



Piston-Type Flow Switches

FS-4 Series

Instruction Bulletin No. 45522

Installation . . .

Unless otherwise specified, FS-4 Series units are factory-calibrated with water for mounting in vertical position, with lead wires up. Observe proper direction of liquid flow, as marked "IN" and "OUT" on housing.

Be careful to keep foreign material out of units during installation. Use of 50 micron filtration with units of either series is recommended. All plastic NPT threads should be installed using a suitable thread sealant. (Such as Teflon tape or Permatex "No More Leaks".) Sealant must be kept out of unit during installation.

Avoid over-tightening when connecting piping to unit, which is constructed of plastic material. Connection of metallic piping to plastic units is not recommended.

- WARNING -

FS-4 flow switches are plastic, straight-thread, "O" ring sealed instruments. Over-tightening will result in breakage!

Port Adapter Fittings . . .

Install plastic adapters with O-rings (supplied) directly into "IN" and "OUT" ports of FS-4 Flow Switch before installing unit. **CAUTION:** Do not exceed 20 inch-pounds maximum torque when installing adapter fittings. Hold wrench flats on adapters as indicated below when installing unit in piping to prevent additional torque accumulation between adapter and body. (Note: Port adapter fittings must be purchased separately.)

Port Adapters . . .

Adapter	Adapter Size	Part Numbers
		Material: Ryton®
	1/8" NPT*	123028
	1/4" NPT*	123029
	1/2" Barb**	123030

Notes

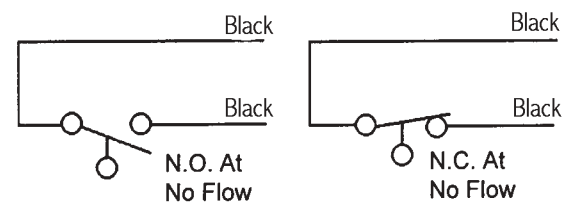
* Wrench flats provide for proper assembly

** Accepts 1/2" I.D. flexible hose

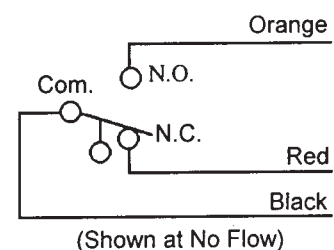
*** Red wire leads provided on all units prior to March 2002.

Typical Wiring Diagrams . . .

FS-4 Series Units with SPST Switches ***



FS-4 Series Units with SPDT Switches



Specifications . . .

FS-4 Series	
Wetted Materials	
Housing and Piston	Ryton® - R4
O-Ring	Viton®
Other Wetted Parts	Epoxy
Spring	316 Stainless Steel
Operating Pressure, Maximum	250 PSIG @ 70°F
Operating Temperature	0°F to 225°F (-17°C to +107°C)
Set Point Accuracy	±15% Maximum
Set Point Differential	20% Maximum
Switch	SPST or SPDT, 20 VA
Inlet/Outlet Ports	9/16" - 18 UNF - 2B Thread
Electrical Termination SPST	18 AWG, 24" L., Sarlink Zipcord Lead Wires
Electrical Termination SPDT	18 AWG, 24" L., PVC Lead Wires

Switch Ratings Maximum Resistive Load

VA	Volts	Amps AC	Amps DC
20	0 - 30	.4	.3
	120	.17	.13
	240	.08	.06

Note

The switch mechanism is an hermetically-sealed reed switch **for pilot duty only**. Refer to electrical data above or consult Factory.



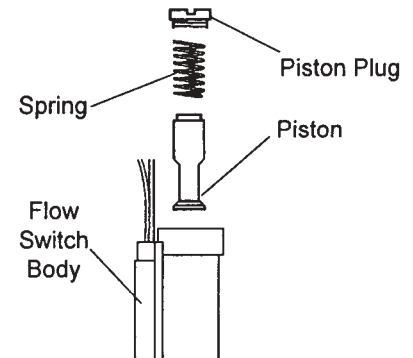
This product is suitable for Class I and Class II applications only, per the requirements of standard EN60730 and any additional specific requirements for a particular application or medium being sensed. Class I compliance of metal bodied units requires a ground connection between the metal body and the earthing system of the installation. Class I compliance of plastic bodied units in contact with a conductive medium requires that the medium be effectively earthed so as to provide an earthed barrier between the unit and accessible areas. For Class III compliance, a supply at safety extra-low voltage (SELV) must be provided. Please consult the Factory for compliance information on specific part numbers.

Maintenance . . .

The only maintenance normally required is occasional cleaning when excessive contamination is present in the liquid.

To Disassemble FS-4 Units for Cleaning: With system shut down and no liquid in piping remove: (1) Piston Plug, (2) Spring and (3) Piston

It is not necessary to remove the unit from the system. Reassemble unit in reverse order (#3 - #1, above). Use care when handling spring to prevent distortion.



Important Points!

Product must be maintained and installed in strict accordance with the National Electrical Code and GEMS product catalog and instruction bulletin. Failure to observe this warning could result in serious injuries or damages.

An appropriate explosion-proof enclosure or intrinsically safe interface device must be used for hazardous area applications involving such things as (*but not limited to*) ignitable mixtures, combustible dust and flammable materials.

Pressure and temperature limitations shown on individual catalog pages and drawings for the specified flow switches must not be exceeded. These pressures and temperatures take into consideration possible system surge pressures/temperatures and their frequencies.

Selection of materials for compatibility with the media is critical to the life and operation of GEMS flow switches. Take care in the proper selection of materials of construction; particularly wetted materials.

Life expectancy of switch contacts varies with applications. Contact GEMS if life cycle testing is required.

Ambient temperature changes do affect switch set points, since the specific gravity of a liquid can vary with temperature.

Flow switches have been designed to resist shock and vibration; however, shock and vibration should be minimized.

Liquid media containing particulate and/or debris should be filtered to ensure proper operation of GEMS products.

Electrical entries and mounting points may require liquid/vapor sealing if located in an enclosed tank.

Flow switches must not be field repaired.

Physical damaged sustained by the product may render it unserviceable.



Gems Sensors Inc.
One Cowles Road
Plainville, CT
06062.1198

tel 860.747.3000
fax 860.747.4244



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