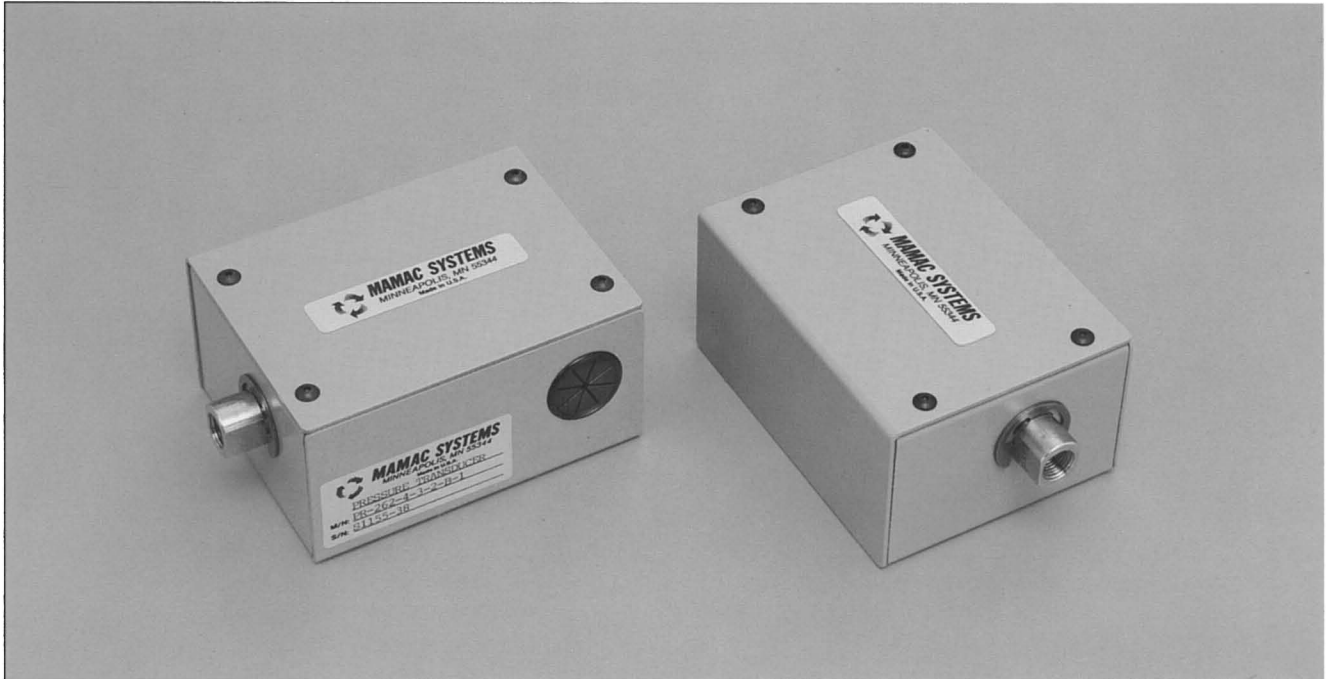


# Pressure Transducer

## Model PR-262



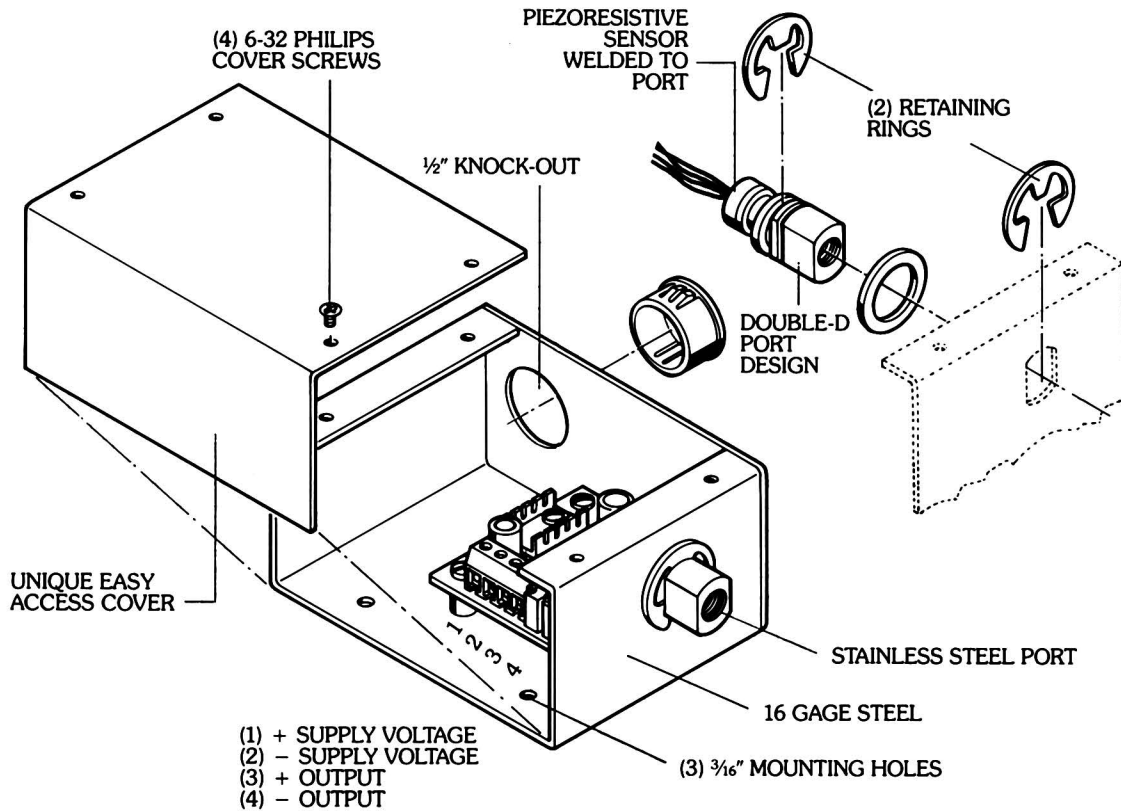
The PR-262 is an all stainless steel, 100% solid state pressure transducer incorporating a diffused piezoresistive sensing element with stainless steel media isolation. The unit is compatible to all media encountered in HVAC applications including freon, ammonia, treated water and steam. PR-262 can be used to monitor and control boiler steam pressure, CW/HW system pressure, chiller/package roof top head and suction pressure, and air or water pressure, among others.

- 100% solid state diffused piezoresistive silicon wafer •
- Rugged all stainless steel pressure cavity • Unique "Double D" port design •
- Extremely stable and sensitive • More than four supply voltage and output options • Direct or reverse output option •
- Precision output clipping option • Electronic averaging/snubbing option •
- Easy access NEMA 1 enclosure • Immune to thermal shock, surge or vibration •
- All welded sensor assembly • Two year warranty •
- Guaranteed compatible to all control systems •



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# PR-262



The PR-262 sensing element is a 100% solid state diffused piezoresistive silicon wafer featuring low hysteresis, excellent repeatability, and long term stability. The sensing element is connected as a four-active-element bridge circuit for optimum linearity and sensitivity. Signal conditioning and temperature compensation are performed by industrial quality integrated circuits to provide an accurate, linear, and high level output that requires no additional signal conditioning.

MAMAC PR-262 also has "on card" regulation which enables it to accept nonregulated DC or AC power. MAMAC Systems has available a reliable PS-200 power supply and TR-201 power transformer at competitive pricing. We highly recommend using our power sources to eliminate any start up problem and to retain single source accountability for all peripherals.

The PR-262 has a unique "Double D" design all steel port. The sensing element is welded to the port. The port has stainless steel isolation between the sensor and the media. In HVAC applications thermal shock has always been a problem. A rapid change in temperature may cause epoxy seals to break and O-rings to blow out. The coefficient of thermal expansion of epoxy, neoprene and Buna-N is not the same as steel. A rapid temperature change will cause the port and sensor to expand and the dissimilar coefficient of thermal expansion will result in the epoxy seals

breaking and the O-rings loosening resulting in a leak. The PR-262 with welded construction and an all stainless steel pressure cavity performs reliably under thermal shock conditions.

Another problem well known in our industry is that if a bulkhead fitting is used to secure the sensor to the enclosure, overtightening the fitting will result in the sensor twisting and the lead wires may break or the calibration may shift. To eliminate this problem, our engineers have incorporated a unique Double D design port which is secured to the enclosure with two retaining E-rings. The Double D shape of the port eliminates any possibility of the sensor twisting due to overtightening and the E-rings provide a rugged means to securely attach the sensing element to the enclosure. The port has wrench flats on each side to assist in tightening the pipe fitting to the port.

The all stainless steel pressure cavity enables our PR-262 to be compatible to all media encountered in HVAC applications, including freon, ammonia, steam, chilled/hot water, among others. This feature enables one unit to be compatible for all applications.

Pressure measurement in pipes, steam manifolds, compressors and other HVAC equipment has always been a problem due to the fact that pressure surges, water hammer and turbulence cause the output of any pressure transducer

# PR-262

to fluctuate rapidly. This phenomenon not only makes controlling the medium difficult, but it may also result in false alarm conditions. In order to address this problem, our PR-262 is available with optional electronic snubbing. With this feature, the highs and lows of the output are stabilized over time and an average measurement is provided. The averaging rate can be adjusted by a trimmer from 0 to 10 seconds. After installation, this option allows any fluctuation in the output to be removed by merely increasing the averaging time until the output is stable. The PR-262 is also equipped with a reverse output option allowing the output of the unit to decrease as the sensed pressure increases.

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-262 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-262 is shipped fully calibrated and tested with a minimum 24 hours burn-in to provide trouble free start up. Easily accessible zero and span trimmers are provided if field calibration is needed. The PR-262 has a unique 16 gage steel NEMA 1 enclosure designed to facilitate installation and provide easily accessible wiring termination. The pressure port has industry standard 1/8 inch NPT process connection to accommodate any pipe fitting.

With more than 4 output and supply voltage options, 11 pressure ranges, 2 output types, electronic snubbing option, and precision output clipping, our PR-262 not only guarantees compatibility to all control systems but also is the most reliable, stable and versatile pressure transducer available.

## SPECIFICATIONS:

<b>Accuracy:</b> ±1%‡	<b>Maximum Pressure:</b> 200% of rated range	<b>Precision Output Clipping:</b> 20.3 mA/5.1 VDC/10.2 VDC
<b>Linearity:</b> ±0.1%	<b>Media:</b> Liquid/gases compatible to 304 SS	<b>Compensated Temperature Range:</b> 0-180°F
<b>Repeatability:</b> ±0.1%	<b>Enclosure:</b> 16 gage steel	<b>Port Connection:</b> 1/8" NPT
<b>Hysteresis:</b> ±0.1%	<b>Finish:</b> Painted Gray PMS2GR88B	<b>Maximum Supply Voltage:</b> 24 VAC/28 VDC nonregulated
	<b>Output Averaging:</b> 0-10 seconds	<b>Mounting Orientation Error:</b> None (100% solid state)

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

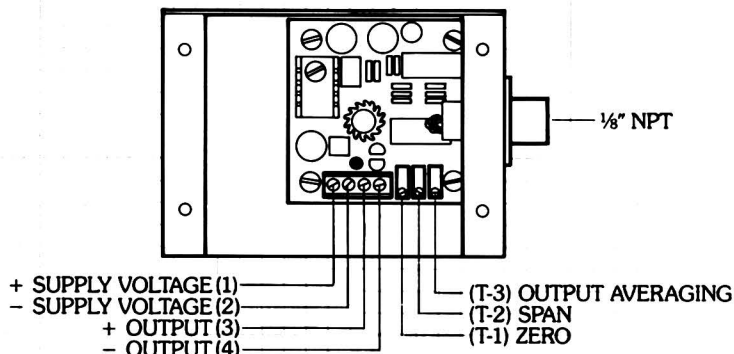
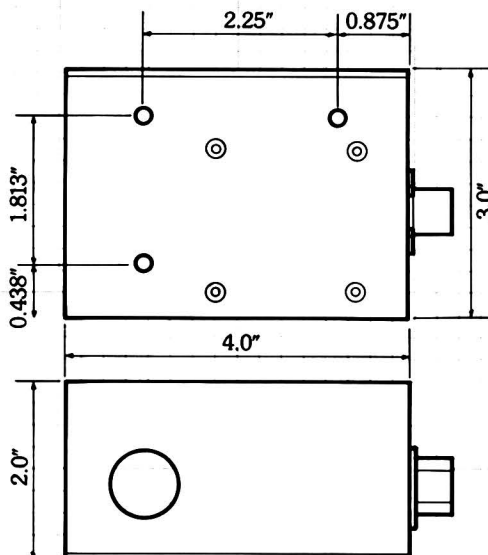
## ORDERING INFORMATION:

PR-262	OUTPUT	PRESSURE RANGE	SUPPLY VOLTAGE	OUTPUT TYPE	OUTPUT AVERAGING	OUTPUT CLIPPING
	1) 0-1VDC	1) 0-25 psig	A) 24VDC	1) Direct	1) With	A) With
	2) 0-5VDC	2) 0-50 psig	B) 24VAC	2) Reverse	2) Without	B) Without
	3) 0-10VDC**	3) 0-100 psig	C) 115VAC			
	4) 4-20mA	4) 0-250 psig	D) 12VDC			
	5) 4-20mA	5) 0-500 psig	E) Custom			
	(2-wire loop)*	6) 0-1000 psig				
	6) Custom	7) 0-5000 psig				
		8) - 5- + 5 psig				
		9) - 15- + 15 psig				
		10) 0-15 inHg†				
		11) 0-30 inHg†				
		12) Custom				

\*Available with 24VDC supply only (operates from 12-28 VDC). \*\*Not available with 12VDC supply voltage. †Vacuum (suction)

The MAMAC Systems warranty covers parts and labor for 2 years from date of shipment.

MAMAC Systems reserves the right to change any specifications without notice to improve performance, reliability, or function of our products.



## 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 option 5, connect an ampmeter in series to terminal #1 or #2.
- 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 world wide.

Single source accountability, liberal 2 year warranty, worldwide service and technical support, competitive pricing, accumulated experience of more than 10,000 installations are some of the benefits offered by MAMAC Systems which are second to none in the HVAC DDC controls industry.

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