Pneumatic Level Control

MAGNETICALLY ACTUATED NO-BLEED PNEUMATIC SWITCH (JP-450)

Installation, Operation and Maintenance Instruction Manual

PNEUMATIC LEVEL CONTROL
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1.1 INTRODUCTION

JP-450 pneumatic switches are designed for use on magnetic liquid level gages only. The JP-450 is a non-bleed pneumatic switch that operates when the magnetic field of the float passes by it, either on a rising or falling level condition. Since there is no physical interaction or connection between the switch and float, it is very important that all installation instructions be followed properly for the switch to function reliably. Please read all installation and operation instructions before beginning installation.

1.2 OPERATING SPECIFICATIONS

Medium:	Filtered Air or Gas
Supply Pressure:	V AC to 200 PSIG
Max. Temp:	200°F (93°C)
AirFlow:	29 SCFM @ 100 PSIG
Air Consumption:	ZeroSCFM

1.3 INSTALLATION

1. Loosen the included hose clamps completely and install them so they surround the gage chamber.
2. Insert the top hose clamp in the top mounting bracket (connections should face down). Before tightening, you may adjust the height at which you would like the alarm to trigger.
3. Since the switch should be securely fastened to the gauge chamber by the top clamp, slide the bottom hose clamp through the bottom mounting bracket and tighten it to the chamber.
4. The switch must also be flush and tight against the chamber. Failure to do this results in vibration and rattling of the switch, which may, in extreme circumstances, cause the switch to fail.
5. No material should be present between the switch housing and the gauge chamber. Any material present can interfere with the magnetic field of the internal float and prevent proper activation of the switch. Also, check inside the enclosure to verify that there is nothing obstructing the switch cam that might cause the internals to hang up.

1.4 OPERATION & MAINTENANCE

1. The pneumatic supply line must be connected to the connection labeled **A** OR **B**. The output to the alarm or other signaling device must be connected to the connection labeled **C**.
2. When configured as a High Level Switch, **B** is the supply port that will activate the output when the float passes above the switch. **A** is the vent.
3. When configured as a Low Level Switch, **A** is the supply port that will activate the output when the float passes above the switch. **B** is the vent.
4. All input and output connections are 1/8 inch NPT connections.
5. The muffler must remain uncovered and clean for proper non-bleeding functioning of the switch. If covered, the interior of the switch may pressurize and explode.
6. Pneumatic connections must provide air or gas that is free of particulate matter or debris. Dirty supply gas may cause the valve inside to clog and lead the switch to failure.
7. When the switch is first installed, **it is necessary to set the switch for normal operation.** This is accomplished by passing the float past the switch. The chamber can be filled with liquid so the float rises above the switch and then drained so the float falls below the switch. The switch can also be manually cycled with the float to set it for normal operation. If the switch is being positioned above the float, the float must pass in the down direction before installation and conversely if the switch is positioned below the float.

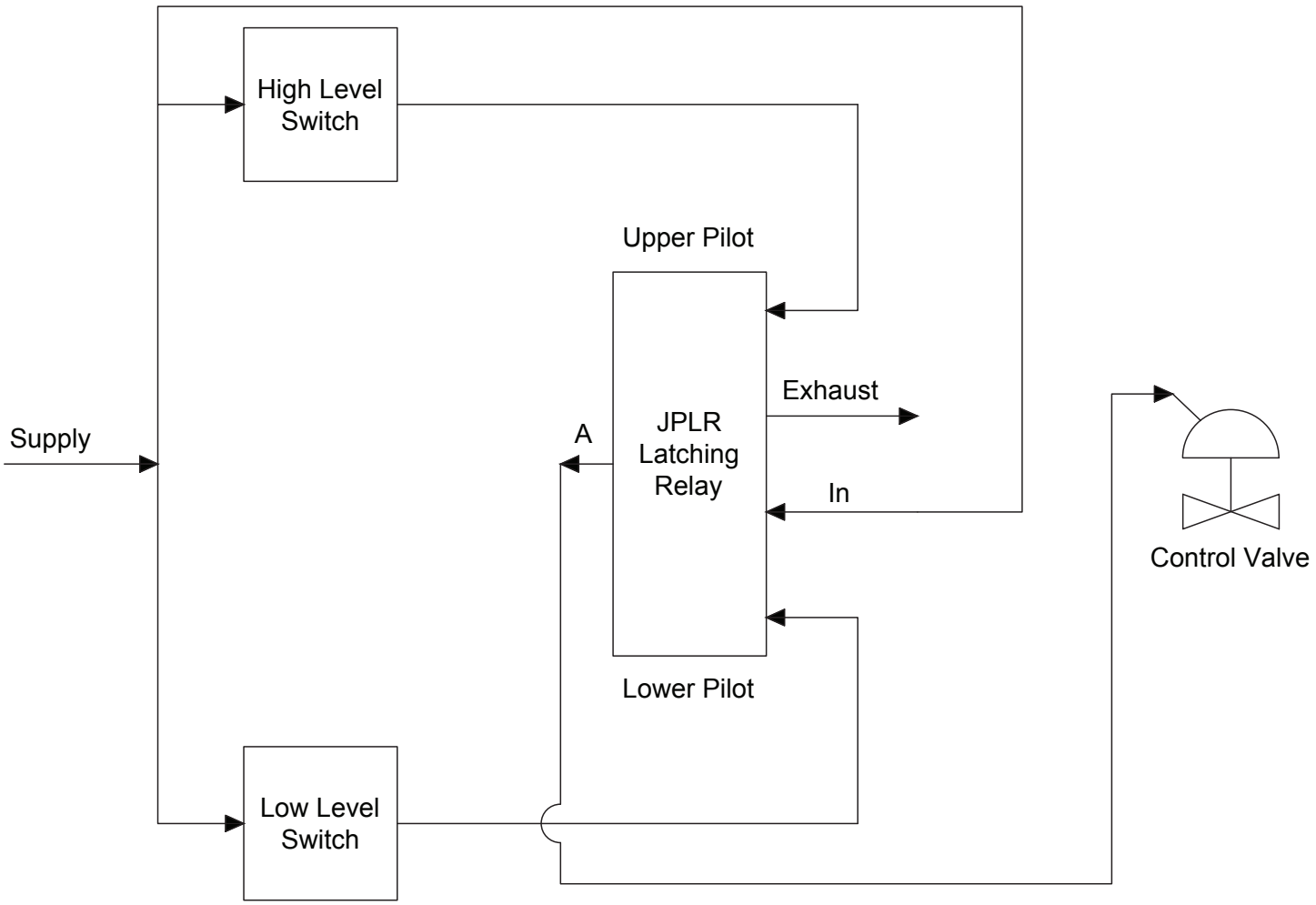
1.5 JPLR PNEUMATIC LATCHING RELAY OPERATING INSTRUCTIONS

1. Applying pressure to the upper pilot connects the main air pressure at the “In” port to port “A”. It takes approximately 10 psig to activate the relay.

2. Main air pressure is maintained at port “A” even when the upper pilot air is removed.

3. Applying pressure to the lower pilot connects port “A” to the exhaust port.

NOTE: Dump valve configuration shown. To reverse action, hook the high level switch to the lower pilot and the low level switch to the upper pilot.



1.6 JP-450 AIR PURITY REQUIREMENT

Jogler, LLC suggests the following minimums in compressed air purity per ISO 8573.1 for the JP-450 Pneumatic Magnetic Point Level Switch. See Tables 1, 2 and 3 below for Class definitions.

- Particle Class: 2
- Humidity Class: 4
- Oil Class: 2

Table 1 – Compressed air purity classes for particles

Class[a]	Maximum number of particles per cubic meter as a function of particle size, d[b]		
	0,1 µm < d ≤ 0,5 µm	0,5 µm < d ≤ 1,0 µm	0,5 µm < d ≤ 1,0 µm
0	As specified by the equipment user or supplier and more stringent than class 1		
1	≤ 20 000	≤ 400	≤ 10
2	≤ 400 000	≤ 6 000	≤ 100
3	Not specified	≤ 90 000	≤ 1 000
4	Not specified	Not specified	≤ 10 000
5	Not specified	Not specified	≤ 100 000
Class	Mass concentration[b] C_p Mg/m^3		
6c	$0 < C_p \leq 5$		
7c	$5 < C_p \leq 10$		
X	$C_p > 10$		

[a] To qualify for a class designation, each size range and particle number within a class shall be met.
[b] At reference conditions; see Clause 4.
[c] See A.3.2.2.

1.6 JP-450 AIR PURITY REQUIREMENT

Table 2 – Compressed air purity classes for humidity and liquid water

Class	Maximum number of particles per cubic meter as a function of particle size, d[b]
0	As specified by the equipment user or supplier and more stringent than class 1
1	≤ -70
2	≤ -40
3	≤ -20
4	≤ +3
5	≤ +7
6	≤ +10
Class	Concentration of liquid watera C_w g/m^3
7	$C_w \leq 0,5$
8	$0,5 < C_w \leq 5$
9	$5 < C_w \leq 10$
X	$C_w > 10$
[a] At reference conditions; see Clause 4	

Table 3 – Compressed air purity classes for total oil

Class	Concentration of total oil[a] (liquid, aerosol and vapour) mg/m^3
0	As specified by the equipment user or supplier and more stringent than class 1
1	≤ 0,01
2	≤ 0,1
3	≤ 1
4	≤ 5
X	> 5
[a] At reference conditions; see Clause 4	

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