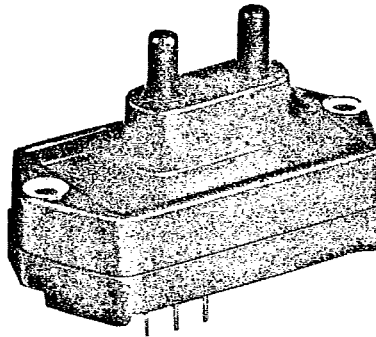

Fixed Set-Point Solid State Pressure Sensor

60PC Series



FEATURES

- Accuracy to within 0.2" H₂O
- Factory set to 10" H₂O pressure point
- TTL compatible output
- 100% solid state construction

The 60PC series precise solid state pressure switch is intended for applications which require precise detection of a single pressure point.

The 60PC outputs a DC voltage near 0 volts (logic 0) when the applied pressure is below a factory set pressure point. When the pressure exceeds the pressure point, the output switches to nearly 5 volts (logic

- Fast response (<1msec.)
- Piezoresistive (silicon) strain gage sensing element
- Printed circuit board mountable

1). The output levels are TTL compatible. MICRO SWITCH sets the pressure point at 10" H₂O in order to provide optimum accuracy. Other pressure set-points are available on request.

This series utilizes a 0.175" square silicon piezoresistive strain gage sensing element. With 10VDC excitation, applied pressure causes the sensing element to flex, chang-

APPLICATIONS

- Detect presence of air flow
- Detect absence of air flow
- Sense inhalation pressure point
- Liquid level warning

ing resistance, which results in a low level voltage change proportional to pressure. A comparator "watches" this voltage change and compares it to an internal reference voltage. Designed-in positive hysteresis reduces pressure point chattering. A wide variety of pressure medias can be applied to the P2 port ranging from air to liquids. Generally the P1 port, which is limited to dry air, vents to atmosphere.

Fixed Set-Point Solid State Pressure Sensor

GENERAL SPECIFICATIONS

Pressure Point (P.P.)	10" H ₂ O differential (P2 - P1)
Overpressure	5 psi
Temperature Ranges	
Storage	-55° to 125°C (-67° to 257°F)
Operate	-40° to 85°C (-40° to 185°F)
Compensated	5° to 45°C (41° to 113°F)
Supply Voltage (Vs)	10.00 ± 0.01VDC
Quiescent Current (Is)	10mA (no load)
Ground Reference	Supply and output are common
Response Time	1ms
Media Compatibility	P1: Dry gases only. P2: Pressure media will make contact with the following: polyester housing, epoxy adhesive, silicon, borosilicate glass tube, and chip-to-glass tube bond* which holds silicon chip to borosilicate glass. *Liquid medias containing some highly ionic solutions potentially could neutralize the chip-to-glass tube bond.

ELECTRICAL PERFORMANCE at 10.00 ± 0.01VDC (25°C, -10μA ≤ I_o ≤ 10μA)

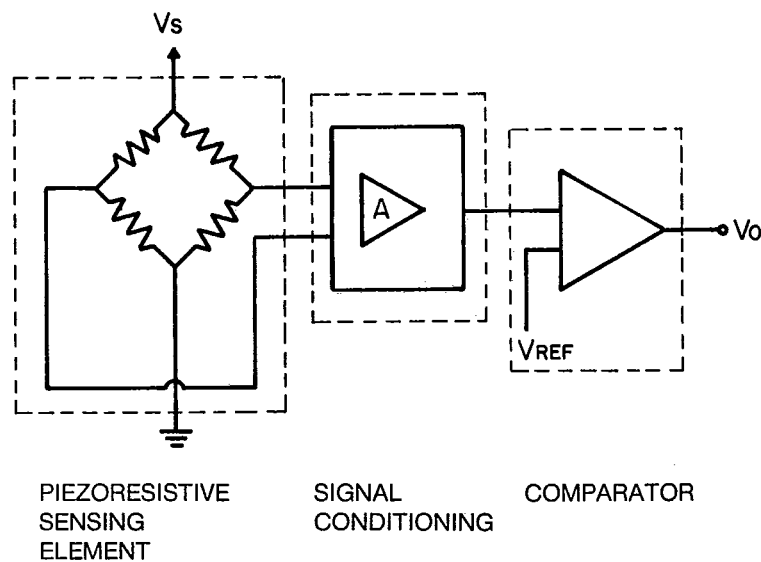
Pressure Point Tolerance	±0.2" H ₂ O max.
Pressure Point Hysteresis	±1.0% P.P. max.
Temperature Error	
5° to 25°C, 45° to 25°C	±1.0% P.P. typ.
Fan-out	2 TTL gates

ORDER GUIDE

Pressure Point	Catalog Listing
10.0" H ₂ O	62PC10HD

OPERATING PRINCIPLE

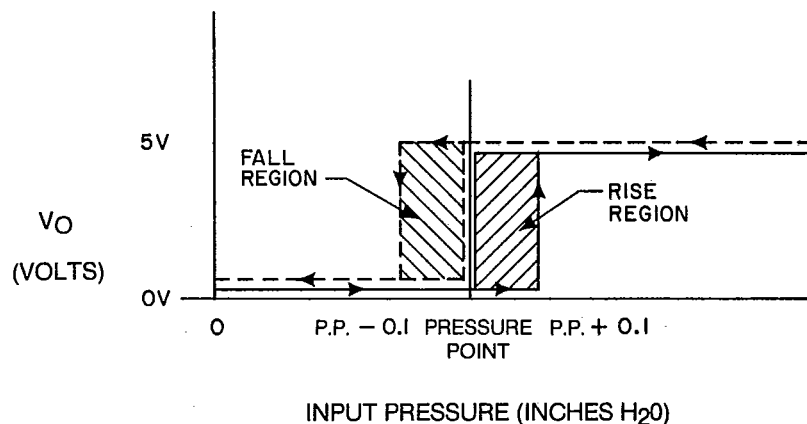
The piezoresistive sensing element provides an electrical signal directly proportional to input pressure. The output from the signal conditioning circuitry feeds into a comparator. If the signal conditioned output is less than the reference voltage (V_{REF} corresponds to a factory set pressure point), a logic 0 appears at the output. If the output is greater than the reference voltage, a logic 1 appears at the output.



TYPICAL OUTPUT PERFORMANCE at 25° C

In order to prevent output voltage from chattering, positive hysteresis has been designed-in. When input pressure is below the factory set pressure point and increasing, the input pressure must surpass the pressure point before the output changes state. Conversely, as input pressure from above the factory set pressure point decreases, it must decrease below the pressure point before the output changes state.

The pressure point will fall within $10.0'' \pm 0.2''$ H₂O.

**OUTPUT CHARACTERISTICS at $V_s = 10.00 \pm 0.01$ VDC**

V_{oh} (at $I_{oh} \leq 100\mu A$) = 2.4V min., 6.5V max.

V_{ol} (at $0 \geq I_{ol} \geq -5mA$) = 0.4V max.

V_{ol} (at $-5mA \geq I_{ol} \geq -50mA$) = 1.5V max.

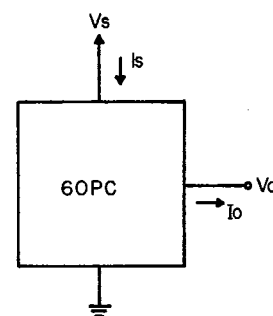
Definition of Symbols

V_{oh} = Output voltage when applied pressure is above pressure point.

V_{ol} = Output voltage when applied pressure is below pressure point.

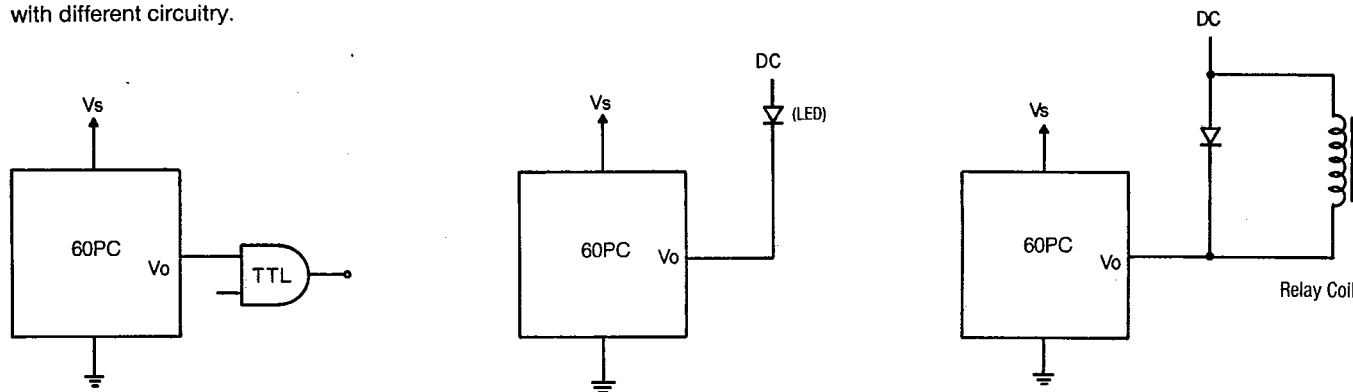
I_{oh} = Output current when applied pressure is above pressure point.

I_{ol} = Output current when applied pressure is below pressure point.

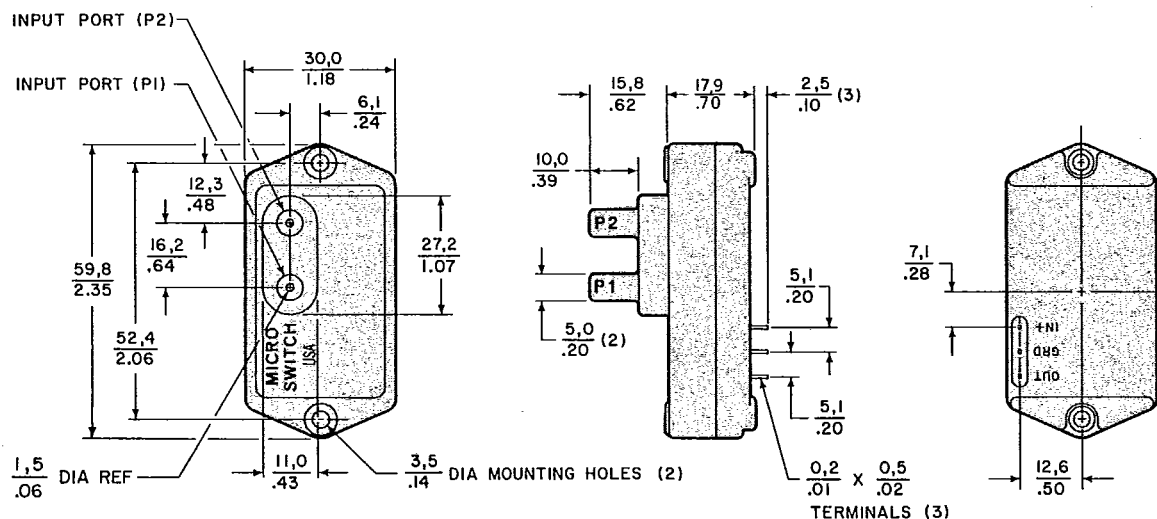
ELECTRICAL OUTPUT

Fixed Set-Point Solid State Pressure Sensor**TYPICAL CIRCUITS**

The following is a typical representation of how the 60PC Series can be interfaced with different circuitry.

**MOUNTING DIMENSIONS**

(For reference only)

**SALES AND SERVICE**

MICRO SWITCH serves its customers through a worldwide network of sales offices and distributors. For application assistance, pricing or name of nearest Authorized Distributor, contact a nearby MICRO SWITCH sales office. Or, contact:

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Tel. 815/235-6600

While we provide application assistance on MICRO SWITCH products, personally and through our literature, it is up to the customer to determine the suitability of the product in the application.

Together, we can find the answers.

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