



Installation Instructions

Air Flow Switch

Catalog Number(s) 1414-CPN10APWAB,
1414-CPN10APQAB, 1414-CPM10APWAB



About Air Flow Switch (AFS)

The AFS is a general purpose airflow proving switch designed for HVAC and energy management applications. It may be used to sense positive, negative or differential air pressure.

The plated housing contains a diaphragm, a calibration spring and a snap-acting SPDT (NC) switch.

The sample connections located on each side of the diaphragm accept a .25" OD tubing via the integral compression and nut.

An enclosure cover guards against accidental contact with the live switch terminal screws and the set point adjusting screw. The enclosure cover will accept a .5" conduit connection. The AFS (1414-CPM10APWAB) has a reset button located on the top surface of the enclosure cover.

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://www.literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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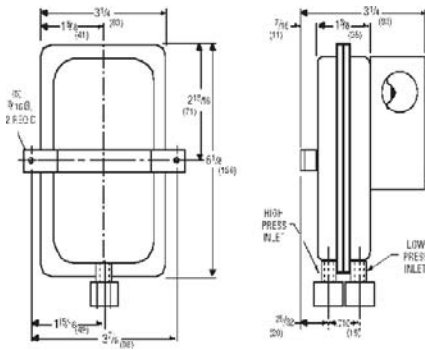
Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

<p>WARNING</p> 	<p>Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.</p>
<p>IMPORTANT</p>	<p>Identifies information that is critical for successful application and understanding of the product.</p>
<p>ATTENTION</p> 	<p>Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.</p>
<p>SHOCK HAZARD</p> 	<p>Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that dangerous voltage may be present.</p>
<p>BURN HAZARD</p> 	<p>Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that surfaces may be dangerous temperatures.</p>

Install Air Flow Switch

Select a mounting location which is free from vibration. The AFS pressure switch MUST be mounted with the diaphragm in any vertical plane in order to obtain the lowest specified operating set point. Avoid mounting with the sample line connections in the “UP” position. Surface mount via the two 3/16” diameter holes in the integral mounting bracket. The mounting holes are 3 7/8” apart.

Figure 1 Dimensions

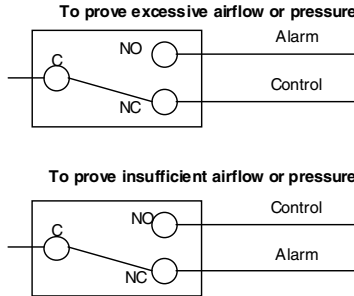


Air Sampling Connection

The AFS is designed to accept sample lines of .25” OD tubing by means of ferrule and nut compression connections. Locate the sampling probe a minimum of 1.5 duct diameters down stream from the air source. Install the sampling probe as close to the air stream as possible. The low pressure side is designated by the stamped ‘LOW’ on the housing of the diaphragm.

- Positive Pressure Only: Connect the sample line to the LOW side and the HIGH side remains open to atmosphere.
- Negative Pressure Only: Connect the sample line to the HIGH side and the LOW side remains open to atmosphere.
- Two Negative Samples: Connect the higher negative sample to the HIGH side and the lower negative sample to the LOW side.
- Two Positive Samples: Connect the higher positive sample to the LOW side and the lower positive sample to the HIGH side.
- One Positive and One Negative Sample: Connect the positive sample to the LOW side and connect the negative sample to the HIGH side.

Figure 2 Alarm or Control



Field Adjustment

From lowest operating point several turns of the adjusting screw are necessary to engage the calibration spring. No change in set point will occur until the spring is engaged. For higher set points continue turning screw in a clockwise direction. It may be useful to connect a manometer in parallel with the switch when adjusting, as the final operating point can be noted for future reference. Please see specifications for actual ranges and set point information.

Specifications

Air Flow Switch Specifications

Specification	1414-CPN10APWAB	1414-CPN10APQAB	1414-CPM10APWAB
Sample Media	Air	Air	Air
Mounting Position	Diaphragm in any vertical plane	Diaphragm in any vertical plane	Diaphragm in any vertical plane
Field Adjustable Range	.05, ±.02" w.c. to 12" w.c.	.05, ±.02" w.c. to 2" w.c.	.40, ±.06" w.c. to 12" w.c.
Switch Differential	Progressive, increasing from approximately .02±.01" w.c. at minimum set point, to approximately .8" w.c. at maximum set point.	Progressive, increasing from 0.02±0.01" w.c. at minimum set point to approximately 0.1" w.c. at maximum set point.	Progressive, increasing from approximately .06±.01" w.c. at minimum set point, to approximately .8" w.c. at maximum set point.
Maximum Pressure	.5" (0.03 bar)	.5" (0.03 bar)	.5" (0.03 bar)
Operating Temperature Range	-40°C ... 82.2°C (-40°F...180°F)	-40°C ... 82.2°C (-40°F...180°F)	-40°C ... 82.2°C (-40°F...180°F)

Air Flow Switch Specifications

Specification	1414-CPN10APWAB	1414-CPN10APQAB	1414-CPM10APWAB
Life	100,000 cycles/min. at 5psi max pressure each cycle and at max electrical load.	100,000 cycles/min. at 5psi max pressure each cycle and at max electrical load.	600 cycles/min. at 5psi max pressure each cycle and at max electrical load.
Electrical Rating	300 va pilot duty at 115...277vac, 10 amp, non-inductive, 277 vac, 60Hz.	300 va pilot duty at 115...277vac, 10 amp, non-inductive, 277 vac, 60Hz.	300 va pilot duty at 115...277vac, 10 amp, non-inductive, 277 vac, 60Hz.
Contact Arrangement	SPDT	SPDT	SPDT
Electrical Connections	Screw top terminals with cup washers	Screw top terminals with cup washers	Screw top terminals with cup washers
Sample Line Connections	Ferrule and nut compression type connectors that accept .25" OD rigid tubing.	Ferrule and nut compression type connectors that accept .25" OD rigid tubing.	Ferrule and nut compression type connectors that accept .25" OD rigid tubing.
Automatic/Manual Reset	Automatic	Automatic	Manual

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Publication 1414-IN003A-EN-P - October 2005

PN 40055-233-01(1)

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