

SmartZone™

SZD Series Round Supply Air Zone Dampers ***FAD Series Round Fresh Air Dampers***

- **FAIL-SAFE SPRING RETURN DESIGN**
- **BUILT-IN LED FOR POWER INDICATION**

Supply - 6", 7", 8", 9", 10", 12", 14" & 16" Sizes

Fresh Air - 6" & 8" Sizes

GENERAL DESCRIPTION

The SmartZone SZD-series of low pressure two-position dampers was developed using the finest in computer-aided engineering design and analysis tools. Components with critical dimensions are manufactured using high speed laser cutters to ensure a precision fit and quiet operation. The motor is specifically designed with safety factors included at full stall operation for years of carefree operation. The damper return spring, which is critical for the long term reliability of the damper, was specifically designed, manufactured and analyzed for continued operation for millions of cycles of operation. Care was taken throughout the design process to make sure the SZD-series is the finest low pressure damper in the market, the easiest to install, and the most reliable.



Quality Design

- Computer-Aided Engineering Design
- High-Reliability Direct Drive Motor Assembly
- Laser-Cut Precision Components
- Computerized Welding at Critical Seams

Superior Features

- Power-Closed/Spring Return Easy Operation
- Heavy Duty Galvanized Steel Construction
- Precision Rolled Stiffening Beads
- Long Life, Quiet Nylon Bushings
- Synchronous Direct Drive Motor
- 30-Second Operation to Full Position
- Quick Connect Screwless Power Terminals
- Hi-Visibility LED on Connection Assembly for Verification of Damper Power & Closed Position
- Damper Springs Open in case of Power Failure

Flexible Installation

- One Crimped End; One Straight End
- Can be Mounted in Any Position
- Heavy-Duty Galvanized Metal Construction Ensures Uniform Roundness

Specifications

Power	24VAC, 9VA typical (12 VA max)
Motor	Synchronous AC type Heavy-Duty Gearing 30-second operation
Actuator	Direct Drive Shaft Coupling with Backlash Protection Power-Closed / Spring Return
Indicator	Red LED on Power Close
Wiring	2 Screwless Terminals 24VAC, Common
Supply Sizes	SZD06 (6"), SZD07 (7"), SZD08 (8") SZD09 (9"), SZD10 (10"), SZD12 (12") SZD14 (14") and SZD16 (16")
Fresh Air Sizes	FAD06 (6"), FAD08 (8")

Fresh Air Dampers

The same high-quality design is available in our 6" and 8" Fresh Air Dampers with Power-Open / Spring Return Actuators. FAD06 (6") and FAD08 (8")

2100 Series

2100 Series Electric Range Air Line Burners
 2100 Series Electric Range Air Burners

- FULL-RANGE BURNING SYSTEM DESIGN
- BUILT-IN FOR THE POWER INDUSTRY



GENERAL DESCRIPTION
 The 2100 Series electric range is designed for use in the power industry. It features a built-in design for easy installation and removal. The range is available in two models: 2100 and 2100A. The 2100 model has a 30-inch width and a 24-inch depth, while the 2100A model has a 30-inch width and a 26-inch depth. Both models feature a full-range burning system with four burners and a self-cleaning oven. The range is designed for use in the power industry and is built to meet the requirements of the industry. It is a durable and reliable appliance that is easy to maintain and operate.

Model	Width	Depth	Height	Weight	Material	Finish	Color	Options
2100	30 in.	24 in.	36 in.	150 lbs.	Stainless Steel	Brushed	White	None
2100A	30 in.	26 in.	36 in.	160 lbs.	Stainless Steel	Brushed	White	None
2100	30 in.	24 in.	36 in.	150 lbs.	Stainless Steel	Brushed	White	None
2100A	30 in.	26 in.	36 in.	160 lbs.	Stainless Steel	Brushed	White	None

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POC Series Round Supply Air Zone Dampers

- Power Open – Power Close DESIGN
- Adjustable Minimum or Maximum Position Setting

Sizes = 6", 7", 8", 9", 10", 12", 14" & 16"



GENERAL DESCRIPTION

The SmartZone POC-series low pressure two-position dampers was developed using the finest in computer-aided engineering design and analysis tools. Components with critical dimensions are manufactured using high speed laser cutters to ensure a precision fit and quiet operation. The actuator was selected because of its field proven reliability and quiet operation. Care was taken throughout the design process to make sure the POC-series is the finest low pressure round power open power close damper in the market, the easiest to install, and the most reliable.

Quality Design

- Computer-Aided Engineering Design
- High-Reliability Direct Drive Motor Assembly
- Laser-Cut Precision Components
- Computerized Welding at Critical Seams

Superior Features

- Power-Closed/Power-Open Easy Operation
- Heavy Duty Galvanized Steel Construction
- Precision Rolled Stiffening Beads
- Long Life, Quiet Nylon Bushings
- Belimo LMC24-XCI Actuator
- 45-Second Operation to Full Position
- Easy Connect Screw Power Terminals
- Hi-Visibility Position Indicator for Verification of Damper Power & Closed Position
- Adjustable Minimum or Maximum Position

Flexible Installation

- One Crimped End; One Straight End
- Can be Mounted in Any Position
- Heavy-Duty Galvanized Metal Construction Ensures Uniformity

NOTE: Motors mounted on bottom are susceptible to condensed water and potential motor shorting. Always insulate and seal any exposed areas.

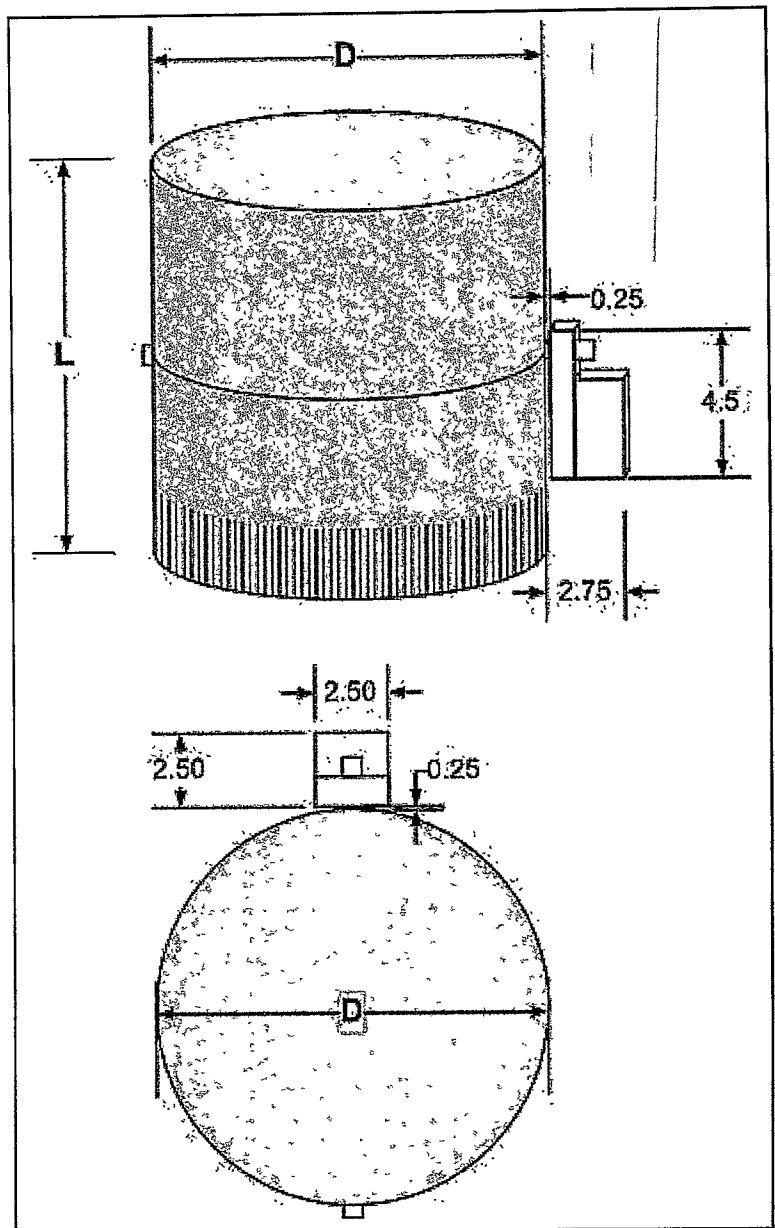
Specifications

Power	24VAC, 3 VA typical (4 VA max)
Actuator	Belimo LMC24-XCI Brushless Motor Design 18 in-lb Torque Power-Close / Power-Open 45 Second Motor Max 90 Degree Travel
Indicator	Adjustable Arrow
Wiring	3 Screw Terminals PO, PC, Common Use 18 Gauge Solid Core 3-Wire
Supply Sizes	POC06 (6"), POC07 (7"), POC08 (8") POC09 (9"), POC10 (10"), POC12 (12") POC14 (14"), POC16 (16")
Dimensions on Reverse	
Modulating Bypass Sizes*	MBD10 (10"), MBD12 (12"), MBD14 (14") MBD16 (16")

*Modulating Bypass Series (MBD)

- Includes **Static Pressure Controller (SPC)** for automatic bypass modulation
- For exact specifications of the Static Pressure Controller and further information on the Modulating Bypass Series refer to **SPC Specification Sheet**

Part Number	D Cylinder Diameter (Inches)	L Cylinder Length (Inches)
POC06	6	12
POC07	7	12
POC08	8	12
POC09	9	12
POC10	10	12
POC12	12	14
POC14	14	16
POC16	16	18



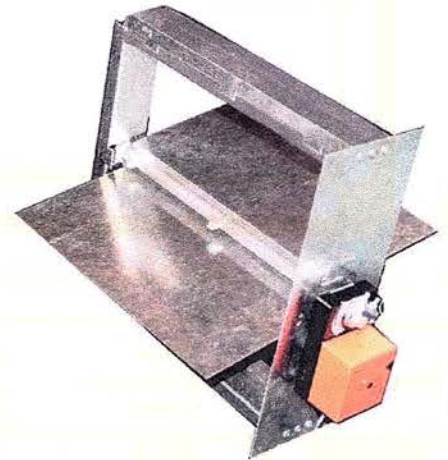
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RPOC Series Rectangular Supply Air Zone Dampers

- Power Open – Power Close DESIGN
- Adjustable Minimum or Maximum Position Setting

See Size Chart on Reverse



GENERAL DESCRIPTION

The SmartZone RPOC-series of low pressure two-position dampers was developed using the finest in computer-aided engineering design and analysis tools. Components with critical dimensions are manufactured using high speed laser cutters to ensure a precision fit and quiet operation. The actuator was selected because of its field proven reliability and quiet operation. Care was taken throughout the design process to make sure the RPOC-series is the finest low pressure rectangular power open power close damper in the market, the easiest to install, and the most reliable.

Quality Design

- Computer-Aided Engineering Design
- High-Reliability Direct Drive Motor Assembly
- Laser-Cut Precision Components
- Computerized Welding at Critical Seams

Superior Features

- Power-Closed/Power-Open Easy Operation
- Heavy Duty Galvanized Steel Construction
- Precision Cut and Bent Steel
- Long Life, Quiet Nylon Bushings
- Belimo LMC24-XCI Actuator
- 45-Second Operation to Full Position
- Easy Connect Screw Power Terminals
- Hi-Visibility Position Indicator for Verification of Damper Power & Closed Position
- Adjustable Minimum or Maximum Position

Flexible Installation

- Foam Compression Material to Seal Duct to Damper
- Can be Mounted in Any Position
- Heavy-Duty Galvanized Metal Construction Ensures Uniformity

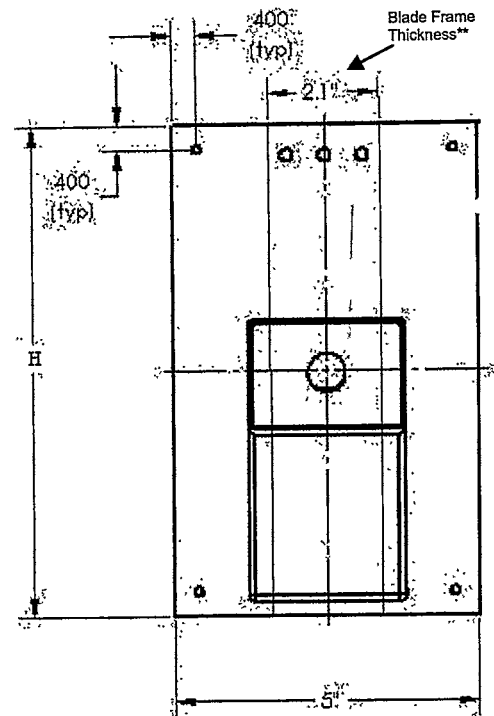
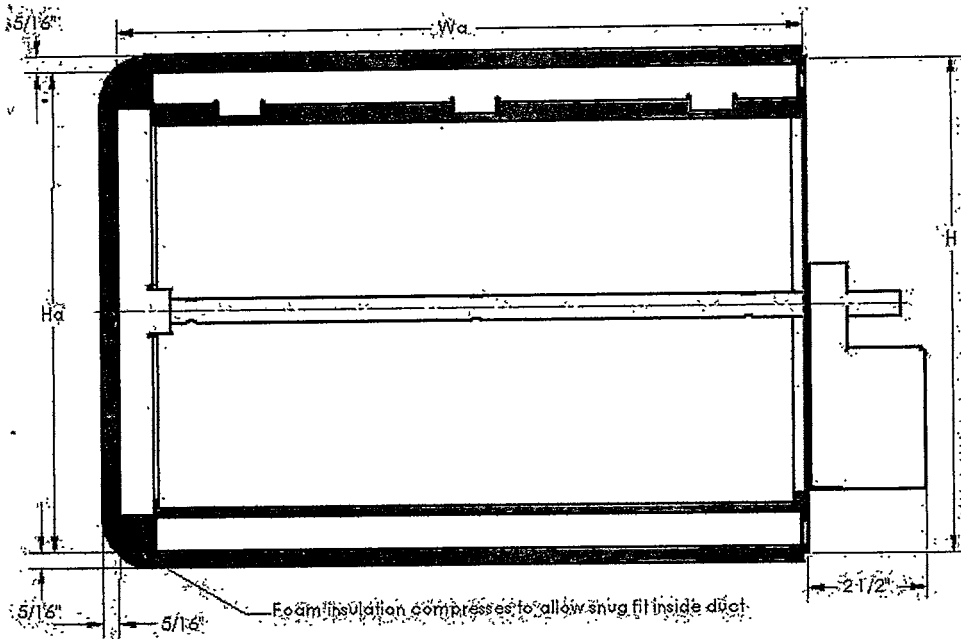
NOTE: Motors mounted on bottom are susceptible to condensed water and potential motor shorting. Always insulate and seal any exposed areas.

Specifications

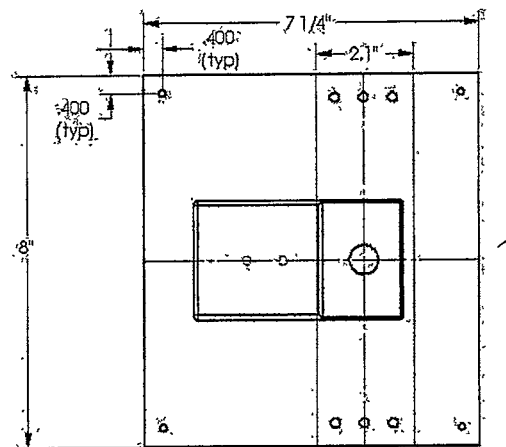
Power	24VAC, 3 VA typical (4 VA max)
Actuator	Belimo LMC24-XCI Brushless Motor Design 18 in-lb Torque Power-Close / Power-Open 45 Second Motor Max 90 Degree Travel
Indicator	Adjustable Arrow
Wiring	3 Screw Terminals PO, PC, Common Use 18 Gauge Solid Core 3-Wire
Sizing	See Dimension and Part Number Chart on Reverse

*Modulating Bypass Series

- When using rectangular dampers for automatic bypass modulation, order **Static Pressure Controller (SPC)** [Sold Separately]
- For exact specifications of the Static Pressure Controller and further information on the Modulating Bypass Series refer to **SPC Specification Sheet**



8 Inch Plate



Part Number	Size Width X Height (Inches)	H Plate Height (Inches)	Ha Actual Height (Inches)	Wa Actual Width (Inches)
RPOC8X8*	8 X 8	8	7.750	7.875
RPOC10X8*	10 X 8	8	7.750	9.875
RPOC12X8*	12 X 8	8	7.750	11.875
RPOC14X8*	14 X 8	8	7.750	13.875
RPOC16X8*	16 X 8	8	7.750	15.875
RPOC18X8*	18 X 8	8	7.750	17.875
RPOC20X8*	20 X 8	8	7.750	19.875
RPOC24X8*	24 X 8	8	7.750	23.875
RPOC10X10	10 X 10	10	9.750	9.875
RPOC12X10	12 X 10	10	9.750	11.875
RPOC14X10	14 X 10	10	9.750	13.875
RPOC16X10	16 X 10	10	9.750	15.875
RPOC18X10	18 X 10	10	9.750	17.875
RPOC20X10	20 X 10	10	9.750	19.875
RPOC24X10	24 X 10	12	9.750	23.875
RPOC12X12	12 X 12	12	11.750	11.875
RPOC14X12	14 X 12	12	11.750	13.875
RPOC16X12	16 X 12	12	11.750	15.875
RPOC18X12	18 X 12	12	11.750	17.875
RPOC20X12	20 X 12	12	11.750	19.875
RPOC24X12	24 X 12	12	11.750	23.875
RPOC14X14	14 X 14	14	13.750	13.875
RPOC16X14	16 X 14	14	13.750	15.875
RPOC18X14	18 X 14	14	13.750	17.875
RPOC20X14	20 X 14	14	13.750	19.875
RPOC24X14	24 X 14	14	13.750	23.875
RPOC16X16	16 X 16	16	15.750	15.875
RPOC18X16	18 X 16	16	15.750	17.875
RPOC20X16	20 X 16	16	15.750	19.875
RPOC24X16	24 X 16	16	15.750	23.875

*The RPOC * X8 has a different configuration base plate from the rest of the RPOC Series Rectangular Dampers. Refer to the 8 Inch Plate Drawing above for these part numbers.

**Blade Frame Thickness is the width of the frame. Ductwork should be cut 1/4" larger than the blade frame dimension.

- **Size** = The nominal size of the damper which refers to the size of the duct it will fit.
- **Plate Height** = The height of the base-plate to which the actuator is mounted.
- **Actual Height** = The height of the steel U-Frame not including foam compression material.
- **Actual Width** = The width of the steel U-Frame not including the foam compression material.

Note: The RPOC Series of Rectangular Dampers can be mounted in any orientation to account for all configurations and sizes of duct.

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SPC (Static Pressure Controller)

- Air Pressure Sensing Switch
- For use with POC and RPOC Dampers
- Adjustable Air Switch Set Point Range

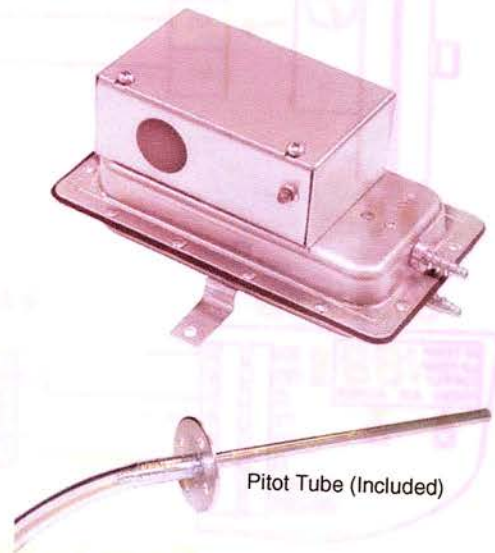
GENERAL DESCRIPTION

The SPC is a static pressure switch designed to sense positive pressure in the plenum for the purpose of controlling modulating bypass position.

The plated housing contains a diaphragm, a calibration spring and a snap-acting SPDT switch. The barbed sample line connections located on each side of the diaphragm accept flexible tubing. The enclosure cover guards against accidental contact with the live switch terminal screws and the set point adjusting screw. The enclosure cover will accept a 1/2" conduit connection.

Pitot tube (air-probe) for mounting in plenum and 12 inches of flexible 1/4" I.D. poly tubing included with each SPC.

Initial-Position Relay included to maintain open damper position during no fan call. (Not pictured)



Mounting

Select a mounting location which is free from vibration. The SPC 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. (See Figure 3)

Air Sample Connection

The SPC is designed to accept flexible tubing by means of barbed 1/4" slip-on connections. A 12" piece of 1/4" ID Flexible tubing is included with the SPC as well as a Pitot Tube for mounting in the plenum. Locate the sampling probe a minimum of 2 feet downstream from the air source. Install the sampling probe as close to the center of the airstream as possible. Do not allow supply pressure to blow directly into the Pitot Tube. Connect the provided flexible tubing to the **High-Pressure Inlet** as shown in Figure 2.

Initial-Position Relay

Each SPC includes a SPDT Relay that should be wired in conjunction with the SPC and Power-Open/Power-Close Damper as shown in Figure 1. This relay is included so that when there is NO CALL for the FAN on the equipment side of the SmartZone Controller the bypass damper will drive open. When a FAN call occurs the relay allows the SPC to operate normally.

Specifications

Mounting	Mount with the diaphragm in any vertical plane. (See Figure 3)
Set Point Range	0.05 ± 0.02" w.c. to 2.0"w.c.
Field Adj. Operate Range	0.07"w.c. to 2.0"w.c.
Field Adj. Release Range	0.04"w.c. to 1.9"w.c.
Field Adj. Operate Range	0.07"w.c. to 2.0"w.c.
Approx. Switching Differential	Progressive, increasing from 0.02 ± 0.01"w.c. at minimum set set point to 0.1w.c. at maximum set point.
Measured Media	Air or combustion by-products that will not degrade silicone
Maximum Pressure	1/2 psi (0.03 bar)
Operating Temperature	-40°F to 180°F (-40°C to 82°C)
Electrical Rating	300VA pilot duty at 115 to 277 VAC, 15 Amps non-inductive 277 VAC @ 60Hz
Contact Arrangement	SPDT
Sample Line Connections	1/4" Barbed connectors for flexible tubing
Approval	UL, FM, CSA, CE

Modulating Bypass Setup

With all zones calling (all dampers open), make certain the fan is in the highest speed that will be used when the system is running. Turn the set screw clockwise 1/4 turn each time until the bypass damper motor is obviously running closed. If the bypass damper should reverse and start opening turn the set screw another 1/4 turn and repeat until the bypass damper is closed. Next, slowly turn the set screw counter-clockwise until the bypass damper motor starts to run open. Immediately, turn the set screw clockwise once again until the damper motor starts to close again.

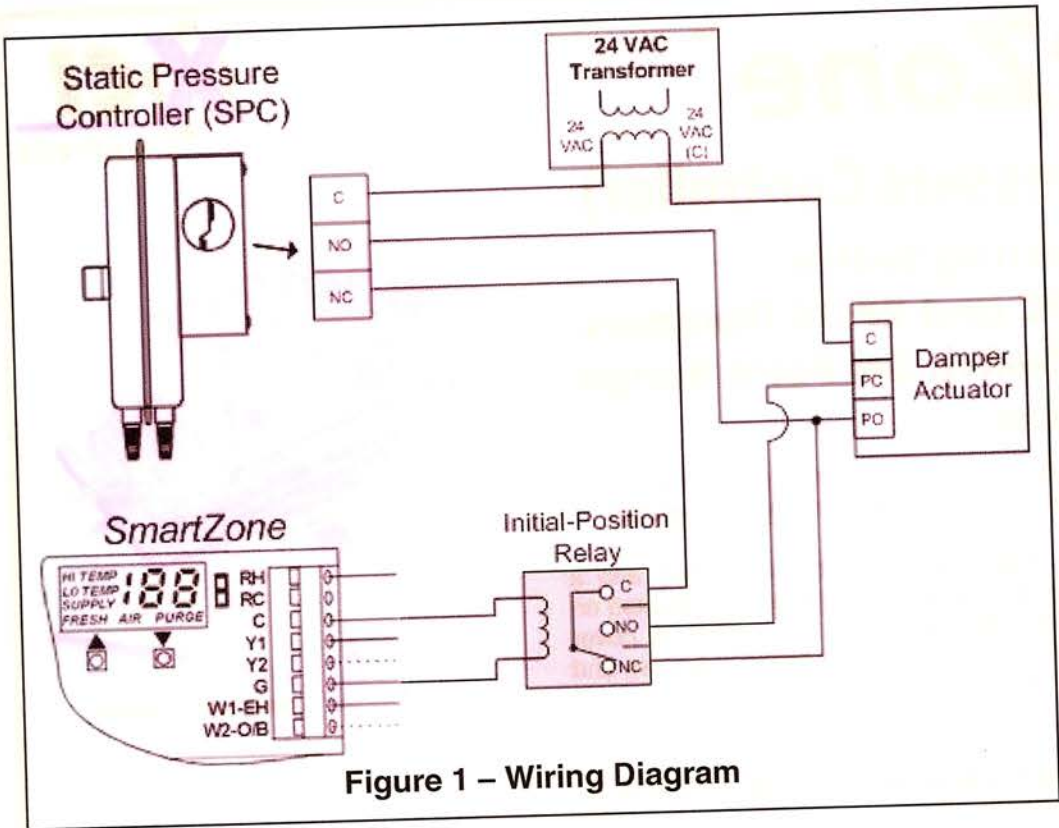


Figure 1 - Wiring Diagram

Electrical Connections

Before pressure is applied to the diaphragm, the switch contacts on the SPC will be in the normally closed (NC) position. This snap switch has screw top terminals with cup washers. Wire according to Figure 1.

The goal is to set the bypass damper so that it is barely staying closed when all zones are open. This will cause the bypass damper to open if supply dampers close and the plenum pressure goes up. As dampers open and/or close during operation, the static pressure sensor will sense a pressure change and make the power open/power close bypass damper move to maintain the same pressure in the plenum that was established when all zones were open.

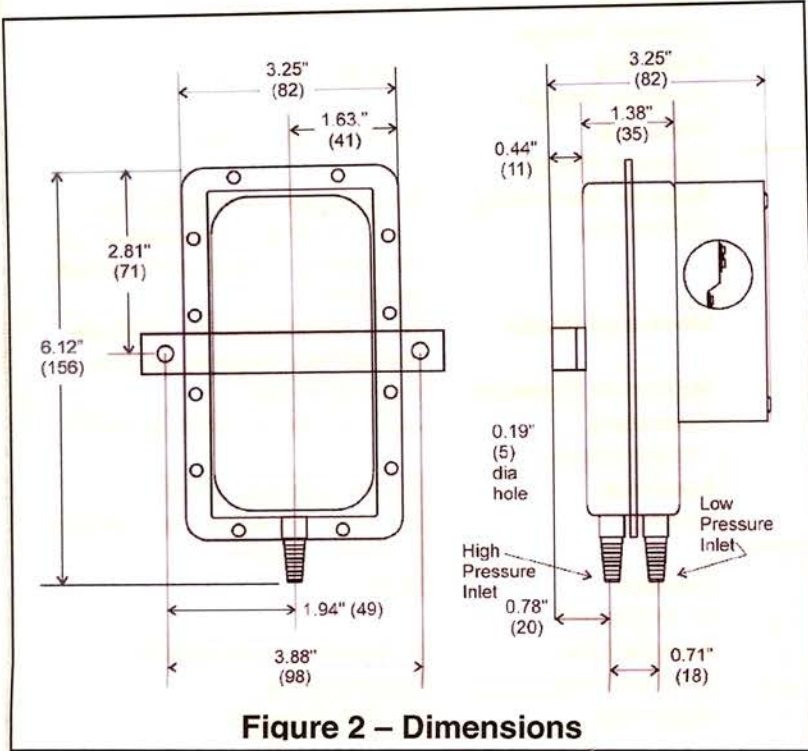


Figure 2 - Dimensions

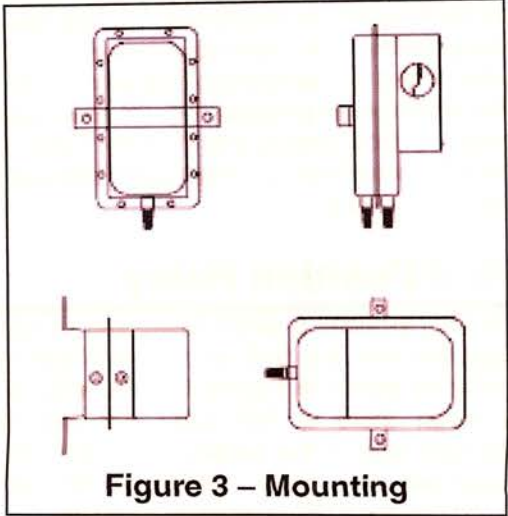


Figure 3 - Mounting