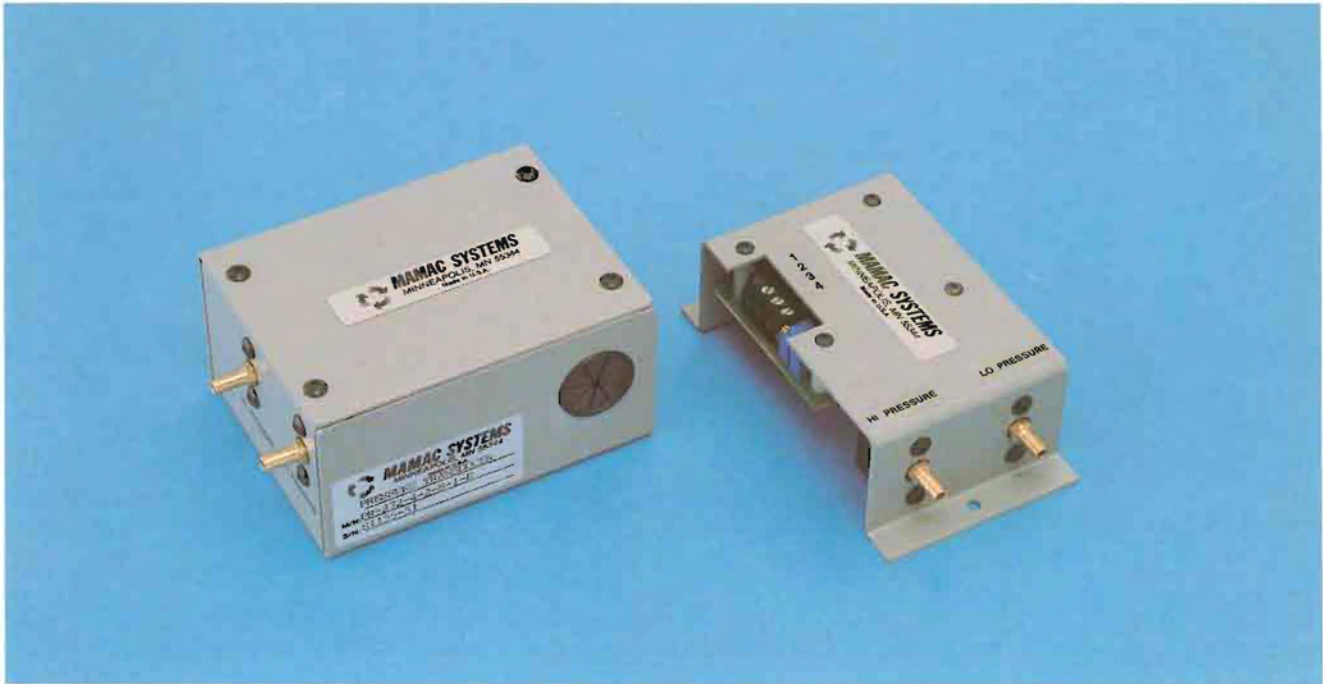


UPDATED

Low Pressure Transducer Model PR-272



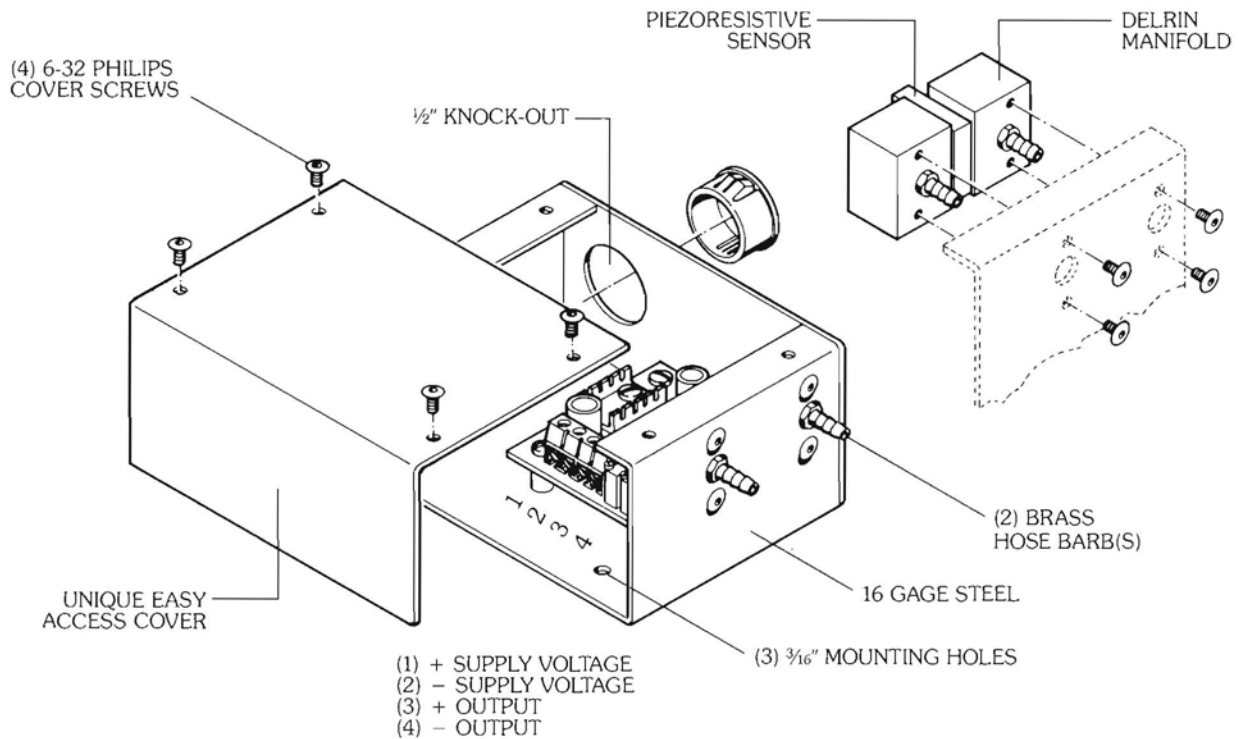
The PR-272 converts a very low pressure signal into a precise, drift-free and repeatable analog output. PR-272 incorporates a 100% solid state piezoresistive sensing element which is immune to mounting orientation or vibration. The unit is fully temperature compensated and provides a stable output over a wide temperature band. The PR-272 can be used to monitor and control building static pressure, air flow, duct static pressure and filter pressure drop.

- 100% solid state • Piezoresistive silicon sensing element •
- Temperature compensated • Extremely stable and sensitive (can detect less than .001" WCD change) • Immune to mounting orientation/vibration •
- More than five supply voltage and output options • Direct, reverse and square root output options • Rugged Delrin manifold assembly •
- Precision output clipping option • Electronic averaging/snubbing option •
- Two unique enclosure and port options for ease of installation •
- Two year warranty • Guaranteed compatible to all controllers •



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PR-272



The PR-272 sensing element is a 100% solid state piezoresistive silicon chip featuring low hysteresis, excellent repeatability, and long term stability. The chip is connected as a four-active-element bridge circuit for optimum linearity and sensitivity. Signal conditioning and temperature compensation are performed by industrial quality, state-of-the-art integrated circuits to provide an accurate, linear, and high level output that requires no additional signal conditioning.

MAMAC PR-272 also has "on card" regulation which enables it to accept non-regulated DC or AC power. MAMAC Systems has a reliable PS-200 power supply and TR-201 power transformer available at competitive pricing. We highly recommend using our power sources to eliminate any start up problems and to retain single source accountability for all peripherals. PR-272 is also available with a built-in isolation transformer. By specifying the 24 VAC with isolation supply voltage option, the unit may be powered with any existing 24-35 VAC transformer and the built-in transformer will isolate any ground loop faults, grounded secondary problems and will lower high AC secondary voltage to acceptable levels. If an existing 24 VAC power source is being used, we highly recommend specifying the 24 VAC with isolation supply voltage option.

The PR-272 is available with more than 11 pressure ranges including compound (ie: $\pm .5$ "WC). Our PR-272 is

also available with any custom range from -20 " WC to $+20$ " WC at no additional charge. Another feature available with the PR-272 is reverse output option. With this option the output of the PR-272 decreases as the sensed pressure/flow increases. For air flow measurement PR-272 is also available with square root output feature. Air flow is a square root function of the differential pressure created by the pick-up device. With the square root option the output of the PR-272 is proportional to flow and does not require any additional computation.

The PR-272 incorporates a rugged delrin manifold assembly to isolate and "float" the pressure sensing element. By isolating the element from the hose connection we can ensure that during installation the sensor is not exposed to unnecessary stress, distortion or "twisting action" which may affect the calibration accuracy.

Air flow measurement in ducts has always been a problem due to the fact that turbulence present in the air stream causes the output of any flow measuring device to fluctuate rapidly. Similarly, if the building or duct static pressure is fluctuating it is difficult to obtain accurate measurement. In order to address these problems our PR-272 is available with optional electronic snubbing. With this option the highs and lows of the output are stabilized over time and an average measurement is provided. The rate of snubbing can be adjusted by a trimmer from 0-10 seconds. In this

way, after installation any fluctuations in the output can be removed by merely increasing the averaging time until the output is stable.

The majority of the control systems do not have input limiting capability. If the transducer's output exceeds the specified controller input range due to the transducer being over-ranged or a malfunction, some systems lock up. In other cases, the excess voltage/current may bleed over other inputs. This results in erroneous decisions, false alarms or total loss of control. To address this shortcoming, our PR-272 is available with a precision output clipping feature. With this option, the transducer's output is precisely clipped at 20.3 mA, 5.1 VDC or 10.2 VDC. This output limiting feature does not in any way interfere with the linearity, repeatability, sensitivity or accuracy of the transducer. It is merely a secondary watchdog circuit which initiates limiting the moment the transducer's output exceeds the specified range.

PR-272 is shipped fully calibrated and tested with minimum 24 hours burn-in to provide trouble free start up. Easily accessible zero and span trimmers are provided if field calibration is needed. PR-272 is available in two unique steel packaging options: 1) 14 gage enclosure ideally suited for panel mounting; 2) fully enclosed, stand alone NEMA-1 enclosure. Both options are designed to facilitate installation and provide easily accessible wiring terminations. Industry standard 1/4 inch hose barb or 1/8 inch NPT female swivel brass fitting is available for PVC/copper tubing connection.

With more than 5 output and supply voltage options, 11 differential pressure ranges, 4 output types, electronic snubbing and precision output clipping options, 2 enclosure types and 2 port configurations, our PR-272 not only guarantees compatibility to all control systems but also is the most reliable, stable, versatile and easily installable low pressure transducer available.

SPECIFICATIONS:

Accuracy: ±1%‡	Maximum Pressure: 10 psig	Precision Output Clipping: 20.3 mA/5.1 VDC/10.2 VDC
Linearity: ±0.1%	Media: Dry air or inert gases	Compensated Temperature Range: 50°F–105°F
Repeatability: ±0.1%	Enclosure: 14/16 gage steel	Port(s): 1/4" Brass Hose Barb or 1/8" NPT
Hysteresis: ±0.1%	Finish: Painted Gray PMS2GR88B	Maximum Supply Voltage: 24 VAC/28 VDC nonregulated
	Output Averaging: 0-10 seconds	Mounting Orientation Error: None (100% solid state)

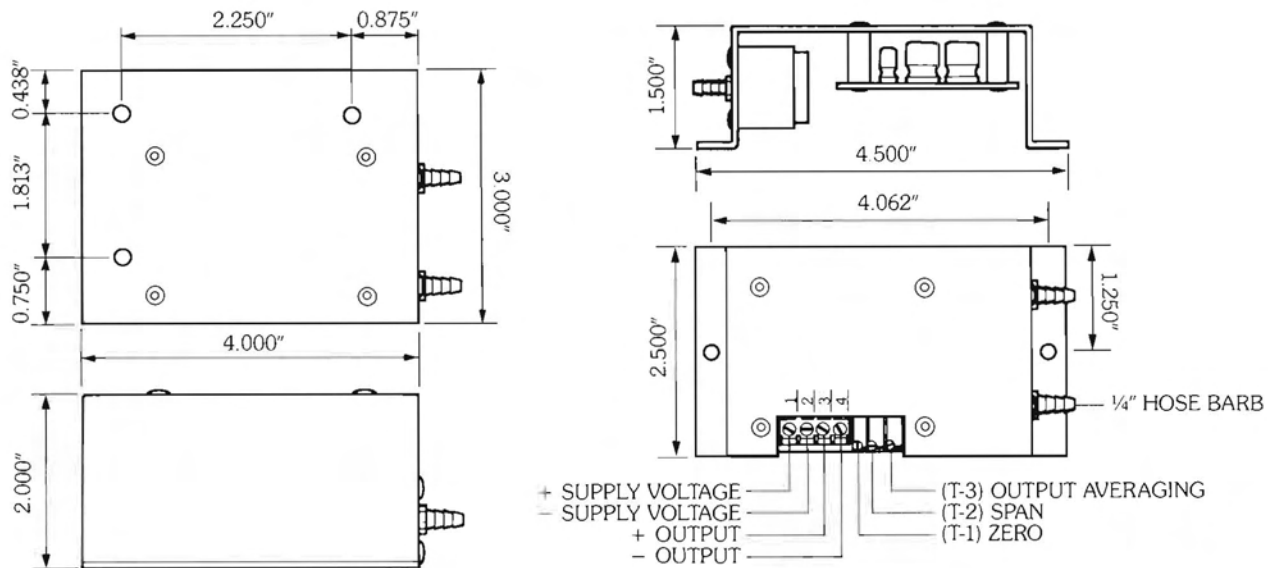
‡Includes Linearity, Repeatability, Hysteresis, Stability and Temp Compensation

ORDERING INFORMATION: PR-272

OUTPUT	PRESSURE RANGE	SUPPLY VOLTAGE	OUTPUT TYPE	OUTPUT AVERAGING	OUTPUT CLIPPING	ENCLOSURE
1) 0-1VDC	1) 0-1" WCD	A) 24VDC	1) Direct	1) With	A) With	P) Panel**
2) 0-5VDC	2) 0-3" WCD	B) 24VAC	2) Reverse	2) Without	B) Without	1/4" Barb
3) 0-10VDC†	3) 0-5" WCD	C) 115VAC	3) Direct Square Root			E) Enclosure 1/4" Barb
4) 4-20mA	4) 0-10" WCD	D) 12VDC	4) Reverse Square Root			K) Panel** 1/8" NPT
5) 4-20mA (2-wire loop)*	5) 0-20" WCD	E) Custom w/isolation				L) Enclosure 1/8" NPT
6) Custom	6) 0-25" WCD	F) 24 VAC				
	7) -1-+1" WCD					
	8) -3-+3" WCD					
	9) -.5-+.5" WCD					
	10) Custom					
	11) -.25-+.25" WCD					
	12) 0-.50" WCD					

†Not available with 12VDC supply voltage.
 *Available with 24VDC supply only (operates from 12-28 VDC), and with Direct or Reverse output type only.
 **For 115VAC supply voltage Ext. TR-201 Transformer supplied.

NOTE: Range 11 and 12 available with Direct or Reverse output type and 4-20mA output only.



CALIBRATION INSTRUCTIONS:

NOTE: All units are factory calibrated to meet or exceed published MAMAC specifications. If field adjustment is needed, please perform the following steps:

- 1) Connect terminals 1 and 2 to appropriate power source.
- 2) For Output options 1-3 connect the plus lead of an accurate voltmeter to terminal #3 and for Output option 4 connect ampmeter plus lead to terminal #3. Connect common to terminal #4.
- 3) For Output type 5, connect an ampmeter in series to terminal (+) or (-).
- 4) Apply low pressure to the unit and carefully adjust the zero trimmer (T1) to obtain desired low output.
- 5) Apply high pressure to the unit and adjust span trimmer (T2) to obtain desired high output pressure.
- 6) Repeat steps 4 and 5 until no further correction is needed.

OUTPUT AVERAGING OPTION: Factory set at 0.0 seconds. Turn trimmer T3 clockwise to increase averaging time coefficient. Maximum averaging time available is 10 seconds. Usually 3.0 seconds (8 turns CW T3) is sufficient.

A Complete Line of Control Peripherals From a Single Source

MAMAC Systems is the only manufacturer offering more than fifty products to satisfy all temp, humidity, pressure, flow, light, speed or any other DDC controls application. MAMAC's complete line of control peripherals is available in over two thousand different configurations of supply voltage, output, range and enclosure type to make our products guaranteed compatible to all HVAC controls, industrial automation and COGEN systems worldwide.

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