P40 Series
Pneumatic Differential Pressure Switch

Application

The P40 pressure switch is used to sense the flow of air in ducts. The switch is a sensitive pneumatic device which can be used as a fan status sensor or a differential pressure switch. The switch has an adjustable switching set point from .12 to 2.0 in. W.C. (.03 to .50 kPa).

⚠ WARNING: The maximum pressure applied to the **low** pressure connection must not exceed 1 in. W.C. (.25 kPa).

All Series P40 switches are designed for use *only* as operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add devices (safety, limit controls) or systems (alarm, supervisory systems) that protect against, or warn of, control failure.

Features

- Versatile mounting options.
- Durable and compact construction.
- Easy-to-read set point scale, optional.

Specifications

Type Number	**P40AA**	Close High, Adjustable Set Point, With Cover
Range of Switching Set Points		Adjustable from .12 to 2.0 in. W.C. (.03 to .50 kPa)
Supply Pressure		13 to 25 psig (91 to 175 kPa) Nominal 20 psig (140 kPa)
Output Pressure	**High**	19 psig (133 kPa) or Greater
	Low	1.0 psig (3.5 kPa) or Less
Leakage		<10 SCCM with 1.0 psig (6.9 kPa) Applied to High Pressure Port or Both Ports
Ambient Operating Temperature Limits	**Minimum**	35°F (1.7°C)
	Maximum	150°F (66°C)
Ambient Storage Temperature Limits*	**Minimum**	−40°F (−40°C)
	Maximum	150°F (66°C)
Maximum Pressure at Either Static Pressure Connection At Which No Damage Will Occur		1 psig (6.9 kPa)
Air Connections	**High Pressure**	Metal, ⅛" Female NPT Inside, ½" NPSM Outside for Mounting
	Low Pressure	Molded, ⅛" Female NPT
	Supply/Output	Barbed Fitting for ¼" O.D. Plastic Tubing
Cover Material		.032" (0.8 mm) Cold Rolled Steel, Zinc Plated
Diaphragm Housing Material		.040" (1 mm) Cold Rolled Steel, Zinc Plated
Enclosure (Body)		Molded Polycarbonate
Diaphragm Material		Buna N Rubber
Shipping Weight	**Less Bracket**	Individual Pack .9 Lb. (0.41 kg)
		Overpack of 10 Units 10 Lbs. (4.5 kg)
	With Bracket	Individual Pack 1.3 Lbs. (0.59 kg)
		Overpack of 10 Units 14 Lbs. (6.4 kg)

* Temperature at which no physical damage to the P40 results.

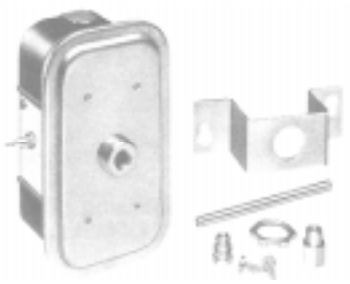


Fig. 1 -- The P40 Pneumatic Differential Pressure Switch with "U" mounting bracket and a direct mounted sensing probe.

General Description

The P40 switch senses a change in the differential pressure (either velocity pressure or pressure drop across a fixed restriction in the duct) as air flow in the duct changes.

The differential pressure, as sensed by two sensing ports, is applied to the two sides of a diaphragm in the switch. The diaphragm moves and actuates the pneumatic switching unit.

The P40 can also be used to detect small positive gauge pressure by using only the high pressure connection and leaving the low pressure connection open for the atmosphere as a reference.

Switches are factory set at the bottom of the switching set point range with the diaphragm in a vertical plane. The setting will change if mounted in other positions. Mounting with the steel housing (high pressure connection) down will change the set point by about 0.07 in. W.C. (0.017 kPa).
Note: The switch must not be mounted with the steel housing up.

© 1985 Johnson Controls, Inc.

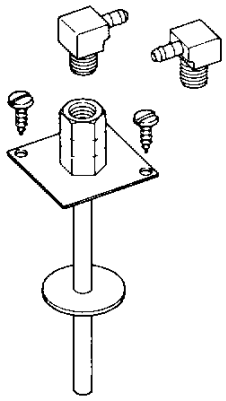


Fig. 2 — Remote sensing probe kit No. FTG18A-600R.

The adjustable set point models can be field adjusted for other than the vertical mounting position. See the P40 instruction sheet, LIT-121420. The P40 can be factory set for a specific mounting position, if required, on quantity orders.

The field adjustable switches have an adjusting screw and an optional scale plate concealed by the cover. The cover must be removed to change the setting. Turn the screw CW to increase the set point or CCW to decrease the set point.

Optional Constructions

Accessory Kits

No. FTG18A-600R remote mounted probe kit includes a 4 in. sensing tube with 1/8 in. FPT connector and 1-1/2 in. square duct mounting flange, 2 “L” 1/4 in. barb × 1/8 in. pipe fittings, 2 #10 screws 1/2 in. long, and a pressure sensitive “O” gasket. (See Fig. 2.)

Fig. 3 -- Optional Mounting Brackets

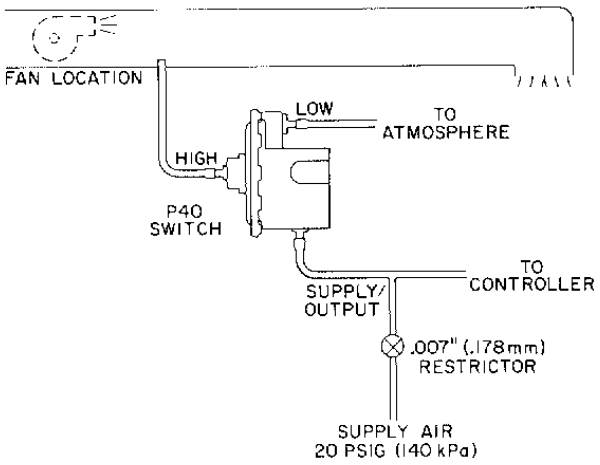


Fig. 4 — P40 used as a fan status switch.

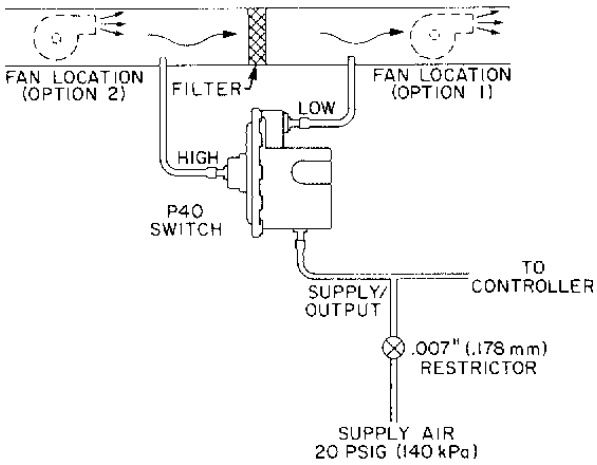


Fig. 5 — Typical installation for the P40 used as a pressure differential switch.

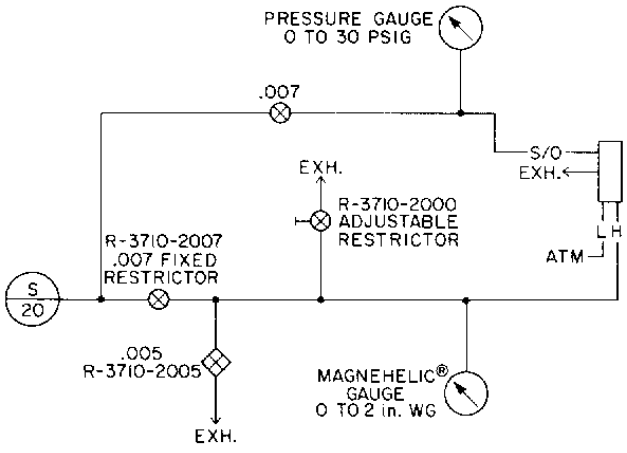


Fig. 6 — Operational checkout diagram.

No. FTG18A-601R direct mounted probe kit includes a 4 in. sensing tube, a pressure sensitive “O” gasket, compression fitting, adapter fitting, and an “L” barbed fitting. (See Fig. 1.)

Connector Fittings

1/8 in. MPT × 1/4 in. compression for 1/4 in. metal tubing. 1/8 in. MPT × 1/4 in. angled barbed fitting for 1/4 in. plastic tubing.

Mounting Bracket

Universal “L” mounting bracket No. BKT182-2, if required, or channel “U” bracket, Part No. BKT229-1. (See Fig. 3.)

Scale Plate

An internal scale plate is available on adjustable set point models.

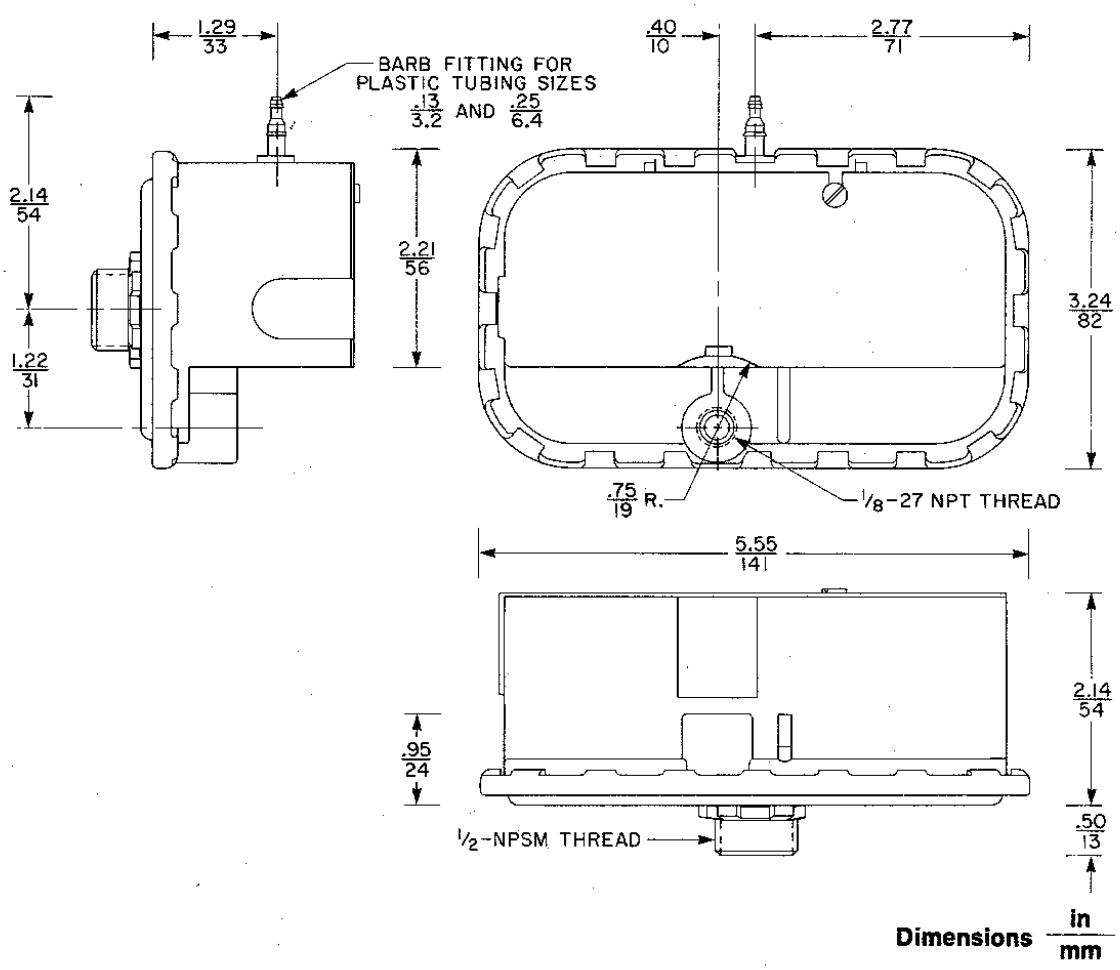
Repairs and Replacement

Field repairs must not be made. For a replacement switch, contact the nearest Johnson Controls wholesaler.

Ordering Information

To order, specify:

1. Complete Product Number, if available.
2. If the complete Product Number is not available, specify Type Number (see “Specifications”).
3. The set point and mounting position, if other than standard (quantity orders only).
4. Mounting bracket, if required.
5. Accessory kit, if required.



Performance specifications appearing herein are nominal and are subject to accepted manufacturing tolerances and application variables.

Notes

JOHNSON CONTROLS

Controls Group
507 E. Michigan Street
P.O. Box 423
Milwaukee, WI 53202

Printed in U.S.A.