Air/Gas Pressure Switches

High pressure cutoff
Low pressure cutoff

Air Pressure Switches

High or low pressure cutoff
Differential pressure

PSA, PSAA
Automatic Reset
PSAD
Differential

PSMH, PSML
Manual Reset

UL Listed

DESCRIPTION

Fireye Air/Gas Pressure Switches for low or high pressure cutoff or air differential pressure are reliable, accurate, and have a high degree of repeatability. They are listed by UL and are IRI Approvable for Air/Gas Safety Switch Applications with fuel burners. Air/Gas Pressure Switches are available in a variety of ranges, for low or high pressure cutoff, with automatic or manual reset. For those applications which do not have the venting requirements of a gas system, a series of automatic pressure switches for air only, are available including an air differential pressure switch to provide proof of air flow.

SPECIFICATIONS

Fireye Pressure Switches are available with the listed features in the following types and ranges:

Set Point:
Adjustable

Ambient Temp. Limits
-13°F (-25°C) to 140°F (60°C)

Electrical Connection:
Lead Wires -#14AWG x 24"
(PSML & PSMH, only)
Screw Terminals, PSA, PSAA, PSAD

Dial Marking:
Inches of Water Column

Pilot Duty:
300 VA

Switch:
SPDT, 120 VAC, 10A; 240 VAC, 5A

Automatic Reset:
PSA, PSAA*, PSAD*
* For air applications only

Manual Reset:
PSMH, PSML

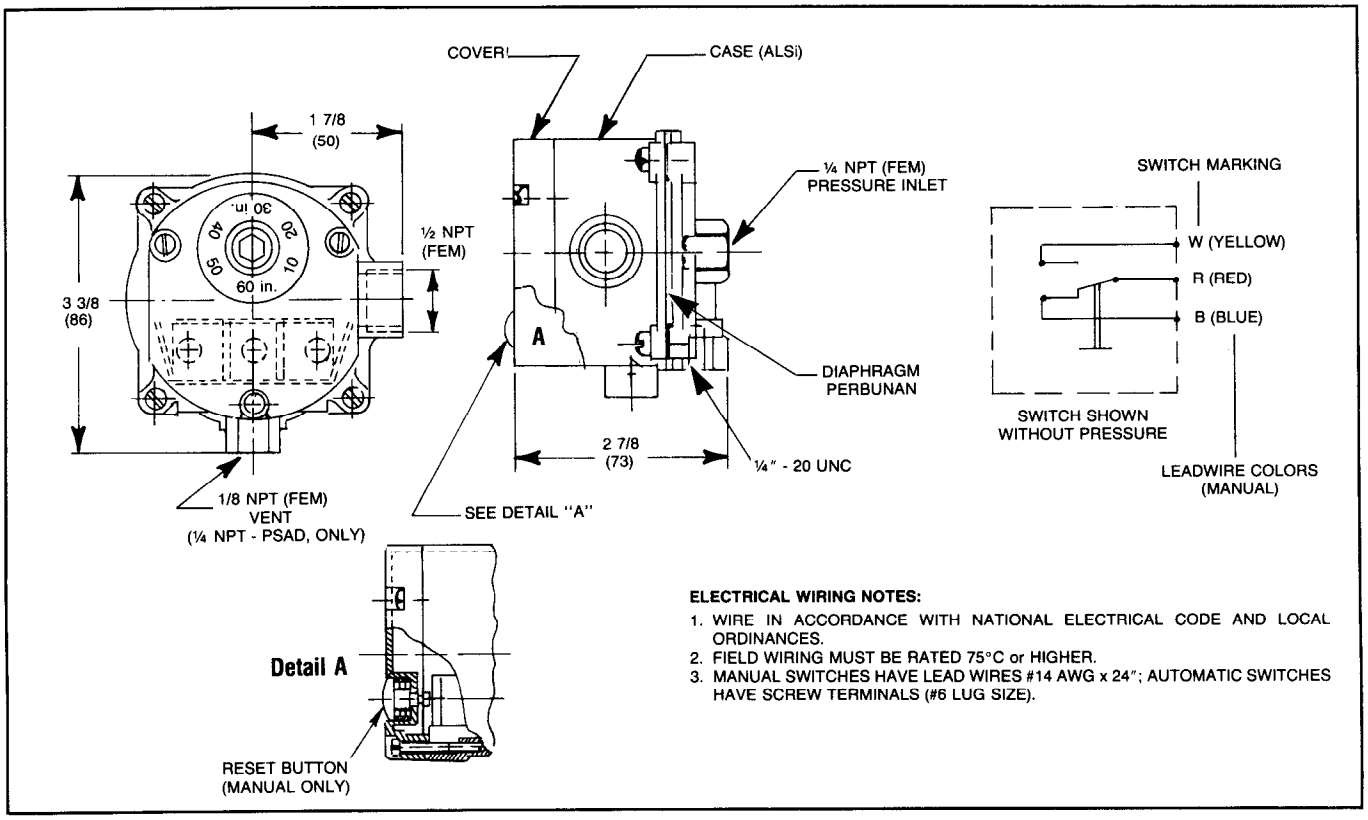
Range:
See Type and Range Table

TYPE AND RANGE TABLE

PSA	PSAA	PSAD	PSMH	PSML	TYPE	PRESSURE (INCHES WC) RANGE	PRESSURE (INCHES WC) DIFFERENTIAL	MAX. SURGE PRESS.
*	*			*	2-5	0.4 - 2.4	.08 - .16	3 PSI
*	*	*	*	*	6	1.0 - 6.0	.16 - .32	3 PSI
*	*		*	*	12	2.0 - 12.0	.28 - .60	3 PSI
*	*		*	*	30	5.0 - 30.0	.60 - 1.2	3 PSI
*	*		*	*	60	10.0 - 60.0	1.0 - 2.0	3 PSI

* Denotes availability

DIMENSIONS, MATERIALS AND WIRING



ELECTRICAL WIRING NOTES:

1. WIRE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND LOCAL ORDINANCES.
2. FIELD WIRING MUST BE RATED 75°C or HIGHER.
3. MANUAL SWITCHES HAVE LEAD WIRES #14 AWG x 24"; AUTOMATIC SWITCHES HAVE SCREW TERMINALS (#6 LUG SIZE).

OPERATION

PSA Air/Gas Pressure Switch (Automatic Reset)
PSAA Air Pressure Switch (Automatic Reset)

Low Pressure Cutoff

The switch between terminals "R" and "W" will open when the inlet pressure falls below the dial setting. The switch will close when the inlet pressure rises above the dial setting. The switch between terminals "R" and "B" may be used to actuate an alarm that the low pressure cutoff has tripped.

High Pressure Cutoff

The switch between terminals "R" and "B" will open when the inlet pressure rises above the dial setting. The switch will close when the inlet pressure falls below the dial setting. The switch between terminals "R" and "W" may be used to actuate an alarm that the high pressure cutoff has tripped.

PSML Air/Gas Pressure Switch (Manual Reset)

Low Pressure Cutoff

When the inlet pressure is above the dial setting, the reset button may be depressed and the switch between the red and yellow lead wire will close. The switch will open when the inlet pressure falls below the dial setting and will not reclose until the inlet pressure is above the dial setting and the reset button depressed. The switch between the red and blue lead wires may be used to actuate an alarm that the low pressure cutoff has tripped.

PSMH Air/Gas Pressure Switch (Manual Reset)

High Pressure Cutoff

When the inlet pressure is below the dial setting, the reset button may be depressed and the switch between the red and blue lead wires will close. The switch will open when the inlet pressure exceeds the dial setting, and will not reclose until the inlet pressure is below the dial setting, and the reset button depressed. The switch between the red and yellow lead wires may be used to actuate an alarm that the high pressure cutoff has tripped.

PSAD Air Differential Pressure Switch (Automatic Reset)

Proof of Air Flow (By Differential Pressure)

With the positive or higher pressure connected to the bottom inlet and the negative or lower pressure connected to the side inlet, when the pressure differential rises above the dial setting, the switch between terminals "R" and "W" will close signaling that air flow exists. When the pressure differential falls below the dial setting, the switch between "R" and "W" will open. The switch between terminals "R" and "B" may be used to activate an alarm that insufficient air flow exists.

INSTALLATION

Fireye Pressure Switches should be mounted to a rigid structure that is free from excessive vibration. While the pressure switch will operate in any position, preferred orientation is with the inlet connection vertically downward or horizontal to prevent dirt or moisture from plugging the orifice.

The pressure switch may be supported by the ¼" inlet pipe, a ¼"-20 UNC bolt in the tapped hole below the ⅛" vent port or by the ½" EMT at the conduit hub.

Sufficient clearance should be maintained for screw and cover removal which is essential for wiring. The dial is readable from the top or front and can be adjusted manually with the cover removed or by Allen Key with the cover in place.

Caution:
1. Installer must be trained and qualified.
2. Turn off electric power and gas before installation.
3. Use clean pipe and fittings.
4. Hex shaped projections are provided for tightening fittings and joints. Do not apply wrenches to other case surfaces.
5. Pipe dope should be applied sparingly keeping the first two male threads clean. (LP gas requires a special pipe dope "Resistant to the action of LP Gas.")

TESTING

Fireye Air/Gas Pressure Switches have been Factory Tested for calibration and leaks. It is recommended that after the installation is completed, the switch, gas piping inlets, and connections be tested for leaks with a soap bubble test.

Caution:
1. When the installation is completed, test the operation to verify the unit functions properly.
2. If a valve train, that includes Fireye Pressure Switches, is pressure tested, the pressure switches must be removed if the test pressure exceeds 3 PSI, or the diaphrams may rupture.
3. Test the completed installation at least once a month to verify proper operation.

ADJUSTING THE SET POINT

An Allen Wrench may be used to rotate the calibration dial to the desired setting, or by removing the plastic cover, the dial may be set manually. A line is molded into the cover as a reference for dial adjustment. The set point markings on the dial are nominal. If more accurate setting is required, a "U" tube or inclined manometer should be used.

Caution:
1. Do not force the dial beyond the stops.
2. Replace the cover after manually adjusting the dial.

APPLICATIONS

The Fireye Pressure Switches can be applied in many combustion and air systems where pressure or air flow changes are of importance to the operation of the system. Some are listed below:

Gas Fired Burners ..... Proof of air flow for combustion chamber purge.
Sufficient gas pressure for light-off.
Excessive gas pressure for safe operation.

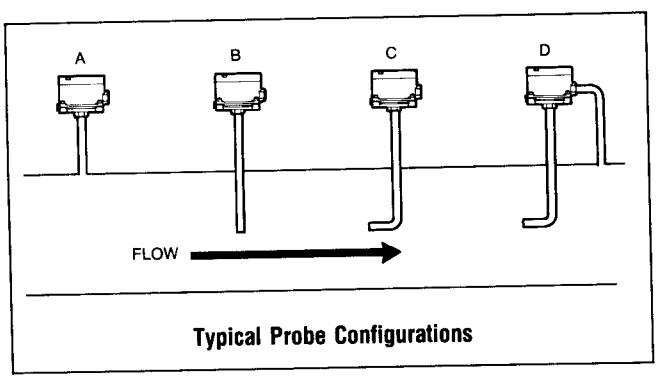
Forced Draft Boilers ..... Proof of air flow for proper combustion and safe operation.

Natural Draft Boilers ..... Signal insufficient draft, shuts down firing system. Restarts when system corrects.

Induced Draft Boilers ..... Proof of air flow for internal duct fan, shuts down system on fan failure.

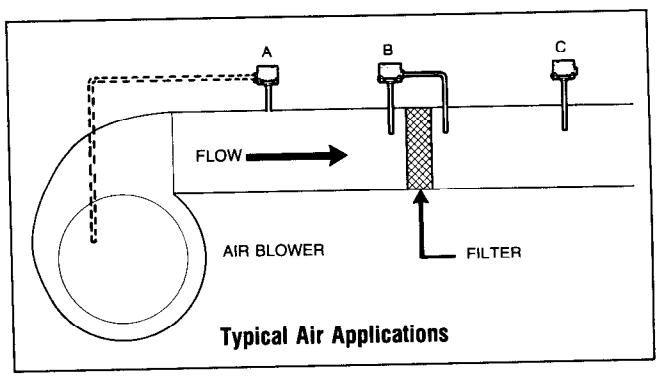
HVAC Systems ..... Indicates filter dirt build-up. Responds to air pressure changes due to coil icing.

Below is added information which may be of assistance to you in your application:



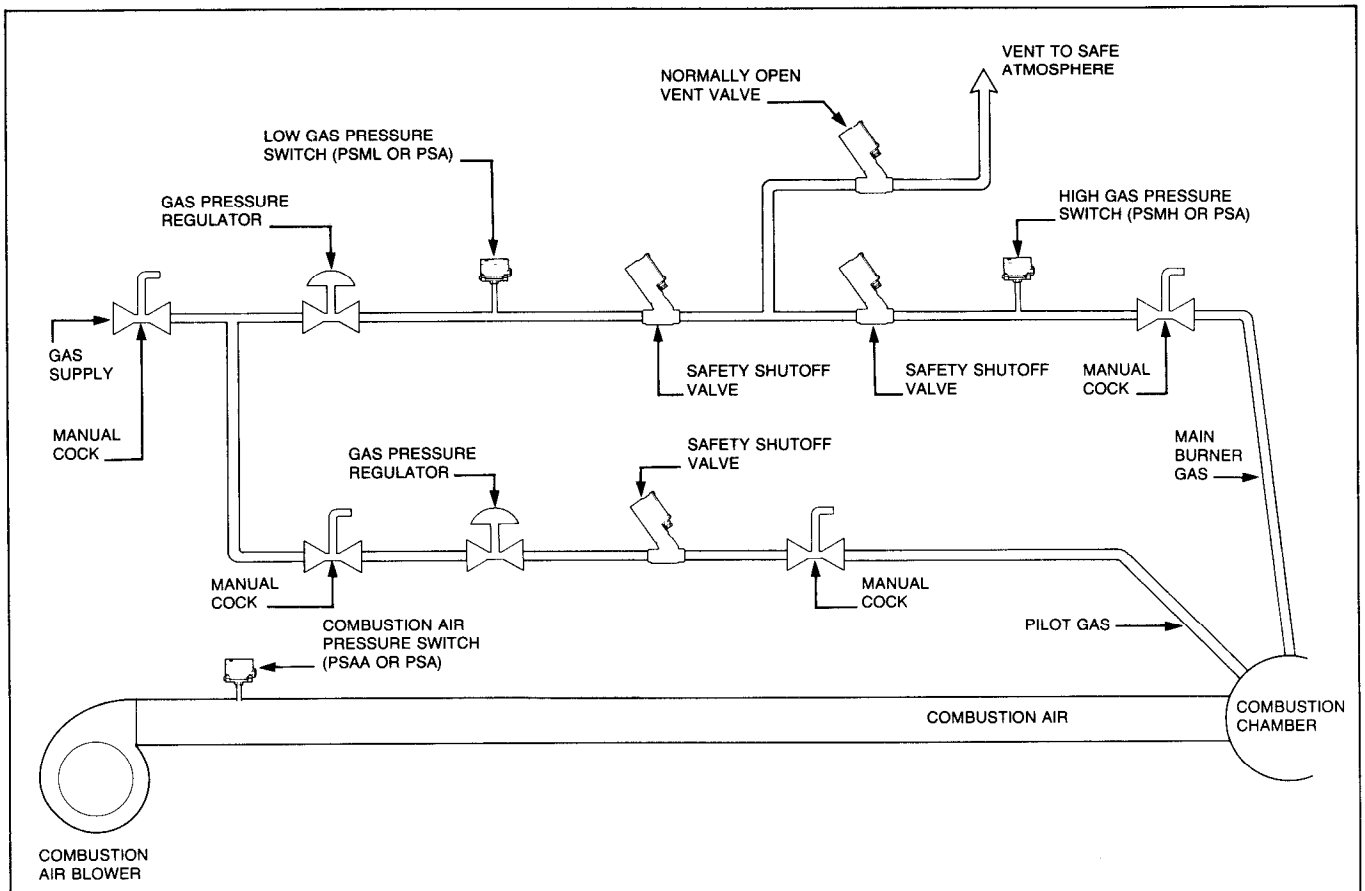
Typical Probe Configurations

A. Positive static pressure.
B. Negative velocity pressure with low static pressure.
C. Positive total pressure (velocity plus static).
D. Positive velocity pressure (static pressure cancelled).



Typical Air Applications

A. Proof of air flow by positive pressure (use PSAA or PSA). For increased sensitivity, dashed lines show negative pressure probe location for differential pressure switch application (use PSAD).
B. Differential pressure increase indicates filter dirt build-up (use PSAD).
C. Negative pressure indicates air flow - pressure reduces as filter dirt builds up (use PSAA or PSA).



Typical Gas Fired Piping Schematic

PRESSURE CONVERSION

EQUIVALENT RANGE TABLE

Inches WC	mm WC	m Bar	Kilo Pascals	PSI
0.4-2.4	10-61	1.0-6.2	0,1-0,6	.014-.087
1.0-6.0	25-152	2.5-15	0,25-41	.036-.218
2.0-12	51-305	5.0-30	0,5-82,4	.072-.435
5.0-30	127-762	12.5-75	35-210	.181-1.09
10-60	254-1524	25-150	70-420	.362-2.18

Inches wc x 25.4 = mm wc
Inches wc x 2.5 = m Bar
Inches wc x 0,25 = K Pas
Inches wc x .03625 = PSI

mm wc x .03937 = Inches wc
m Bar x 0.4 = Inches wc
K Pas x 4 = Inches wc
PSI x 27.59 = Inches wc

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