

Pressure Switch - Proper Selection

There are numerous decisions that need to be made before you can properly select a pressure switch. Understanding how and what a switch does is the first criteria to understanding its place in the field.

A pressure switch reacts to a change in pressure and either opens or closes an electrical circuit. Once you understand this concept the rest is fundamental.

Selection can be simplified by breaking the process down into four steps. By answering the following questions you will have the majority of knowledge required to make a selection.

1. The switch housing
 - a. NEMA Rating (4, 4X, 7, 9 etc.)
 - b. Electrical Element rating (15A, 125/250 Vac., 250 Vdc. Etc)
{This is to make sure you are not trying to run a large motor or load directly through the switch.}

2. Pressure
 - a. What is the maximum system pressure?
 - b. At what pressure do you want the switch to open or close?
{Set Point}
 - c. Do you want the switch to respond to rising or falling pressure?
{This helps in setting the switch in the factory if required.}
 - d. Are there limitation on the Deadband? This is the point that a switch needs to "re-arm" or reset. Let's assume a switch is set to trip @ 50 PSIG on falling pressure to turn on a pump. Once the switch has tripped and the pressure starts to rise above 50 PSI, the Deadband is the point the switch re-arms itself. This could be 51, 52 or 53 PSI. If the Deadband on a switch is 2 PSI and it trips @ 50 PSI then the system pressure must rise above 52 PSI to reset. This is typical of a fixed Deadband.
 - e. What is an Adjustable Deadband? This is one where you can set the trip and reset point on a switch. In this case you could set the switch to trip @ 50 PSI falling pressure to turn on the pump and 75 PSI to turn off the pump. This type of switch would have a Deadband range of about 90% of Maximum operating pressure of the switch. i.e. a switch that is a 100 PSI switch would have an adjustable range of

about 10-90 PSI. A fixed Deadband would be 0.5 to 7 psi. You could use a fixed Deadband if the system is large enough that the pump in this case would not short cycle.

3. Process connection
 - a. What is the media the switch will come into contact with? Water, Oil, Acid etc?
 - b. What is the temperature of the process media?
4. Variations
 - a. Does the switch need a diaphragm seal to protect it from aggressive chemicals.
 - b. Are there vibration, pulsation or temperature extremes that need to be handled?

The above information is sufficient to determine a full model number for the proper selection.

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