800-2XX0 Pressure Transducer

Overview

The family of pressure transducers has a stainless steel housing and is available with Male 1/8- 27 NPT national pipe thread (NPT) fitting or Female 7/16-20 UNF-2B with Schrader Deflator fitting. The rugged design makes the transducer compatible with all HFC/HCFC refrigerants, water, glycol, CO2, and ammonia. The sensor includes a 20' cable with a weather-proof Packard Electric Metri-Pack Series connector to allow for ease of sensor replacement. The sensor is available in six pressure ranges. The specifications for each sensor are listed below:

Table 1: Specifications

Part Number (Male)	800-2100	800-2200	800-2500	800-2650	800-2710	800-2720
Part Number (Female)	-	800-2201	800-2501	800-2651	800-2711	800-2721
Pressure Range	0-100 PSI	0-200 PSI	0-500 PSI	0-650 PSI	0-1000 PSI	0-2000 PSI
Proof Pressure (PSI)	200	400	1000	1087	2000	4000
Burst Pressure (PSI) (Male)	500	1000	2500	3250	5000	10000
Burst Pressure (PSI) (Female)	-	1000	2500	3250	7000	7000
Supply Current (Male)	10mA max				13mA max	
Supply Current (Female)	10mA max				12.5mA max	
Max per MultiFlex or 16AI (50mA max) (Male)	5				3	
Max per MultiFlex or 16AI (50mA max) (Female)	5				4	
Output Load (Male)	10 kOhm min					
Output Load (Female)	10 kOhm min				4.7 kOhm min	
Accuracy	Less than ±2% span				Less than ±2.5% span	
Operating Supply Voltage	5.0±0.05 VDC 1%					
Output Voltage	0.5 to 4.5 VDC					
Insulation Resistance	Greater than 100 MOhm at 50 VCD for 1 minute					
Operating Temperature	-40°F to +257°F (-40°C to +125°C)					
Storage Temperature	-40°F to +257°F (-40°C to +125°C)					
Durability	Greater than 1 million cycles					
Response Time	Less than 5 msec					

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Table 1: Specifications

Part Number (Male)	800-2100	800-2200	800-2500	800-2650	800-2710	800-2720
Part Number (Female)	-	800-2201	800-2501	800-2651	800-2711	800-2721
Vibration	11 g					
Drop Test	1 meter on 3 axis					
Ingress Rating	IP67					
Electrical Connection	Packard Electric Metri-Pack Series					
Pressure Connection (Male)	1/8- 27 NPT					
Pressure Connection (Female)	7/16-20 UNF-2B with Schrader Deflator					
Vacuum	During routine troubleshooting and commissioning, transducer may be exposed to a vacuum environment.					
Agency Approval						

Installation and Wiring

Electrical Excitation Voltage

The Supply Voltage is to be ONLY +5.0 Volts DC.

Caution do NOT connect to 12VDC.

Mounting

The pressure transducers will be mounted only by the pressure port connection.

PTFE (Teflon®) Sealing Tape

Female Pressure Transducers have compression fitting (7/16-20 UNF-2B with Schrader Deflator) and **do not require** PTFE Tape; if PTFE Tape is used take care to ensure it does not get between the compression fitting.

Male Pressure Transducers have national pipe thread (NPT) fitting (1/8- 27 NPT) and **require** PTFE Tape for proper seal.

Follow the PTFE Tape manufacturer's instructions.

The following are general guidelines:

- Use PTFE Tape with Pressure Rating of 10,000 PSI or above; 1/4" width tape recommended for 1/8 NPT threads.
- Remove all old tape before applying new tape.
- Clean the male and female threads of any oil, dirt, or used tape.
- Apply new PTFE sealing tape a minimum of three wraps on the male threads, using care to wrap in the direction of the thread rotation.
- Start tape near bottom thread, do not overlap the tape on the ends of the fitting. Keep tension on the tape while wrapping; and ensure sealing area of threads has sufficient wrapping before installing a Male Pressure Transducer.

Wrench Surface

The pressure transducers have a very large wrench hex (hexagon) nut portion near the pressure port.

Do not use the transducer casing to apply any torque during mounting.

Tighten the transducers gently when mounting them.

Start and Hand tighten to ensure proper thread alignment.

Finish tightening using the Transducer Hex Nut and a common non-adjustable wrench of either a standard fractional-inch size or a standard millimeter size dependent on transducer (22mm, 24mm, 1", 27mm, etc).

Wiring

- Attach the connector of the cable harness to the Metri-Pack Series connector at the top of the transducer.
- Secure the transducer cable harness near the transducer end to relieve any stress on the connector or transducer due to cable weight or environmental vibration. Transducer cable harness Drain Loops are recommended.
- The sensor connections to the input point are polarity sensitive. The sensor can be wired to any available point on the MultiFlex or 16AI board. Connect the cable harness wires to the MultiFlex or 16AI board as shown in *Figure 2 - Pressure Transducer Installation*.

  ONLY CONNECT THE PRESSURE TRANSDUCER TO A +5V DC POWER TERMINAL.

  If connection to the input board requires more than the 20' of wire included with the cable harness, use Belden #8771(shielded, 3 conductor, 22AWG) or equivalent to extend the cable.
- On switch S1 or S2 on the MultiFlex or 16AI board, set the input dip switch rocker corresponding to the input number to the RIGHT (ON) position. This is different from the required input dip switch setting for other powered transducers.

5VDC Pressure Transducers

Even though they supply their own voltage signal, the dip switch SHOULD be set to the RIGHT (ON) position for timely detection of open sensor wiring.

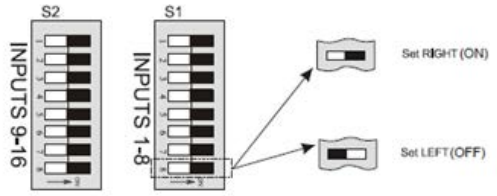


Figure 1 - Input Type Dip Switches for MultiFlex or 16AI Board

Belden 28326AS Copeland P/N 135-2832 or Belden 8771 Copeland P/N 135-8771 or equivalent 3 conductor shielded 22 AWG or larger cable may be used to extend length to a maximum of 50 ft.

If manufacturer harness must be extended, join wires with heat shrink and solder.

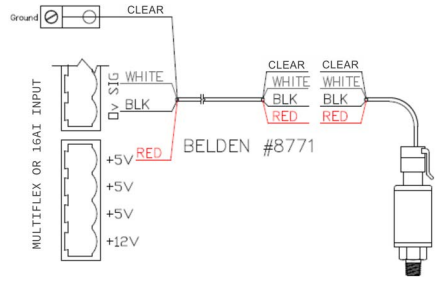


Figure 2 - Pressure Transducer Installation

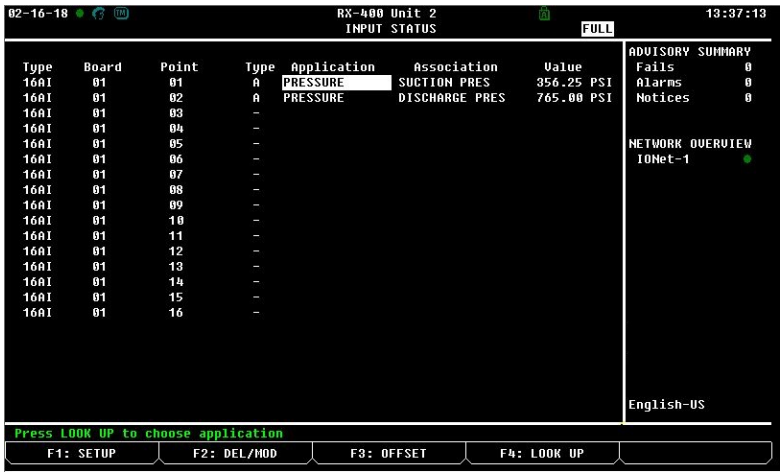
Transducer Cable Harness

Secure the transducer cable harness near the transducer end to relieve any stress on the connector or transducer due to cable weight or environmental vibration. Transducer cable harness Drain Loops are recommended:

Figure 3 - Transducer Cable Harness

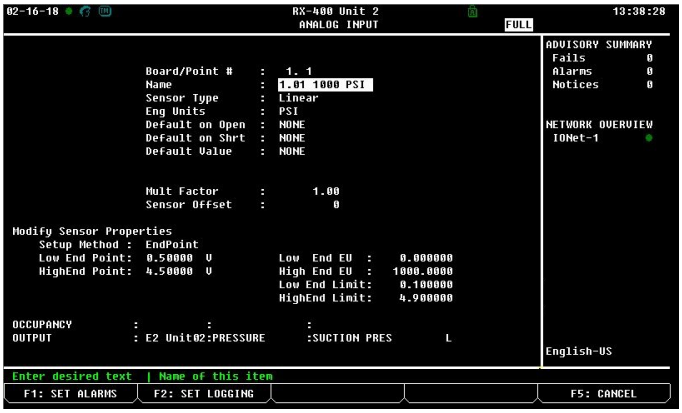
E2 Programming - Manually Set Up Pressure Transducer Inputs

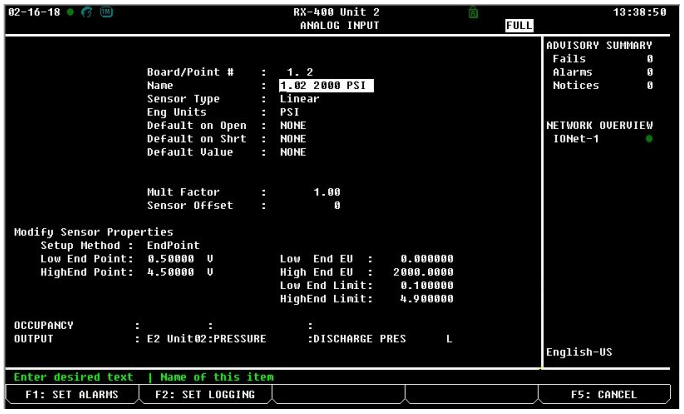
1. Press Log In/Out and log in to the E2 with Level 4 access (default login USER/PASS).
2. Press Alt + I to view the *INPUT STATUS* screen.
3. Use the arrow keys to highlight the correct board and point for the pressure transducer.



4. Press F1 1 to create an analog input and set the following parameters:

   a. Change Sensor Type to Linear
   b. Change Eng Units to PSI
   c. Setup Method: Endpoint
   d. Low End Point: 0.5V
   e. HighEnd Point: 4.5V
   f. Low End EU: 0
   g. High End EU: the Highest Pressure range based on the model
   h. Low End Limit: 0.1
   i. HighEnd Limit: 4.9



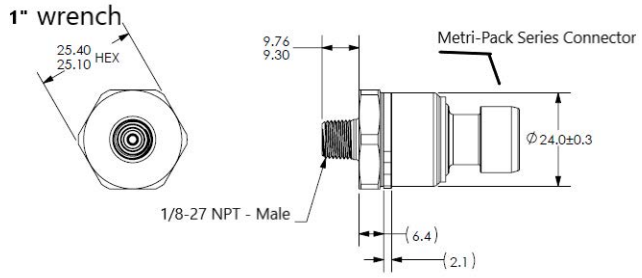


5. Type in the desired name for the point in the point **Name** field.
6. Use the arrow keys to highlight the **Sensor Type** field and press F4 to change the sensor type.
7. For an 800-2100, press E; for an 800-2200, press F; for an 800-2500, press G; for an 800-2650, press ^ 6.
8. Press Enter to accept the sensor input.

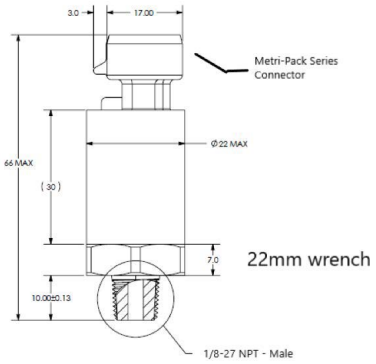
Mechanical Drawings: dimensions in mm or inches [mm]

To help mitigate supply chain constraints with our popular Male 1/8-27 NPT Pressure Transducer, multiple models have been approved. Each of the approved models adhere to the specifications defined in this document. The following are mechanical drawings of the currently approved Male 1/8-27 NPT Pressure Transducers with available pressure ranges:

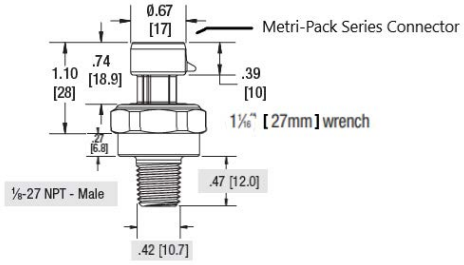
Male 100, 200, 500, 650 PSI



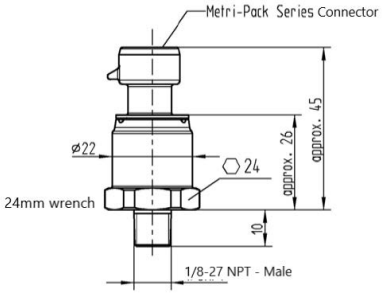
Male 1000 and 2000 PSI



Male 100, 200, 500, 650, 1000, and 2000 PSI

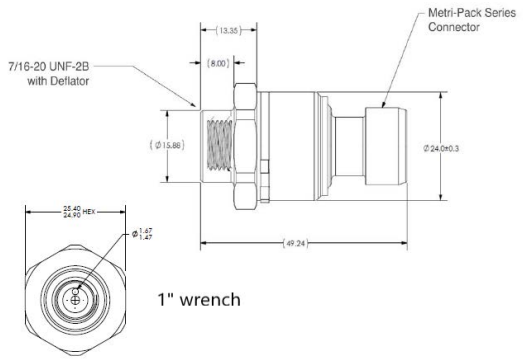


Male 100, 200, 500, 650, 1000, and 2000 PSI

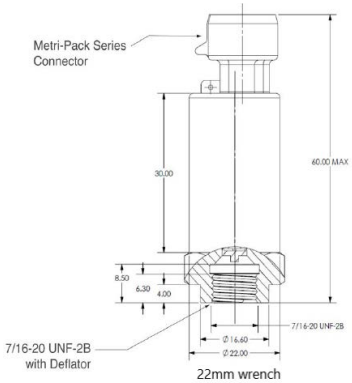


The following are mechanical drawings of the currently approved Female 7/16-20 UNF-2B with Schrader Deflator fitting Pressure Transducers and available pressure ranges:

Female 200, 500, or 650 PSI



Female 1000 or 2000 PSI



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For Technical Support call **833-409-7505** or email **ColdChain.TechnicalServices@Copeland.com**

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