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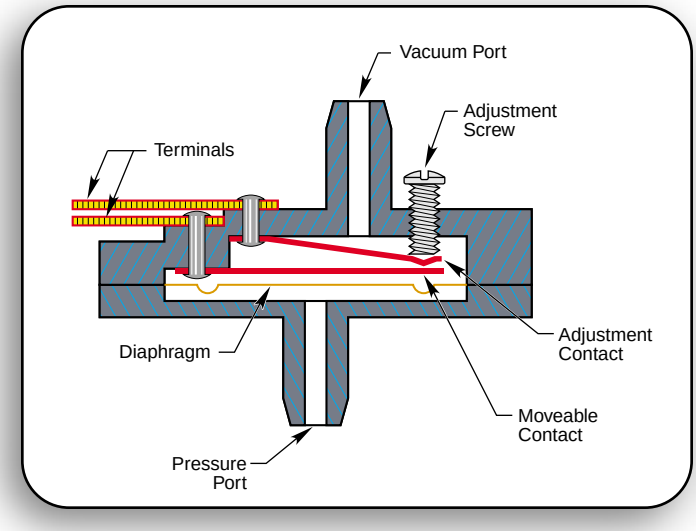
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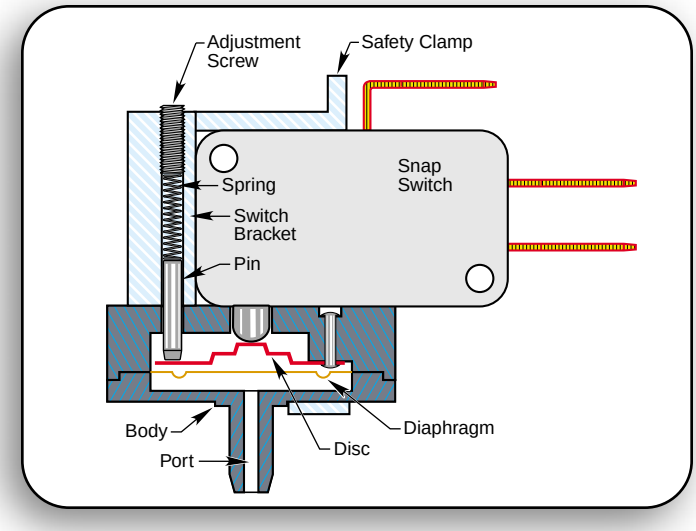
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Find the *Micro Pneumatic Logic 502* at our website: ***Click HERE***

How They Work





MPL 500 Series

Fluid pressure acting against the diaphragm causes the cantilevered (moving) contact blade to deflect. The amount of deflection is a function of contact thickness and pressure.

The moving blade deflects until it contacts the points of the adjustment (fixed) blade, completing the circuit. The relative position of the blades can be changed with an adjustment screw.

In a pressure switch, the medium is connected to the side of the diaphragm opposite the contacts (see drawing, above). As pressure rises, the diaphragm is pushed against the moving contact blade.

In a vacuum switch, the medium is connected to the same side of the diaphragm as the contacts. As vacuum increases, the diaphragm is drawn against the moving contact blade.

In a differential pressure switch, the medium is connected to both sides of the switch. The diaphragm is either pushed or drawn, depending on the changing differential between the two pressure (or vacuum) sources.

Because there are no sliding or levering parts, as with a snap-action switch, the **MPL 500 Series** switches have virtually no “deadband”, or on-to-off mechanical differential.

MPL 600 Series

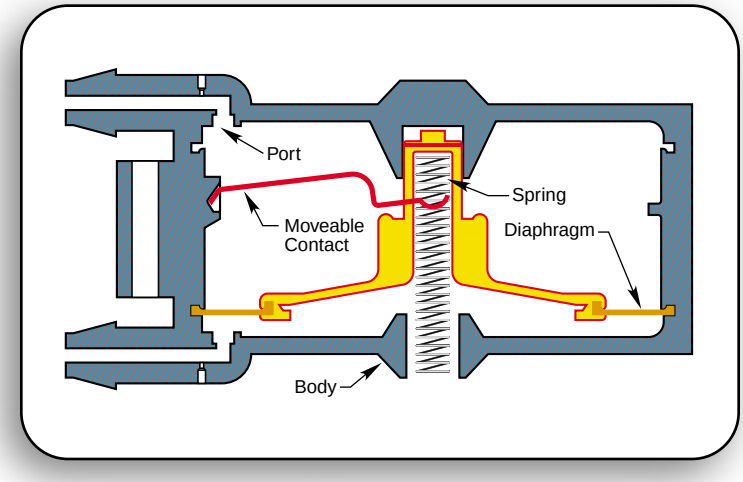
Fluid pressure acting against the diaphragm causes a guide disk to push against the actuator button of a snap-action switch. The disk has a stop to prevent overtravel of the actuator.

Adjustment of the setpoint is provided by an adjustment screw and compression spring, acting against the force of the diaphragm.

Because of the action of the snap switch, the **MPL 600 Series** switches do have a “deadband”, which most designers utilize in their circuit logic.

MPL 9300 Series

Mechanically, the **MPL 9300** is similar to the MPL 600. However, the snap action switch is built into a specialized housing, which allows pressure, vacuum, and differential configurations around an oversized, more sensitive diaphragm.



Custom Sensing & Switching Solutions

Specialized OEM applications may employ piston, magnetic, flex circuit, transducer, or other means of sensing and switching. Contact *MPL* for details.

MPL 500 Series

MPL 500 Series switches offer pressure, vacuum, and differential sensors, sensitive to as low as 0.05 in/H_2O. Their accuracy and reliability offer the designer an excellent general purpose low pressure to electric interface for monitoring and control applications. Miniature size and low cost make the **500 Series** ideal for OEM applications.

Description

MPL 500 is diaphragm-operated (See "How They Work") utilizing low stress deflecting contacts. Elimination of sliding or pivoting parts results in high reliability and long service life. Diaphragm material can be selected for the operating medium, temperature range, and other parameters.

During the development of a specification, actuation point can be moderately adjusted by the designer. In production, a factory setting is required.

MPL 500, 501, 502, and **503** are single-setting models, available as pressure, vacuum, or differential pressure sensors. **MPL 504** offers two settings.

MPL 533 adds the capability to switch high current loads, utilizing an integral AC static switch (triac). No power source is required other than the AC load.

Specifications

Body: glass-filled polyester, grade SEO, standard

Diaphragm: polyurethane, fluorosilicone, EPDM, Teflon®, and other materials are available

Terminals: brass, gold-plated

Contacts: phosphor bronze with gold inlay standard. Other materials available

Operating Temperature: –40° to 120°C (–40° to 250°F), depending on components. Consult factory.

Operating Pressure: 0.05 in/H_2O to 550 in/H_2O (20psi)

Burst: 25 psi

Response: MPL 500/501/503/504/533, 160Hz
MPL 502/528/509, 270Hz

Life: Over 100,000,000 cycles

Form: SPST-NO, SPST-NC
2x, SPST-NO (Form F) MPL 504

Resistance: 500 milliohm maximum

Weight: 10 grams

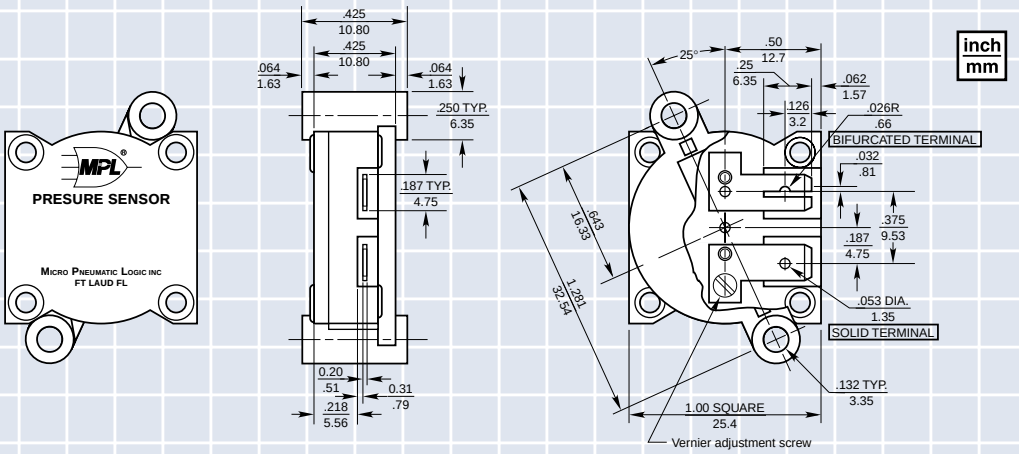
Electrical

MPL 500 switches are designed for low current and logic applications, such as LED indicators and solid state relays. Typically, a load of 10 to 20mA will ensure reliable switching. For inductive loads, a varistor or R-C snubber circuit is recommended.

To switch heavier loads, use any **MPL 500 Series** switch with an interface device such as solid state relay. Ask your *MPL* application engineer about using an AC static switch for loads up to 5A.

MPL 500 Series Basic Dimensions

MPL 500 Series
These basic dimensions are common to all models. For clarity, ports have not been included. Please see individual outlines for dimensions not shown.



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The **MPL-533** features an integral triac. Current capacity of the 533 is limited by duty cycle (% on-time) and ambient temperature. However, source voltages from 6 to 240VAC can be used with long life and high reliability.

Finally, for loads up to 25A, see the **MPL 600 Series.**

Terminals

NEMA 0.020" x 0.187" male tabs are standard, for female quick disconnects. Low-profile terminals for 18-22 gage wire are recommended.

Optional bifurcated terminals are also available on all models, which will accept 0.020" x 0.187" or 0.020" x 0.110" female quick disconnects.

Terminals are available for printed circuit board mounting. Custom applications requiring elongated terminals, tinning, and custom wiring can also be accommodated.

Leakage

The standard polyurethane diaphragm functions as both sensor and seal. For dynamic applications, such as fan monitoring, the diaphragm alone provides an adequate seal. In static applications (leak detection, liquid level, etc) a secondary internal gasket will ensure an almost bubble tight seal of the pressure cavity.

Actuation Settings

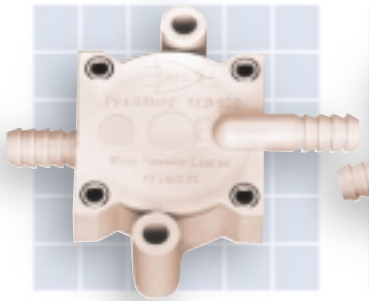
All **MPL 500 Series** sensors are available with factory settings from 0.05 to 550 in/H_2O. Tolerance is typically about 10% of the setpoint. Ask your *MPL* Application Engineer for more information on tolerances.

Six standard ranges are available:

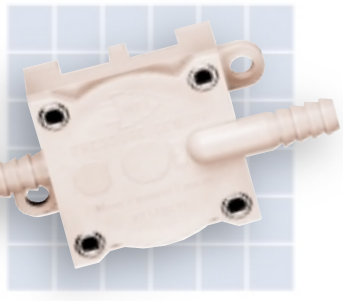
Range	**A**	0.05 to	0.75 in/H_2O
	B	0.50 to	3.00 in/H_2O
	C	2.00 to	13.00 in/H_2O
	D	10.00 to	50.00 in/H_2O
	E	25.00 to	200.00 in/H_2O
	F	100.00 to	550.00 in/H_2O

Special Ports and Mounting

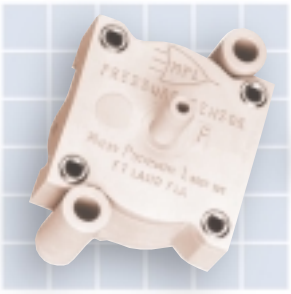
MPL 508 adds a 1/8" NPT brass fitting to the model **502** features. **MPL 509** adds a 5/32" barbed brass fitting, and a 5/16" nut and washer for panel mounting.



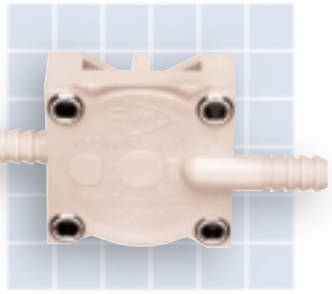
MPL 500
side ports
adjustable mounting



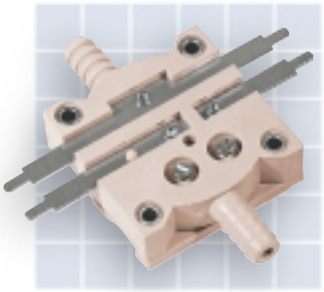
MPL 501
side ports
adjustable mounting



MPL 502
perpendicular ports
adjustable mounting



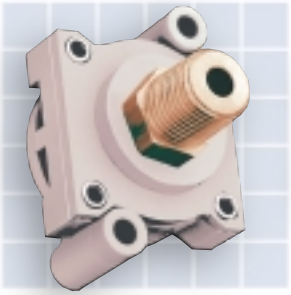
MPL 503
side ports
mount through eyelets



MPL 504
side ports
dual circuits



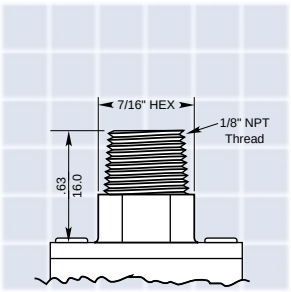
MPL 509
5/32" barbed brass port
5/16" nut & washer



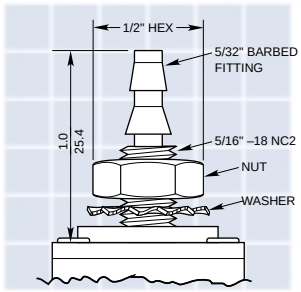
MPL 528
1/8" NPT port
molded or die-cast



MPL 533
integral AC triac
die-cast heat sink



1/8" NPT port
molded or die-cast



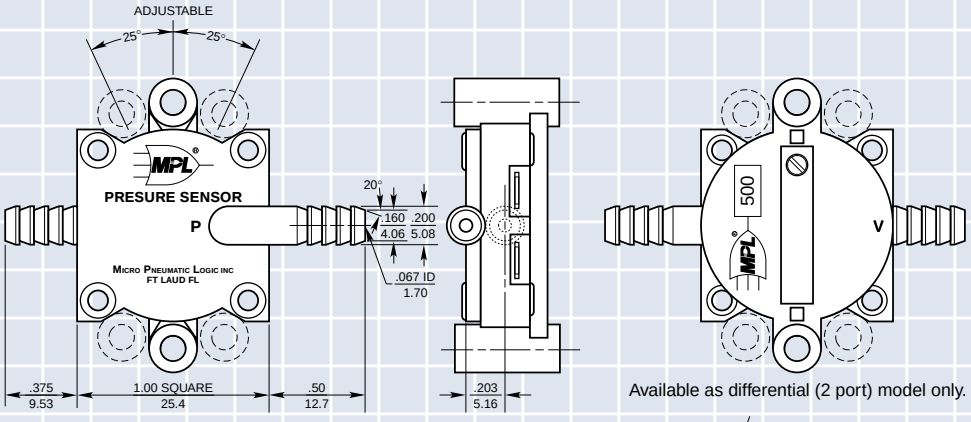
5/32" barbed brass port
5/16" nut & washer
for panel mounting

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MPL 500 Series Dimensions

MPL 500

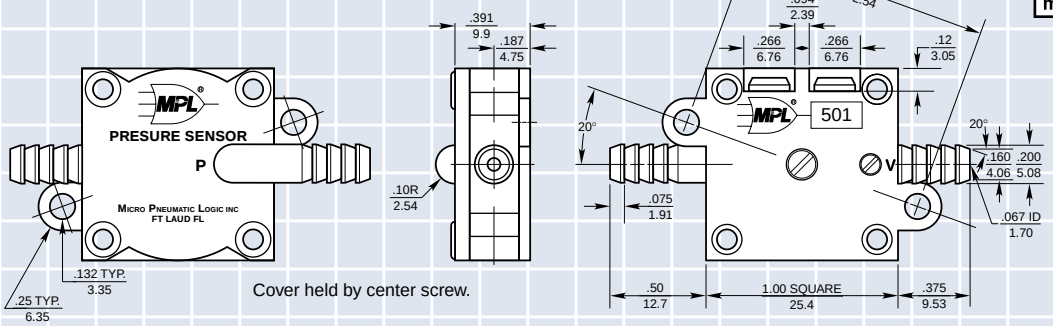
TYPE: Differential
MOUNTING: Adjustable
PORTS: Barbed for 5/32" ID Tubing



Available as differential (2 port) model only.

MPL 501

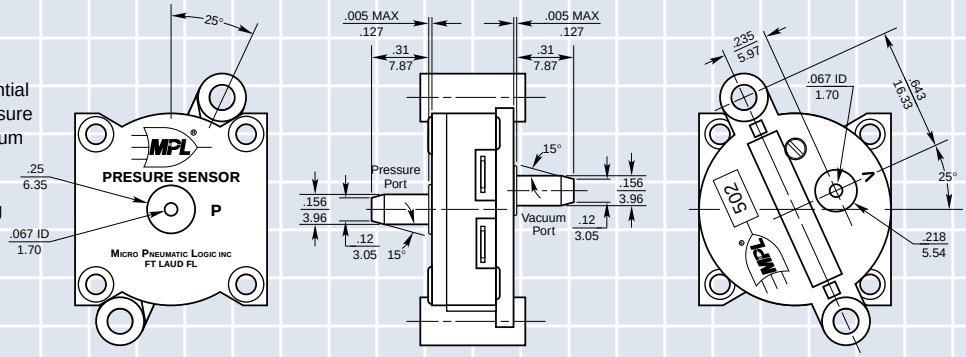
TYPE: Differential
MOUNTING: Fixed
PORTS: Barbed for 5/32" ID Tubing



Cover held by center screw.

MPL 502

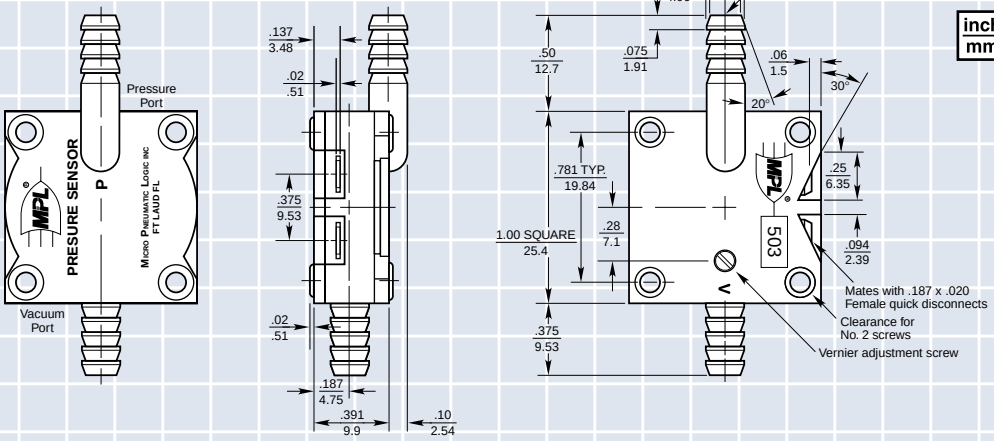
TYPE: MPL 502 Differential
MPL 502 P Pressure
MPL 502 V Vacuum
MOUNTING: Fixed
PORTS: Straight tubes for 1/8" ID Tubing or Gasket or O-Ring



Available with three port options.
MPL 502 (Differential 2 Ports)
MPL 502 P (Pressure Port only)
MPL 502 V (Vacuum Port only)

MPL 503

TYPE: Differential
MOUNTING: Fixed (through eyelet holes)
PORTS: Barbed for 5/32" ID Tubing



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