

## LOW PRESSURE SENSOR

For Additional Information See PR-274/275 Data Sheet

### SPECIFICATIONS

Accuracy\*: ±1% FS

Overpressure: 10 PSID

Supply Voltage: 12-40 VDC  
12-35 VAC (VDC output units only)

Supply Current: VDC Units - 10 mA max.  
mA Units - 20 mA max.

Enclosure: 18 Ga C. R. Steel NEMA 4 (IP-65) or Panel Mount Chassis

Finish: Baked on enamel-PMS2GR88B

EMC Conformance: EN 55022, 55024, 61000-3-3,  
61000-4-2, 3, 4, 5, 6 & 11

Compensated Temp Range: 25°F-150°F (-4°C-65°C)

T. C. Error: ±0.0125%/°F (.02%/°C)

Operating Temp Range: 0°F-175°F (-18°C-80°C)

Media Compatibility: Clean dry air or any inert gas

Environmental: 10-90%RH Non-Condensing

Termination: Unpluggable screw terminal block

Wire Size: 12 Ga max.

Load Impedance: 1.6K ohms max. at 40 VDC (mA output units)  
1K ohms min. (VDC output units)

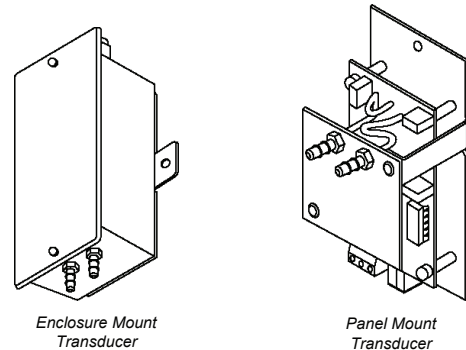
Weight: Enclosure - 1.0 lbs. (.45 kg)  
Panel Mount - 0.5 lbs. (.25 kg)

### ORDERING INFORMATION

PACKAGING		RANGE	OUTPUT
274 (enclosure)	R1 ("wc)	0 TO 0.10 / -0.05 TO +0.05	mA (4-20 mA 2-wire)
275 (panel mount)	R2 ("wc)	0 TO 1.0 / 0 TO 0.5 / 0 TO 0.25 / -0.5 TO +0.5 / -0.25 TO +0.25 / -0.125 TO +0.125	VDC (0-5 VDC or 0-10 VDC field selectable)
	R3 ("wc)	0 TO 5.0 / 0 TO 2.5 / 0 TO 1.25 / -2.5 TO +2.5 / -1.25 TO +1.25 / -0.625 TO +0.625	
	R4 ("wc)	0 TO 30 / 0 TO 15 / 0 TO 7.5 / -15.0 TO +15.0 / -7.5 TO +7.5 / -3.75 TO + 3.75	
	R5 (pa)	0 TO 25 / -12.5 TO +12.5	
	R6 (pa)	0 TO 250 / 0 TO 125 / 0 TO 62.5 / -125 TO +125 / -62.5 TO +62.5 / -31.25 TO +31.25	
	R7 (pa)	0 TO 1250 / 0 TO 625 / 0 TO 312.5 / -625 TO +625 / -312.5 TO +312.5 / -156.25 TO +156.25	
	R8 (pa)	0 TO 7500 / 0 TO 3750 / 0 TO 1875 / -3750 TO +3750 / -1875 TO +1875 / -937.5 TO +937.5	

### INSTALLATION

**Inspection** - Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.



- Requirements**
- Tools (not provided)
    - Digital Volt-ohm Meter (DVM)
    - Appropriate screwdriver for mounting screws
    - Appropriate drill and drill bit for mounting screws
  - Appropriate accessories
  - Two #8 self-tapping mounting screws (*not provided*)
  - Training: **Installer must be a qualified, experienced technician**



**Warning:**

- Disconnect power supply before installation to prevent electrical shock and equipment damage.
- Make all connections in accordance with the job wiring diagram and in accordance with national and local electrical codes. Use copper conductors only.



**Caution:**

- Use electrostatic discharge precautions (e.g., use of wrist straps) during installation and wiring to prevent equipment damage.
- Avoid locations where severe shock or vibration, excessive moisture or corrosive fumes are present. NEMA Type 4 housings are intended for outdoor use primarily to provide a degree of protection against wind-blown dust, rain, and hose-directed water.
- Do not exceed ratings of the device.



**Caution:**

- Condensate or moisture must not enter pressure sensor ports

### Mounting

The PR-274/275 must be mounted as indicated by the arrows on the enclosure. Refer to **Figure 7** for mounting dimensions.

1. Remove the transducer cover using a Phillips head screwdriver.
2. Select the mounting location.
3. Mount transducer on a vertical surface with two #8 self-tapping screws (not provided).
4. Transducer must be mounted above the pressure pick-up or a J-Loop must be incorporated in the tubing to function as a condensate trap.
5. Pull wires through bottom of enclosure and make necessary connections.
6. Replace cover and make pneumatic connections.

### Wiring

Use maximum 12 AWG wire for wiring terminals. Use flexible 1/4" O.D. 5/32" I.D. tubing for the high and low pressure connections. Refer to **Figures 1, 2, 3, & 4** for wiring information and **Figures 5 & 6** for switch designations.

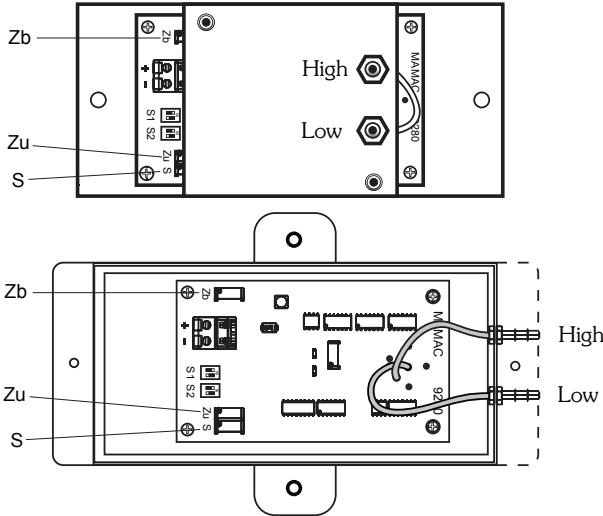
*(Wiring Instructions continued on pages 2 and 3.)*



**LOW PRESSURE SENSOR**

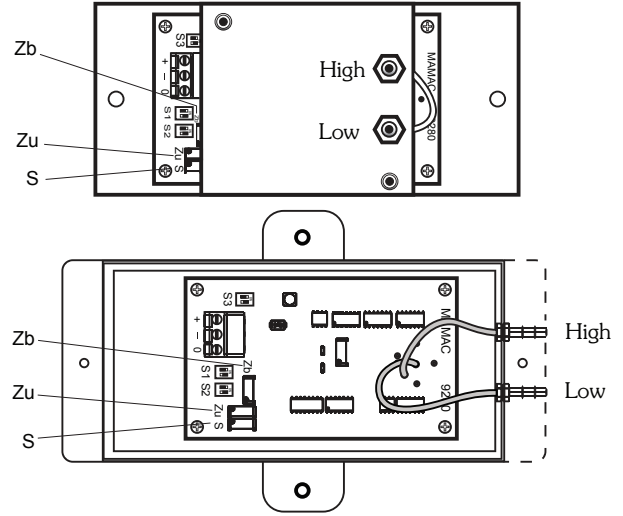
**Wiring PR-274/275 Units with mA Output**

*PR-274/275 Low Pressure Transducer with mA Output*



**Wiring PR-274/275 Units with VDC Output**

*PR-274/275 Low Pressure Transducer with VDC Output*



PR-274/275 pressure transducers with 4-20 mA output are powered with a 12-40 VDC supply.

The following describes the proper wiring of these pressure transducers with mA output:

1. Remove the terminal block by carefully pulling it off the circuit board.
2. Locate the [+] and [-] terminal markings on the board.
3. Attach the supply voltage to the [+] lead.
4. Connect the 4-20 mA output (-) terminal to the controller's input terminal.
5. Ensure that the power supply common is attached to the common bus of the controller.
6. Re-insert the terminal block to the circuit board and apply power to the unit.
7. Check for the appropriate output signal using a DVM set on DC milliamps connected in series with the [-] terminal.

PR-274/275 pressure transducers with VDC output are field selectable 0-5 VDC or 0-10 VDC output and can be powered with either a 12-40 VDC or 12-35 VAC.

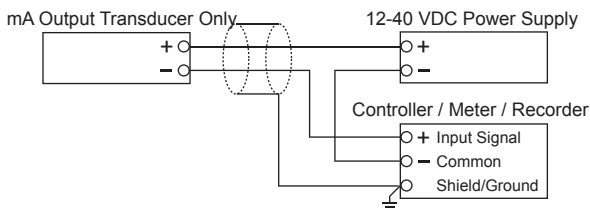
The following describes the proper wiring of these pressure transducers with VDC output:

1. Remove the terminal block by carefully pulling it off the circuit board.
2. Locate the [+], [-] and [O] terminal markings on the board.
3. Attach the power wires to the [+] and [-] terminals. The [-] terminal is also the negative terminal.
4. Connect the [O] terminal, which is the positive VDC output terminal, to the controller's input terminal.
5. Re-insert the terminal block to the circuit board and apply power to the unit.
6. Check the appropriate VDC output using a voltmeter set on DC volts across the [O] and [-] terminals.

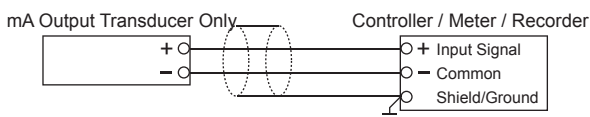
**TYPICAL APPLICATIONS (wiring diagrams)**

Figure 1 and Figure 2 illustrate typical wiring diagrams for the mA output low pressure transducer.

**Figure 1 - Wiring for mA Low Pressure Transducers with an External DC Power Supply**



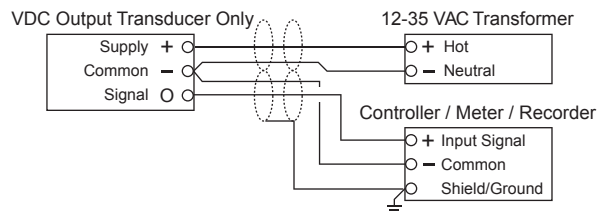
**Figure 2 - Wiring for mA Output Transducers where the Controller or Meter has an Internal DC Power Supply**



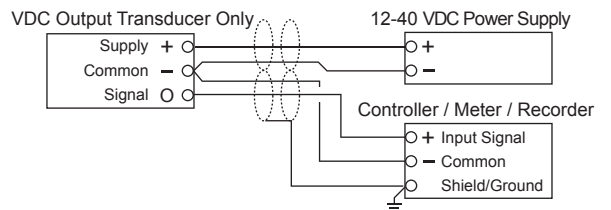
**TYPICAL APPLICATIONS (wiring diagrams)**

Figure 3 and Figure 4 illustrate typical wiring diagrams for the VDC output low pressure transducer.

**Figure 3 - Wiring for VDC Low Pressure Transducers When Applied with External AC Supply**

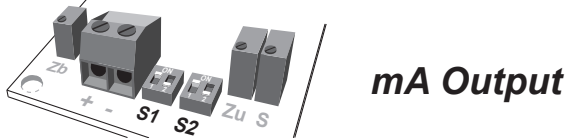


**Figure 4 - Wiring for VDC Low Pressure Transducers When Applied with External DC Power Supply**



**LOW PRESSURE SENSOR**

Figure 5 - Switch Selections for Low Pressure Transducers with mA Outputs



**Range Configuration: Uni-Directional Switch 1 (S1)**

R1/R5	0 - 0.10 "wc / 25 pa	Factory Sealed
R2/R6	0 - 1.0 "wc / 250 pa (default) 0 - 0.5 "wc / 125 pa 0 - 0.25 "wc / 62.5 pa	
R3/R7	0 - 5.0 "wc / 1250 pa (default) 0 - 2.5 "wc / 625 pa 0 - 1.25 "wc / 312.5 pa	
R4/R8	0 - 30.0 "wc / 7500 pa (default) 0 - 15.0 "wc / 3750 pa 0 - 7.5 "wc / 1875 pa	

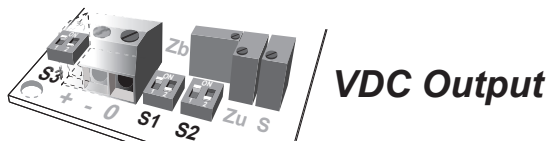
**Range Configuration: Bi-Directional Switch 1 (S1)**

R1/R5	+/- 0.05 "wc / 12.5 pa	Factory Sealed
R2/R6	+/- 0.5 "wc / 125 pa (default) +/- 0.25 "wc / 62.5 pa +/- 0.125 "wc / 31.25 pa	
R3/R7	+/- 2.5 "wc / 625 pa (default) +/- 1.25 "wc / 312.5 pa +/- .625 "wc / 156.25 pa	
R4/R8	+/- 15.0 "wc / 3750 pa (default) +/- 7.5 "wc / 1875 pa +/- 3.75 "wc / 937.5 pa	

**Output Configuration: Switch 2 (S2)**

Uni-directional (default)	
Bi-directional	

Figure 6 - Switch Selections for Low Pressure Transducers with VDC Outputs



**Range Configuration: Uni-Directional Switch 1 (S1)**

R1/R5	0 - 0.10 "wc / 25 pa	Factory Sealed
R2/R6	0 - 1.0 "wc / 250 pa (default) 0 - 0.5 "wc / 125 pa 0 - 0.25 "wc / 62.5 pa	
R3/R7	0 - 5.0 "wc / 1250 pa (default) 0 - 2.5 "wc / 625 pa 0 - 1.25 "wc / 312.5 pa	
R4/R8	0 - 30.0 "wc / 7500 pa (default) 0 - 15.0 "wc / 3750 pa 0 - 7.5 "wc / 1875 pa	

**Range Configuration: Bi-Directional Switch 1 (S1)**

R1/R5	+/- 0.05 "wc / 12.5 pa	Factory Sealed
R2/R6	+/- 0.5 "wc / 125 pa (default) +/- 0.25 "wc / 62.5 pa +/- 0.125 "wc / 31.25 pa	
R3/R7	+/- 2.5 "wc / 625 pa (default) +/- 1.25 "wc / 312.5 pa +/- .625 "wc / 156.25 pa	
R4/R8	+/- 15.0 "wc / 3750 pa (default) +/- 7.5 "wc / 1875 pa +/- 3.75 "wc / 937.5 pa	

**Output Configuration: Switch 2 (S2)**

Uni-directional (default)	
Bi-directional	

**Output Configuration: Switch 3 (S3)**

0 - 10 (default)	
0 - 5 VDC	

## LOW PRESSURE SENSOR

- CHECKOUT**
1. Verify that the unit is mounted in the correct position.
  2. Verify appropriate input signal and supply voltage.

**Caution:** Never connect 120 VAC to these transducers. Never connect AC voltage to a unit intended for DC supply.

3. Verify appropriate configuration range.

**Transducer Operation**

This is a rough functional check only.

1. Adjust the pressure to obtain maximum output signal for appropriate range.
2. Output should be 20 mA or 5 or 10 VDC.
3. Adjust the pressure to obtain minimum output signal.
4. Output should be 4 mA or 0 VDC.

**NOTE:** The PR-274/275 is a highly accurate device. For applications requiring a high degree of accuracy, the use of laboratory quality meters and gauges are recommended.

- CALIBRATION** All units are factory calibrated to meet or exceed published specifications. If field adjustment is necessary, follow the instructions below.

**Calibration of PR-274/275 mA Units**

1. Connect terminals [+] and [-] to the appropriate power source.
2. Connect the DVM in series on the [-] terminal.
3. Apply low pressure to the unit. If configured for uni-direction, adjust Zu trimmer to achieve desired low output. If configured for bi-direction, adjust Zb trimmer to achieve desired low output.
4. Apply high pressure to the unit and adjust span trimmer [S] to obtain the desired high output pressure.
5. Repeat steps 3 and 4 until desired calibration is achieved.

**Calibration of PR-274/275 VDC Units**

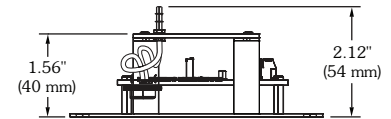
1. Connect terminals [+] and [-] to the appropriate power source. The [-] terminal is also the negative output terminal.
2. Connect the DVM on DC volts across [O] and [-] terminal.
3. Apply low pressure to the unit. If configured for uni-direction, adjust Zu trimmer to achieve desired low output. If configured for bi-direction, adjust Zb trimmer to achieve desired low output.
4. Apply high pressure to the unit and adjust span trimmer [S] to obtain the desired high output pressure.
5. Repeat steps 3 and 4 until desired calibration is achieved.

**MAINTENANCE** Regular maintenance of the total system is recommended to assure sustained optimum performance.

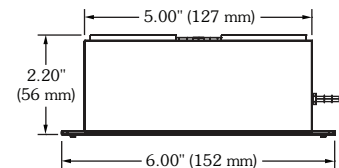
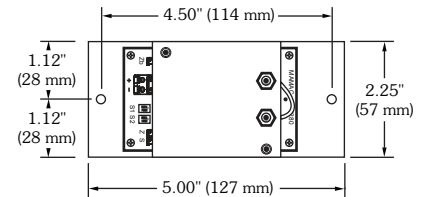
**FIELD REPAIR** None. Replace with a functional unit.

**WARRANTY** See Data Sheet for additional information.

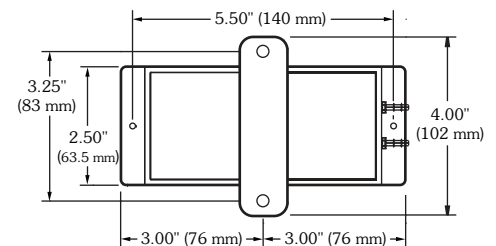
**Figure 7 - PR-274/275 Low Pressure Transducer Dimensions shown in inches and millimeters (mm).**



**Panel Mount**



**Enclosure**



For Technical / Application Assistance call your nearest office

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