

# omega.com®

## OMEGA®

### Pressure Transducer

#### PX276 and PX279

INSTRUCTION SHEET

M3505/0816

3 YEAR WARRANTY

CE



### SPECIFICATIONS

Accuracy\*:  $\pm 1\%$  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)  
6061T aluminum probe

Finish: Baked on enamel – PMS2GR88B

Conformance: EMC Standards EN50082-1(1992)  
EN55014(1993)/EN60730-1(1992)

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

T. C. Error:  $\pm 0.0125\%/^{\circ}\text{F}$  (.02%/°C)

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

Media Compatibility: Clean dry air or any inert gas

Environmental: 10–90%RH Non-Condensing

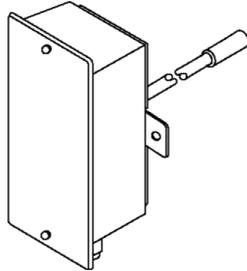
Termination: Unpluggable screw terminal block

Wire Size: 12 Ga max.

Load Impedance: 3K ohms max. at 40 VDC (mA output units)  
1K ohms min. (VDC output units)

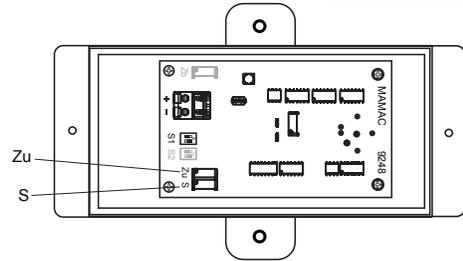
Weight: Enclosure 1.0 lbs. (.45 kg)

\*Includes non-linearity, hysteresis and non-repeatability



### Wiring PX276 Units with mA Output

PX276 Duct Pressure Transducer with mA Output



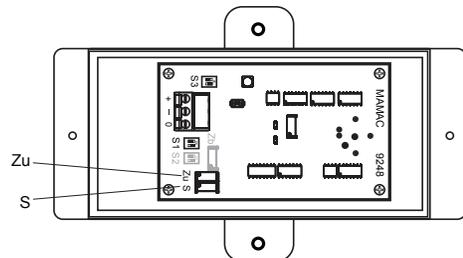
PX276 pressure transducers with 4–20 mA output units are powered with a 12–40 VDC supply.

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.

### Wiring PX279 Units with VDC Output

PX279 Duct Pressure Transducer with VDC Output



PX279 pressure transducers with VDC output are field selectable 0–5 VDC or 0–10 VDC output and can be powered with either 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 [0] terminal markings on the board.
3. Attach the power wires to the [+] and [-] terminals. The [-] terminal is also the negative output terminal.
4. Connect the [0] 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 [0] and [-] terminals.

### TYPICAL APPLICATIONS (wiring diagrams)

Figure 1 and Figure 2 illustrate typical wiring diagrams for the PX276 Series, 4–20 mA, two-wire output duct pressure transducers.

Figure 1 – Wiring for mA Output Duct Pressure Transducers with External DC Power Supply

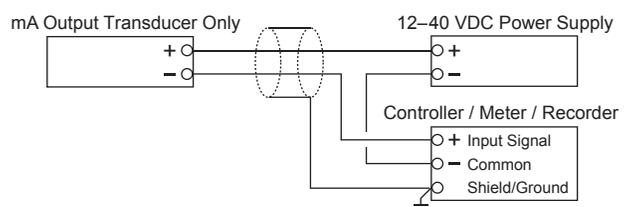


Figure 2 – Wiring for mA Output Duct Pressure Transducers where the Controller or Meter has an Internal DC Power Supply

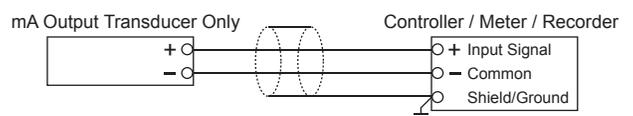
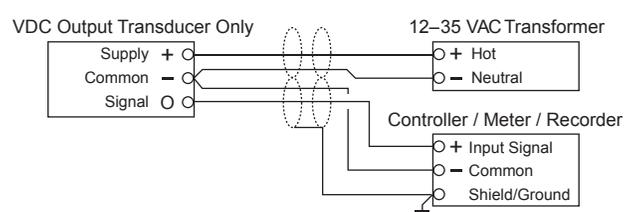


Figure 3 and Figure 4 illustrate typical wiring diagrams for the PX279, 0–5/0–10 VDC output duct pressure transducer.

Figure 3 – Wiring for VDC Output Duct Pressure Transducers when applied with External AC Supply.



### 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:

- Do not use on oxygen service, in an explosive/hazardous environment, or with flammable/combustible media.
- 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.

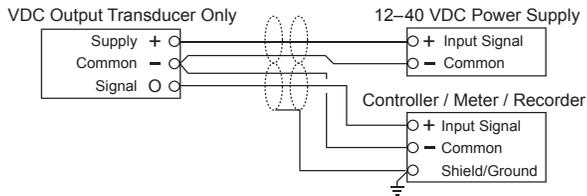
**Mounting** Refer to Figure 7 for mounting dimensions.

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. Pull wires through bottom of enclosure and make necessary connections.
5. Replace cover and make pneumatic connections.

**Wiring** Use maximum 12 AWG wire for wiring terminals. Refer to Figures 1, 2, 3, & 4 for wiring information and Figures 5 & 6 for switch designations.



**Figure 4 – Wiring for VDC Output Duct Pressure Transducers when applied with External DC Supply.**



**Caution:** If you are using grounded AC, the hot wire must be on the [+] terminal. Also, if you are using a controller without built-in isolation, use an isolation transformer to supply the transducer.

**Caution:** This product contains a half-wave rectifier power supply and must not be powered off transformers used to power other devices utilizing non-isolated full-wave rectifier power supplies.

**Caution:** When multiple units are powered from the same transformer, damage will result unless all 24G power leads are connected to the same power lead on all devices. It is mandatory that correct phasing be maintained when powering more than one device from a single transducer.

**Range Configuration:**

		Switch 1 (S1)
Range 05	0 – 5.0 "wc / 1250 pa (default)	
	0 – 2.5 "wc / 625 pa	
	0 – 1.25 "wc / 312.5 pa	
Range 15	0 – 15.0 "wc / 3750 pa (default)	
	0 – 7.5 "wc / 1875 pa	
	0 – 3.75 "wc / 937.5 pa	
Factory Sealed		Switch 2 (S2)

**Figure 5 – Range Configurations for Pressure Transducers with mA Outputs**

**Output Configuration:**

		Switch 3 (S3)
0 – 10 VDC (default)		
0 – 5 VDC		

**Figure 6 – Range Configurations for Pressure Transducers with VDC Outputs**

- 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 PX276/PX279 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 PX276 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 and carefully adjust the zero trimmer [Zu] to obtain 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 PX279 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 [0] and [-] terminal.
3. Apply low pressure to the unit and carefully adjust the zero trimmer [Zu] to obtain 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**

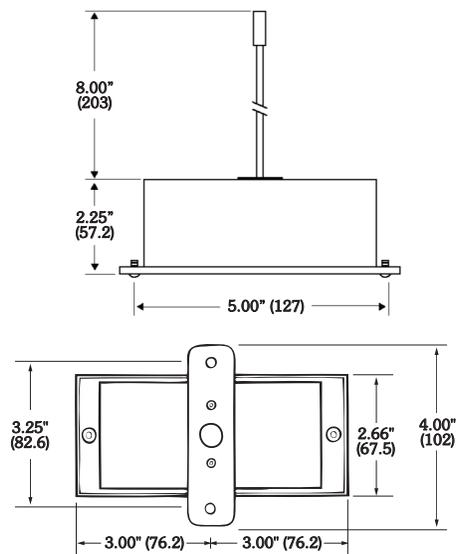
Regular maintenance of the total system is recommended to assure sustained optimum performance.

**FIELD REPAIR**

None. Replace with a functional unit.

**WARRANTY**

See Data Sheet for additional information.



**Servicing North America:**

U.S.A. Omega Engineering, Inc.  
 Headquarters: Toll-Free: 1-800-826-6342 (USA & Canada only)  
 Customer Service: 1-800-622-2378 (USA & Canada only)  
 Engineering Service: 1-800-872-9436 (USA & Canada only)  
 Tel: (203) 359-1660 • Fax: (203) 359-7700 • e-mail: info@omega.com

**WARRANTY/DISCLAIMER**

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **37 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **three (3) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

**RETURN REQUESTS/INQUIRIES**

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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