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PS45 Magnetic Level Gauge Switch

Magnetically actuated “no-bleed” switch K-TEK Products



Introduction

The PS45 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. 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
- Corrosion resistant construction
- No air or gas consumption required
- High reliability - minimal required maintenance

SPECIFICATIONS

Medium	Filtered air or gas supply
Supply Pressure	1 to 100 psig (0.7 to 6.9 bar)
Flow Rate	10 scfm @ 100 psig supply (0.3 scmm @ 6.9 bar supply)
User Connections	1/8" FNPT
Operating Ambient Temperature Range	0°F to 176°F (-18°C to 80°C 93°C max. for general purpose only)
Dead Band (hysteresis)	Approximately ±0.5" (±1.2cm) of float movement
Air Consumption	0.0 scfm
Housing	NEMA 4X Stainless Steel
Options	Filter on supply side of switch
Approvals	ATEX Constructional Safety



OPERATION

The PS45 switch mechanism consists of the following integral components:

1. Actuating cam-spindle-magnet assembly
2. Precision Micropilot™ valve assembly
3. User connections.

As the magnetic float travels past the switch, the cam-spindle-magnet assembly actuates the Micropilot™ valve assembly. The switch will then provide for a path for the supply gas to travel between ports A-C or B-C, depending on the position of the float relative to the switch (see Figure 1). A continuous gas supply is not required for normal operation since the PS45 is not a pilot operated device. The PS45 is easily configured in the field as direct or reverse acting by simply changing the field connections at ports A & B. All user connections are 1/8" FNPT.

Ordering Information:

PS45.a.b.c.d.e

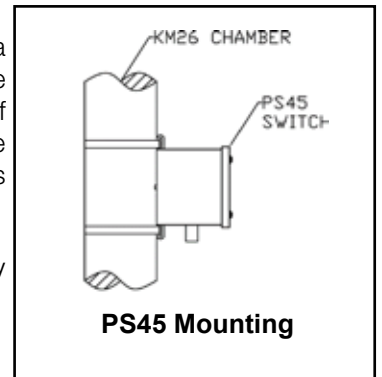
- .a**
 - L Air on final control element when float is **below** switch
 - H Air on final control element when float is **above** switch
- .b**
 - X None
 - F Filter supplied on input port of switch (See Figure 2)
- .c**
 - X None
 - RD Optional Rod Mount (requires KM26 with switch mounting rod)
- .d**
 - X None
 - INS Thermal Insulation Pad (allows operation to 450°F / 232°C Process Temperature)
- .e**
 - X General Purpose, No Approvals
 - U4 ATEX Constructional Safety

Note: The action of the pneumatic switch will be determined by user connection of Ports A, B & C. Option H or L will determine how the optional filter and vent fitting are supplied from the factory. The filter and vent fitting are easily changed in the field.

Mounting

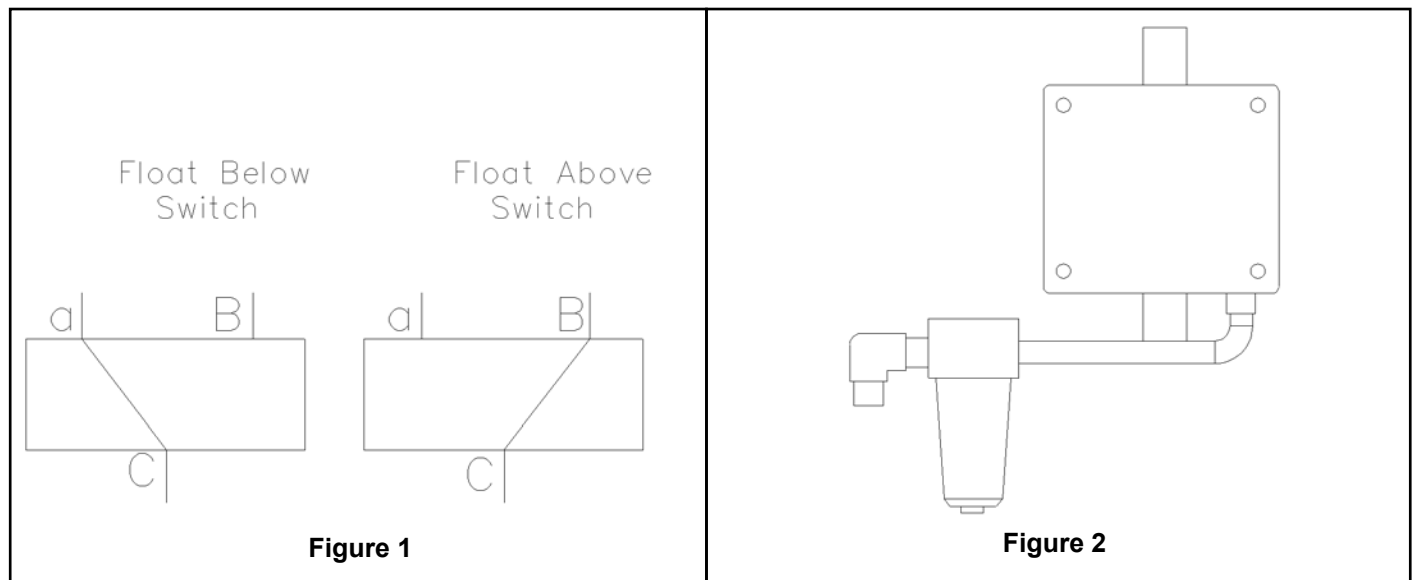
The simplicity of mounting the PS45 switch housing is such that the only necessary tool is a small screwdriver. The switch is attached to the KM26 via two small stainless steel variable clamps. These clamps allow the switch to be positioned anywhere over the entire length of the float chamber, thereby providing an infinitely variable trip point setting. Loosening the clamps will allow the PS45 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 PS45 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 PS45 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 vented to the atmosphere. The PS45 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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