

PS35 Magnetic Level Gauge Switch

Magnetically actuated pneumatic switch K-TEK Products



Introduction

The PS35 is a point level (on - off) pneumatic switch device used in conjunction with the KM26 Magnetic liquid level indicator, LS Series Cage Level Switch or an External Chamber containing a magnetic float. The unique magnetic coupling action eliminates the need for such things as seals, diaphragms, springs or torque tubes. Since process connections to the switch are eliminated, the user is insured complete isolation from the process. Valves are not required to block off the switch from the process for maintenance or operational testing. Preventive maintenance functions are greatly reduced since the switch never contacts the process fluid.

Features

- Unique concept of magnetic coupling, eliminating direct contact with process
- No process piping or valves required
- Easy mounting and adjustment; only a small screwdriver required
- Action is field reversible
- Positive action - output is either zero or supply pressure, no intermediate values
- Vibration resistant
- Integral high volume, rapid response relay
- Low air or gas consumption
- Corrosion resistant construction

SPECIFICATIONS

Medium	Filtered air or gas supply
Supply Pressure	15 to 100 psig (1 to 6.9 bar)
Flow Rate	22 scfm @ 100 psig supply (0.62 scmm @ 6.9 bar supply)
User Connections	1/8" MNPT
Operating Temperature Range	0°F to 180°F (-18°C to 82°C) (Also see /INS option in ordering information. Contact factory regarding other temperature limits.)
Dead Band (hysteresis)	Approximately ±0.5" (±1.2cm) of float movement
Air Consumption	0.10 scfm at 100 psig (0.003 scmm @ 6.9 bar)
Housing	NEMA 4X Stainless Steel
Other Options	LR35 Latching Relay for differential gap control (See Figure 3)
Approvals	GOST Russia



OPERATION

The PS35 switch mechanism consists of the following integral components:

1. Actuating lever-spindle-magnet assembly
2. Whisker valve assembly
3. Pneumatic relay

When the whisker valve is in the unactuated position (see Figure 1), a backpressure is created that causes the pneumatic relay diaphragm to move. This allows supply gas at the relay input port to pass through to the output port and thus to the final control element. As the magnetic float travels past the switch, the actuating level tips the whisker level, venting the backpressure on the relay. This allows the relay diaphragm to vent to atmosphere and move to the opposite position. The supply pressure is then blocked from the output port, and the output port is vented to atmosphere. The PS35 is easily reconfigured in the field with regard to the action of the air-on/air-off relative to the float (see ordering information).

ORDERING INFORMATION:

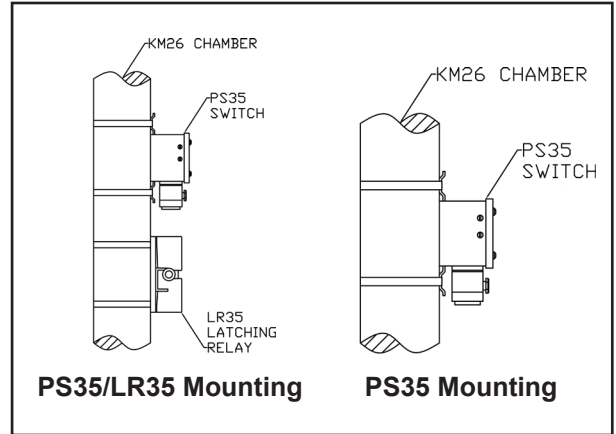
PS35 / a / b / c / d:

/a	L	Air on final control element when float is below switch
	H	Air on final control element when float is above switch
/b	F	Filter supplied on input port of switch
/c	RD	Optional Rod Mount (requires KM26 with switch mounting rod)
/d	INS	Thermal Insulation Pad (allows operation to 450°F / 232°C)

MOUNTING

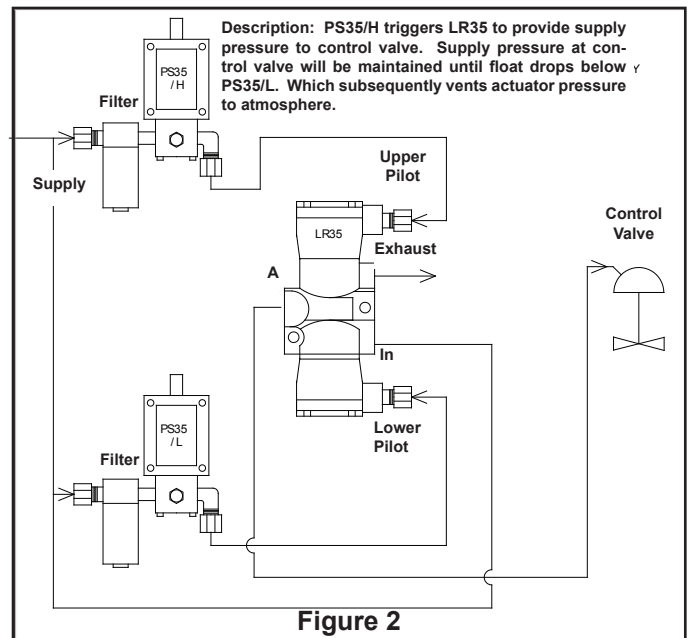
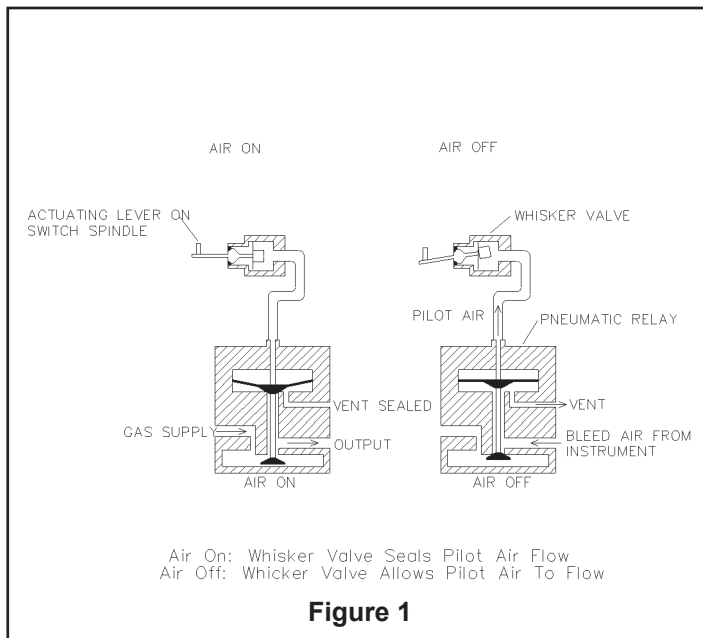
The simplicity of mounting the PS35 switch housing is such that the only necessary tool is a small screwdriver. The switch is attached to the KM26 via two small stainless steel variable clamps. These clamps allow the switch to be positioned anywhere over the entire length of the float chamber, thereby providing an infinitely variable trip point setting. Loosening the clamps will allow the PS35 to be easily moved to provide a new trip point. Other switches can be added at any time without the concern for additional process piping or valves.

Note: Two switches can be mounted so they can trip at the same point or at two different points separated by less than the length of a switch



APPLICATION

The PS35 is designed to provide a pneumatic control signal dependent on the liquid level within a vessel. The device is configurable such that actuation can occur on rising and falling level (see ordering information). When a magnetic float passes in the first direction, the PS35 will route the input supply gas through to its output port. When the float passes in the opposite direction, the supply gas is shut off (disconnected) from the output port and the output port typically vents to the atmosphere. The PS35 thus provides the user with a pneumatic signal that can be used to activate alarms and/or open and close control valves. An example application would be the pneumatic operation of safety shutdown systems on oil and gas production equipment.



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