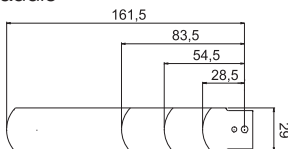
## Paddle Bellows Flow Switch Model FPS

### Description

The KOBOLD model FPS flow switch operates according to the proven paddle bellows principle. The flowing media acts upon the paddle, actuating a micro switch. The switching point may be freely adjusted and the device mated to different nominal pipe sizes by means of both the replaceable paddle and the easily accessible range screw located within the housing. The electrical switching cavity is separated hermetically from the process fluid by means of a bellows. The FPS-6000P version of the flow switch has been specially designed to accommodate lower switching values than standard. Although horizontal flow orientation is preferred, the devices may be installed in any orientation with some additional variation to the switching ranges indicated in the order details section seen below.



Paddle



### Dimensions

#### Technical Details

|                                   |  |
|-----------------------------------|--|
| <b>Brass Design:</b>              | Bellows: MS 58 Bronze<br>Paddle: stainless steel 316L        |
| <b>Stainless Steel Design:</b>    | Bellows: stainless steel 321<br>Paddle: stainless steel 316L |
| <b>Max. Media Temperature:</b>    | -40 ... 250°F  |
| <b>Max. Ambient Temp:</b>         | -30 ... 150°F  |
| <b>Max. Allowed Pressure:</b>     | Brass 160 PSIG<br>Stainless Steel 435 PSIG                   |
| <b>Max. Pressure Loss:</b>        | Approx. 0.15 ... 0.44 PSIG                                   |
| <b>Process Connection:</b>        | 1" NPT male  |
| <b>Inlet/Outlet Pipe Section:</b> | 5 times nominal pipe size                                    |

#### Electrical Details

|                               |   |
|-------------------------------|---|
| <b>Switch:</b>                | SPDT contact  |
| <b>Switching Voltage:</b>     | Max. 24 ... 250 V <sub>AC</sub>                         |
| <b>Switching Current:</b>     | Max. 8 A (inductive load)<br>Max. 15 A (resistive load) |
| <b>Electrical Connection:</b> | Cable gland   |
| <b>Case:</b>                  | Base: ABS,<br>Cover: PC (transparent)                   |
| <b>Protection Type:</b>       | IP 65   |

#### Electrical Connection

RED-WHITE opens with reduction in flow  
RED-BLUE closes with reduction in flow

#### Applications

- Monitoring cooling circuits, lubricant circuits
- Dry running protection for pumps

### Order Details

| Pipe Size | Standard Switching Ranges<br>Series FPS-5... |                                  |                                 |                                  | Special Switching Ranges<br>Series FPS-6... |                               |              |           |
|-----------|--|----------------------------------|---------------------------------|----------------------------------|---|-------------------------------|--------------|-----------|
|           | GPM Water<br>De-actuating                    | GPM Water<br>Actuating           | Order Number                    |                                  | GPM Water<br>De-actuating                   | GPM Water<br>Actuating        | Order Number |           |
|           |  |                                  | Brass                           | St. Steel                        |   |                               | Brass        | St. Steel |
| 1"        | 2.6...8.8                                    | 4.4...9.3                        | FPS-5100P                       | FPS-5200P                        | 0.9...4.4                                   | 2.6...4.8                     | FPS-6100P    | FPS-6200P |
| 1-1/4"    | 3.5...12.3                                   | 5.7...13.2                       |                                 |                                  | 1.1...6.2                                   | 4.0...7.0                     |              |           |
| 1-1/2"    | 4.8...16.3                                   | 7.5...17.6                       |                                 |                                  | 2.2...7.0                                   | 5.3...9.7                     |              |           |
| 2"        | 9.7...25.1                                   | 13.7...26.9                      |                                 |                                  | 4.0...15.9                                  | 10.1...18.1                   |              |           |
| 2-1/2"    | 11.9...28.6                                  | 17.6...30.8                      |                                 |                                  | 5.3...21.6                                  | 13.7...24.2                   |              |           |
| 3"        | 18.9...47.1                                  | 27.3...50.2                      |                                 |                                  | 9.3...32.6                                  | 21.6...36.1                   |              |           |
| 4"        | 50.2...122.0<br>(26.9 - 76.2)                | 64.7...127.7<br>(35.2 - 81.0)    |                                 |                                  | 21.6...75.3<br>(14.5...51.0)                | 49.8...84.1<br>(33.9...57.2)  |              |           |
| 5"        | 100.8...234.7<br>(41.0 - 111.0)              | 125.1...244.8<br>(56.8...118.0)  |                                 |                                  | 42.7...149.7<br>(22.0...77.0)               | 98.6...166.9<br>(50.6...86.3) |              |           |
| 6"        | 158.1...360.0<br>(54.2...134.7)              | 189.8...375.0<br>(74.0...144.0)  | 59.9...209.6<br>(26.9...94.2)   | 138.7...234.2<br>(62.1...105.2)  |   |                               |              |           |
| 8"        | 319.7...729.6<br>(170.0...400.0)             | 374.7...759.5<br>(204.7...414.8) | 113.2...396.7<br>(95.6...243.5) | 262.4...443.4<br>(160.7...272.1) |   |                               |              |           |

The values in brackets apply when using the supplied long paddle, shortened accordingly for service in larger, 4" ... 6" pipes, in addition to the three shorter paddles.