FLOW SWITCHES

AND

COMBINATION CONTROLS

The professional solution: an extended, rational, and consistent range of products

Technical catalogue for R&D department
Edition 28/05/2013
Piston flow switches, reed switch contact, 1/2” BSPP male thread, and snap-on connection for DN10 or 12.7 OD copper tube, Type: R3F

<table>
<thead>
<tr>
<th>Pressure and size</th>
<th>Flow sensing: Magnetic piston</th>
<th>Mounting: 1/2” male thread and snap-in dia. 10 mm</th>
<th>Contact: Reed switch, close on flow rise</th>
<th>Electrical rating</th>
<th>Mounting position</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN10</td>
<td></td>
<td></td>
<td></td>
<td>≤1A ≤70W ≤250V~</td>
<td></td>
<td>R3F</td>
</tr>
<tr>
<td>DN10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Main applications: Product developed for electrical or gas instantaneous water heaters. Water inlet is done directly by the ½” BSPP male thread. Mandatory vertical mounting, with water inlet from the bottom. Connection to internal copper piping DN10 with quick coupling. Built-in overpressure valve

Functional principle: Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is made by spring. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.

Adjustment: Can be factory set by adjusting the spring force and/ or changing the piston diameter

Body material: PPO compatible with drinking water.

Piston: PPO

Spring: 304 stainless steel

Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads

Electric contact type: Normally open, closes by flow rise

Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO and stainless steel

Nominal pressure at 20°C: 1MPa (PN10)

Flow detection set point factory setting limits:
- Close by flow rise: 4 to 12 L/min
- Open by flow decrease: About 0.4 to 0.5L/min lower than close value

Nominal diameter: DN8-DN10

Mandatory mounting position: on vertical pipes, upstream flow

Water pipe connection:
- Water inlet: on male ½” fitting with gasket with 2 anti-rotation lugs. recommended torque 5N·m
- Water outlet: fast-on connection with O-ring and clips on DN10 beaded copper tubes. OD 12 to 12.7 mm

Liquids temperature range: 5 to 80°C

Ambient temperature range: 5 to 50°C

Overpressure valve calibration value: 1.5 MPa +0.5, -0

Ingress protection: IP65

Electrical connection: 2 x AWG24 wires (0.2 mm²), PVC insulation, T80°, standard length 300 mm.

Options (MOQ apply): cable with connector or terminals, other cable length, other calibration values. On request it is possible to produce these models with upside water inlet

Important note: Standard copper tube diameters for building applications (Water and gas) are given by the EN1057 standard, which defines the nominal diameter (DN) as the inside diameter. Copper tubes for applications in air conditioning and refrigeration are described in EN 12735-1 and those for vacuum and medical gases are described in EN 13348. The EN127357 standard defines the copper tubes for refrigeration with diameters in inches. Copper tubes are often described in France by the outside diameter followed by the thickness in mm.

Main references (with 300 mm wires)

<table>
<thead>
<tr>
<th>References</th>
<th>Close on flow rise (L/min)</th>
<th>Open on flow decrease (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R3FA670400150330</td>
<td>4 ±0.2</td>
<td>1,6±0.2</td>
</tr>
<tr>
<td>R3FA670600150330</td>
<td>6±0.25</td>
<td>2±0.25</td>
</tr>
<tr>
<td>R3FA670800150330</td>
<td>8±0.3</td>
<td>2,5±0.3</td>
</tr>
</tbody>
</table>

Other calibration on request

E-Mail: info@ultimheat.com Web: www.ultimheat.com
Piston flow switches, reed switch contact, inlet and outlet 1/2” BSPP male, Type: R35

<table>
<thead>
<tr>
<th>Pressure and size</th>
<th>Flow sensing: Magnetic piston</th>
<th>Mounting position: 1/2” male inlet and outlet</th>
<th>Contact: Reed switch, close on flow rise</th>
<th>Electrical rating: ≤1A, ≤70W, ≤250V~</th>
<th>Mounting position</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R35</td>
</tr>
<tr>
<td>DN15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Main applications: Product developed for electrical or gas instantaneous water heaters. ½” BSPP male water inlet and outlet. Mandatory vertical mounting, with water inlet from the bottom.

Functional principle: Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is by made by gravity. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.

Adjustment: Can be factory set by adjusting the piston diameter and piston weight

Body material: PPO compatible with drinking water.

Piston: PPO

Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads

Electric contact type: Normally open, closes by flow rise

Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO

Nominal pressure at 20°C: 1MPa (PN10)

Flow detection set point factory setting limits:
- Close by flow rise: 1 to 12 L/min
- Open by flow decrease: About 0.4 to 0.5L/min lower than close value

Nominal diameter: DN15

Mandatory mounting position: on vertical pipes, upstream flow

Water pipe connection: Water inlet and outlet: ½” BSPP male fitting (Needs gasket)

Liquids temperature range: 5 to 80°C

Ambient temperature range: 5 to 50°C

Ingress protection: IP65

Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.

Options (MOQ apply):
- Wires with connector or terminals,
- Other wire lengths,
- Other calibration values
- Two contacts
- Upside water inlet,( by adding an internal stainless steel piston spring)

Main references (with 300 mm wires)

<table>
<thead>
<tr>
<th>References</th>
<th>Close on flow rise (L/min)</th>
<th>Open on flow decrease (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R35B6010000000330</td>
<td>1±0.2</td>
<td>0.7±0.2</td>
</tr>
<tr>
<td>R35B6015000000330</td>
<td>1.5±0.2</td>
<td>1.2±0.2</td>
</tr>
<tr>
<td>R35B601800000330</td>
<td>1.8±0.2</td>
<td>1.4±0.2</td>
</tr>
<tr>
<td>R35B6030000000330</td>
<td>3±0.3</td>
<td>2.6±0.3</td>
</tr>
</tbody>
</table>

Other calibration on request
Piston flow switches, reed switch contact, snap in inlet and outlet for copper tube, Type: R34

<table>
<thead>
<tr>
<th>Pressure and size</th>
<th>Flow sensing:</th>
<th>Mounting:</th>
<th>Contact:</th>
<th>Electrical rating</th>
<th>Mounting position</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN10</td>
<td>Magnetic piston</td>
<td>Fast on inlet and outlet</td>
<td>Reed switch, close on flow rise</td>
<td>≤1A ≤70W ≤250V</td>
<td></td>
<td>R34</td>
</tr>
<tr>
<td>DN15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Main applications: Product developed for electrical or gas instantaneous water heaters. Snap in water inlet and outlet for copper tubes. Mandatory vertical mounting, with water inlet from the bottom.

Functional principle: Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is by made by gravity. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.

Adjustment: Can be factory set by adjusting the piston diameter and piston weight

Body material: PPO compatible with drinking water.

Electrical rating: Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads

Electric contact type: Normally open, closes by flow rise

Liquids compatibility: For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO.

Nominal pressure at 20°C: 1MPa (PN10)

Flow detection set point factory setting limits:
- Close by flow rise: 1 to 12 L/min
- Open by flow decrease: About 0.4 to 0.5L/min lower than close value

Nominal diameter: DN15

Mandatory mounting position: on vertical pipes, upstream flow

Water pipe connection: Fast-on connection with O-ring and clips on DN20 beaded copper tubes. OD 18 mm

Liquids temperature range: 5 to 80°C

Ambient temperature range: 5 to 50°C

Ingress protection: IP65

Electrical connection: 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.

Options (MOQ apply):
- Wires with connector or terminals,
- Other wire lengths,
- Other calibration values
- Two contacts
- Upside water inlet, (by adding an internal stainless steel piston spring)

Main references (with 300 mm wires)

<table>
<thead>
<tr>
<th>References</th>
<th>Close on flow rise (L/min)</th>
<th>Open on flow decrease (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R34B651010000330</td>
<td>1±0.2</td>
<td>0.7±0.2</td>
</tr>
<tr>
<td>R34B6510150000330</td>
<td>1.5±0.2</td>
<td>1.2±0.2</td>
</tr>
<tr>
<td>R34B6510180000330</td>
<td>1.8±0.2</td>
<td>1.4±0.2</td>
</tr>
<tr>
<td>R34B6510300000330</td>
<td>3±0.3</td>
<td>2.6±0.3</td>
</tr>
</tbody>
</table>

Other calibration on request
Piston flow switches, reed switch contact, inlet and outlet 3/4” BSPP male, Type: R36

<table>
<thead>
<tr>
<th>Pressure and size</th>
<th>Flow sensing:</th>
<th>Mounting:</th>
<th>Contact:</th>
<th>Electrical rating</th>
<th>Mounting position</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN10</td>
<td>Magnetic piston</td>
<td>3/4” male inlet and outlet</td>
<td>Reed switch, close on flow rise</td>
<td>≤1A ≤70W ≤250V~</td>
<td></td>
<td>R36</td>
</tr>
<tr>
<td>DN20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Main applications:** Product developed for electrical or gas instantaneous water heaters. 3/4” BSPP male water inlet and outlet. Mandatory vertical mounting, with water inlet from the bottom. Built-in over-pressure valve.

**Functional principle:** Magnetic piston mounted in line with the flow and activating a reed switch through the wall. The return of the piston is by made by gravity. No seal or liquid can pass between the piping system and the electrical contact. Suitable for potable water. Must not be used for water containing magnetic particles or high viscosity liquids, which block the movement of the piston.

**Body material:** PPO compatible with drinking water.

**Piston:** PPO

**Electrical rating:** Max 1A, Max 70W, Max 250V, resistive load. Use on inductive circuits reduces electrical rating. We recommend to protect the reed switch with contact protection device when used in inductive loads.

**Liquid compatibility:** For use with clean water and liquids without magnetic particles and without chemical incompatibility with PPO. Nominal pressure at 20°C: 1MPa (PN10)

**Flow detection set point factory setting limits:**
- Close by flow rise: 2.4 to 8 L/min
- Open by flow decrease: About 0.4 to 0.5L/min lower than close value

**Nominal diameter:** DN20

**Mandatory mounting position:** on vertical pipes, upstream flow

**Water pipe connection:** Water inlet and outlet: 3/4” BSPP male fitting (Needs gasket). Recommended torque: 7N.m

**Liquid temperature range:** 5 to 80°C

**Ambient temperature range:** 5 to 50°C

**Overpressure valve calibration value:** 1.5 MPa +0.5,-0

**Ingress protection:** IP65

**Electrical connection:** 2 x AWG24 wires (0.2mm²), PVC insulation, T80°, standard length 300 mm.

**Options (MOQ apply):**
- Wires with connector or terminals,
- Other wire lengths,
- Other calibration values,
- Upside water inlet,(by adding an internal stainless steel piston spring)

**Main references (with 300 mm wires)**

<table>
<thead>
<tr>
<th>References</th>
<th>Close on flow rise (L/min)</th>
<th>Open on flow decrease (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R36B630240150330</td>
<td>2.4±0.3</td>
<td>1.8±0.3</td>
</tr>
<tr>
<td>R36B630300150330</td>
<td>3±0.3</td>
<td>2.6±0.3</td>
</tr>
<tr>
<td>R36B630350150330</td>
<td>3.5±0.3</td>
<td>2.9±0.3</td>
</tr>
</tbody>
</table>

Other Calibration on request
Other catalogues

1. Electromechanical and Electronic Thermostats Range
   E-Mail: info@ultimheat.com Web: www.ultimheat.com
   Technical catalogue for R&D department

2. Thermostats with Ingress Protection Housings
   Technical catalogue for R&D department

3. Industrial Electronic and Thermostat Controls
   Technical catalogue for R&D department

4. Explosion Proof Thermostats
   Technical catalogue for R&D department

5. Pressure Switches
   Technical catalogue for R&D department

6. Float Level Switches
   Technical catalogue for R&D department

7. Humidistats
   Technical catalogue for R&D department

8. Fire Detection Fusible Links
   Technical catalogue for R&D department

9. Ceramic Connection Blocks
   Technical catalogue for R&D department

Distributor:

E-Mail: info@ultimheat.com Web: www.ultimheat.com