

PRESSURE SWITCH GLOSSARY

Air Switch

A device that detects changes in air pressure or air flow and produces an electrical control signal. In operation, the movement of a diaphragm in response to changes in air pressure, actuates an electrical switch to perform a wide variety of alarm and control functions.

Set Point

The position to which the control set point mechanism is preset to initiate switching action.

Adjustable Set Point Switch

A switch designed with a mechanism to permit field selection of the set point.

Fixed Set Point Switch

A switch which is factory calibrated for a specific set point which cannot be altered later.

Atmospheric Pressure

The pressure exerted in every direction at any given point by the weight of the atmosphere. The factory "zero" setting of a Cleveland Controls air switch is calibrated to match atmospheric pressure.

Positive Pressure Switch

A switch that operates in response to pressure greater than atmospheric pressure.

Negative Pressure or Draft Switch

A switch that operates in response to pressure less than atmospheric pressure.

Differential Pressure Switch

A switch that operates in response to the difference between two pressure inputs.

Operate

Mechanically change the electrical contact position of the switch due to a change in pressure.

Release

Mechanically return the electrical contact position to the original (pre-operate) state.

Make and Break

The result of operating and releasing: the closing of the switch contacts completes or makes a circuit, while the opening of the switch contacts interrupts or breaks the circuit.

Sensitivity

The minimum amount of pressure required to operate or release the air switch.

Switching Differential

The difference between the pressure change required to operate the switch (cause it to "make") and the pressure change required to release it (cause it to "break" the circuit, expressed in inches water column.

Pressure Differential

The difference between any two pressures.

Pressure Conversion Factors

Multiply: **By:**

To Obtain Inches of Water

centimeters of water	.394
millimeters of water	.0394
inches of mercury	13.6
lb./square inch	27.68
centimeters of mercury	.029
millimeters of mercury	.0029
kilograms/square centimeters	393.6

To Obtain Inches of Mercury:

inches of water	.0735
centimeters of mercury	.394
millimeters of mercury	.039
lbs./square inch	2.036

To Obtain PSI's:

inches of water	.0361
inches of Mercury	.491

Volumetric Flow Equations

$$Q = AV$$

$$A = Q / V$$

Where:

Q = Quantity of Flow in cubic feet per minute (cfm)

A = Cross-sectional Area of duct in square feet (ft²)

V = Average Velocity in feet per minute