

WFSPT series Flow Switch Installation Manual

DESCRIPTION

WFSPT series Flow switches are bellows sealed paddle type flow switches. These flow switches are suitable for line sizes from ½" to 8" line sizes. These are the pipe sizes for which a calibration exists - installation in larger pipes is possible, but the user must calibrate the unit themselves. The principle of operation is quite simple. The WFSPT has a lever, hinged in the housing, which extends into a paddle for insertion into the flowing medium. The movement (rotation) of the paddle is transmitted to a micro-switch via a metal bellows. The bellows serves to isolate the fluid from the micro-switch and the movement in the housing. Since the motion of the lever is resisted by a spring in the housing, the degree of paddle rotation is an indication of fluid flow rate. By positioning a micro-switch in the lever's path, it can be made to switch at some specified flow rate. Since a bellows is used for isolation purposes, the set point will also be dependent on pressure in the system. This is a result of the bellows' spring constant being pressure sensitive.



UNPACKING

Unpack the instrument carefully. Inspect all units for damage. Report any concealed damage to the carrier within 24 hours. Check the contents of the packing slip and purchase order and report any discrepancies to the factory. Check and record the serial number for future reference when ordering parts.

MODEL IDENTIFICATION

You can identify your model specifications as per following ordering information.

EXAMPLE : WFSPT-25L2A1 LED Indicator can be provided as an option

BASIC MODEL : WFSPT - 25 L2 B A1

ENCLOSURE/PROTECTION

WFSPT- General purpose
WP-FSPT - Weather Proof to IP 65/ 67
EP-FSPT - Explosion proof to Group IIA/IIB
GFP-FSPT - Flameproof to Group IIC

WFSPT

PROCESS CONNECTION

25 - Threaded to 1" BSPT - male
25N - Threaded to 1" NPT - Male

25

The same logic is applicable for 15, 20, 30, 40 & 50 mm connections

LINE SIZE

L1 - 15mm - 1/2" **L7** - 65mm - 2 1/2"
L2 - 20mm - 3/4" **L8** - 80mm - 3"
L3 - 25mm - 1" **L9** - 100mm - 4"
L4 - 32mm - 1 1/4" **L10** - 125mm - 5"
L5 - 40mm - 1 1/2" **L11** - 150mm - 6"
L6 - 50mm - 2" **L12** - 200mm - 8"

L2

OPTIONAL PROCESS CONNECTION

T1 - Integral Tee (carbon Steel)
T2 - Integral Tee (Stainless Steel)
F1- Integral Welded Flange (carbon Steel)
F2- Integral Welded Flange (Stainless Steel)

T1

M.O.C. OF WETTED PARTS

B1 - Brass body, SS 304 bellows, SS 316 Paddle
B2 - Brass body, Ph. Bronze bellows, SS 316 paddle
S1 - SS 304 body, SS 304 Bellows, SS 316 Paddle
S2 - SS 316 body, SS 316 Bellows, SS 316 Paddle

B1

SWITCH RATING

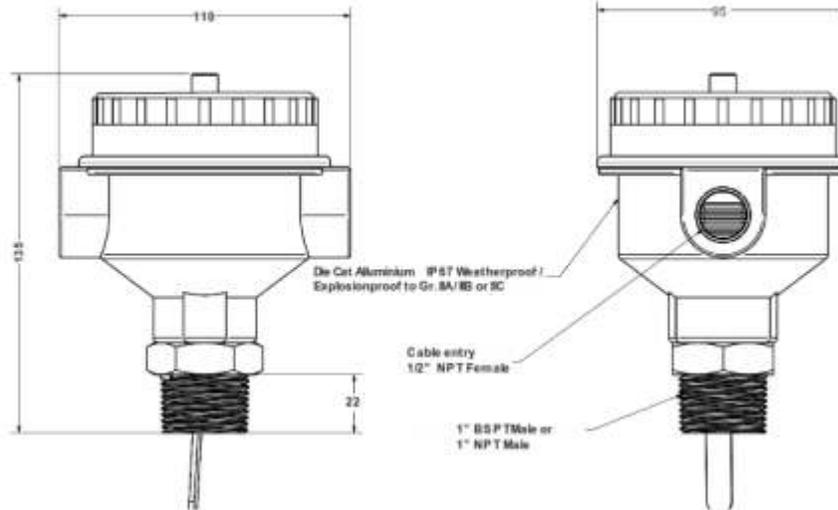
A1 - 15A 250VAC, Snap acting Instrument quality SPDT Microswitch.
A2 - 15A 250VAC, Snap acting Instrument quality 2 SPDT Microswitch.
B1 - 3A 250VAC, Snap acting Instrument quality SPDT Microswitch.
C1- 5A 250VAC, Snap acting Instrument quality SPDT Microswitch.
C2- 5A 250VAC, Snap acting Instrument quality 2 SPDT Microswitch.

A1

SPECIFICATIONS

Max. System Pressure	10 bar for ph. Bronze bellows, 20 bar for SS bellows
Temperature Range	1 - 120 °C
Sensor Specifications	Refer ordering Information
Pressure Drop	<80 mbar at Qmax. (For Qmax. refer flow range table)
Accessories	Refer ordering information.
Enclosure	General Purpose, carbon steel powder coated.

DIMENTION



INSTALLATION INSTRUCTION

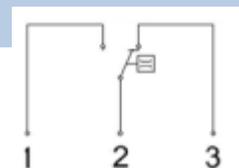
PIPING

The WFSPT is screwed directly into piping using the 1" NPT or BSPT Brass or Stainless Steel fitting on its base. There are some important things to observe:

1. The paddle length must be appropriate for the diameter of the pipe to which the Flow switch is connected. Ensure also that the Flow switch is not screwed too deeply into its fitting, as this may cause the paddle to contact the bottom of the pipe. The paddle must be completely free to move.
2. To ensure the stability, the shorter paddle should always be left on.
3. The Flow Switch must be installed so that the arrow on its housing is aligned with the medium flow in the pipe. Connect to the internal micro-switch by removing the housing, leading cable through the housing inlet, and connecting according to the Wiring diagram given in this manual. Though the WFSPT may be installed in any orientation, we recommend that you do not install with the housing more than 90 degrees out of a vertical "up" position. This suggestion is strictly to avoid accumulation of sediment in the bellows and subsequent seizure of the paddle-lever mechanism. 3.1 Upstream and downstream straight pipe run requirements To switch at the values specified in Table 2.4, straight runs of pipe are needed before and after the WFSPT installation point. These should be at least 5 interior pipe diameters in length.

WIRING

- 1- Normally Open
- 2- Common
- 3- Normally Closed.



WFSPT Flow switches are designed to facilitate easy electrical wiring. In Weatherproof versions the wiring logic will remain same. There are some important things to observe during wiring connections.

1. On high temperature applications [above 120°C (250°F) in pipeline], high temperature insulated wire should be used between them and the first junction box located in a cooler area.
2. To gain access to the switch mechanism, remove switch housing cover.
3. Pull in supply wires (conductors), through the cable gland and connect to proper terminals. Be certain

that excess wire does not interfere with “tilt” of switch and that adequate clearance exists for replacement of switch housing cover. Wiring Terminal

4. Connect power supply to the Flow Switch and test switch actuation by varying flow rate within pipeline.
5. Replace switch housing cover and place flow switch into service.

OPERATION

After installation, the switch point may be adjusted. Note that the switch point is slightly dependent on the orientation of the Flow switch. This is because the weight of the paddle acts differently in different positions. If you have reoriented your Flow Switch, it may be necessary to reset the switch point.

ADJUSTING THE SETPOINT

SETTING SCREW

The Set-point adjustment screw label is given in the flow switch . By turning the setting screw clockwise will increase the Set Flow And by turning the screw anti-clockwise will decrease the set Flow.

ACTIVATING THE SETPOINT ON RISING FLOW

To adjust the microswitch to trigger on rising flow, do as follows:

1. Establish desired Setpoint flow rate in the system.
2. Turn Setpoint screw fully clockwise.
3. Slowly turn Setpoint screw counterclockwise until microswitch activates
4. Replace housing cover.

ACTIVATING THE SETPOINT ON FALLING FLOW

To adjust the microswitch to trigger on falling flow, do as follows:

1. Establish desired setpoint flow rate in the system.
2. Turn the setpoint screw fully counterclockwise.
3. Slowly turn setpoint screw clockwise until the microswitch activates.
4. Replace housing cover.

MAINTAINANCE

Due to its construction, a paddle type flow Switch, such as the WFSPT, is virtually maintenance-free. There are only two areas that could (potentially) be a source of concern if the medium contains minerals which could precipitate out onto the instrument.

1. If enough material deposits on the paddle, its area may be increased. This will lead to erroneous flow rate switching of the flow switch
2. In extremely severe cases, it may be possible that sufficient materials will deposit inside the bellows to alter the bellows' spring constant. This will lead to higher flow rate readings (stiffening of the bellows).

ARRIVAL OF DAMAGED EQUIPMENT

Your instrument was inspected prior to shipment and found to be defect-free. If damage is visible on the unit, we advise that you carefully inspect the packing in which it was delivered. If damage is visible, notify your local carrier at once, since the carrier is liable for a replacement under these circumstances. If your claim is refused, please contact MULTI-TECH DEVICES® for further support.

SERVICE POLICY

Owners of MULTI-TECH DEVICES® products may request the return of a control; or, any part of a control for complete rebuilding or replacement. They will be rebuilt or replaced promptly. MULTI-TECH DEVICES® will repair or replace the control, at no cost to the purchaser, (or owner) other than transportation cost if:

- a) Returned within the warranty period; and,
- b) The factory inspection finds the cause of the malfunction to be defective material or workmanship.

If the trouble is the result of conditions beyond our control; or, is NOT covered by the warranty, there will be charges for labor and the parts required to rebuild or replace the equipment. In some cases, it may be expedient to ship replacement parts; or, in extreme cases a complete new Flow Switch, to replace the original equipment before it is returned. If this is desired, notify the factory of both the model and serial numbers of the control to be replaced. In such cases, credit for the materials returned, will be determined on the basis of the applicability of our warranty. No claims for misapplication, labour, direct or consequential damage will be allowed.

While returning the damaged material for repair or recalibration purpose. Please supply the following information:

1. Purchaser Name
2. Description of Material
3. Serial Number
4. Reason for Return
5. Process details

All shipments returned to the factory must be by prepaid transportation. MULTI-TECH DEVICES® will not accept collect shipments. All replacements will be shipped FOB factory.

Authorised Dealer



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