Installation Instructions

Specifications

<table>
<thead>
<tr>
<th>Media Compatibility</th>
<th>Dry or inert gas</th>
</tr>
</thead>
</table>

Input Power

Three-wire 30VAC/30VDC model: 24 Vac or 13-30 Vac. Two-wire 30VAC/30VDC model: 24 Vac or 13-30 Vac.

Output Power

Field selectable: 2-wire, loop-powered 4-20 mA
Minimum input voltage for 4-20 mA operation: 250 Volt loop or 12 Vac; 500 Volt loop or 19 Volt (DC only), clipped and capped. 24 Vac in 3-wire 0-5/0-10V
Minimum load resistance for 30Vdc operation: 3 kΩ.

Product mode

Unidirectional: 0-250 Pa/500 Pa/1000 Pa/2500 Pa, Fs, switch selectable
Bidirectional: 0-250 Pa/500 Pa/1000 Pa/2500 Pa, Fs, switch selectable

301 Pressure Range

0.1/0.25/0.5/1.0 in. WC, switch selectable
Bidirectional: 0.1/0.25/0.5/1.0 in. WC, switch selectable
Unidirectional: 0.25 Pa/50 Pa/100 Pa/250 Pa, Fs, switch selectable
Bidirectional: 0.25 Pa/50 Pa/100 Pa/250 Pa, Fs, switch selectable

302 Pressure Range

Unidirectional: 0.250 kPa/0.500 kPa/1.000 kPa/2.500 kPa, Fs, switch selectable
Bidirectional: 0.250 kPa/0.500 kPa/1.000 kPa/2.500 kPa, Fs, switch selectable

Display Mode

Pressure mode

Signaling: 3-1/2 digit LCD, indicates pressure, overrange indication
Velocity mode: Signaling: 3-1/2 digit LCD, indicates velocity, overrange indication

Pressure Mode Accuracy

±1% FS (combined linearity and hysteresis)

Velocity Mode Accuracy

±0.5% FS (85% humidity and linearity)

IEEE 488 (Option)

Display: 3-1/2 digit LCD.

Differential Pressure/Air Velocity Transducer

EP Series

Product Description

The EP transducer can measure either air pressure or velocity with the flip of a switch. The EP is available in three installation configurations: duct, panel, or universal. Duct and panel models have two pressure and velocity options: 0-10" WC (2.5kPa) or 0-1" WC (250Pa) with four field-selectable sub-ranges. The universal model comes in one pressure/velocity range: 0-10" WC (2.5kPa) or 0-1" WC (250Pa) with seven field-selectable sub-ranges for pressure and eight for velocity. All variants are available with and without display. The EP has an IP65/NEMA 4 environmental rating and a 5-year limited warranty.

Available Products

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
<th>Display Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP U</td>
<td>0 to 10&quot; WC/0 to 2500 Pa</td>
<td>Blank = No Display/ LCD = LCD Display</td>
</tr>
<tr>
<td>EP D</td>
<td>0 to 10&quot; WC/0 to 2500 Pa</td>
<td>Blank = No Display/ LCD = LCD Display</td>
</tr>
</tbody>
</table>

Dimensions

- EP U: 0.2 x 0.4 x 0.6 in. (5.1 x 10.2 x 15.2 cm)
- EP D: 0.3 x 0.6 x 0.9 in. (7.6 x 15.2 x 22.9 cm)

Safety Precautions

- NOTICE
  - This product is not intended for life or safety applications.
  - Do not install this product in hazardous or classified locations.
  - Read and understand the instructions before installing this product.
  - Turn off all power supply equipment before working on it.
  - The installer is responsible for conformance to all applicable codes.

If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired. No responsibility is assumed for the manufacturer for any consequences arising out of the use of this material.

Installation Instructions

Installation, Wiring & Configuration

1. Plan the installation. Panel or duct mount?

   - Duct Installations
     - See Filtration and Air-conditioning Application Chart on page 2.
     - Belden #8443 (22 AWG) 3-wire multi-conductor (or similar)
     - Unshielded:
       - Belden #9939 (22 AWG) 5-wire multi-conductor (or similar)
     - 500/1000/2000/3000/4000/5000 ft/min (15/30/60/100/150/300 m/s)

   - Panel Installations
     - See Filtration and Air-conditioning Application Chart on page 2.
     - Belden #684 (18/22 AWG) 3-wire multi-conductor (or similar)
     - 0 to 10 in. WC (0 to 250 Pa)
     - Bidirectional: ±0.1/±0.25/±0.5/±1.0/±2.5 in. WC (±0.25/±0.5/±1.0/±2.5 in. WC)
     - Unidirectional: ±0.1/±0.25/±0.5/±1.0/±2.5 in. WC (±0.25/±0.5/±1.0/±2.5 in. WC)

2. For duct applications, thread the probe into the probe of the device housing as shown in the dimensional drawing.

3. Configure the internal tubing for the selected installation method as described below.

   - Duct mount tubing configuration:
     - Connect the right-hand-side tube to the rear brass barb marked as “+” on the underside of the device housing.
     - Connect the left-hand-side tube to the probe in the back of the device housing.

   - Panel mount tubing configuration:
     - Connect the right-hand-side tube to the rear brass barb marked as “+” on the underside of the device housing.
     - Connect the left-hand-side tube to the front brass barb marked as “+” on the underside of the device housing.

   - Tubing for Panel
     - Verbis AA18/AA19/AA20 or AA25 velocity pitot tubes.
     - Use with the EPF (panel) and EPU (universal) models in Velocity mode only. Sold separately.
4. Mount the transducer (see the screw hole diagram below).  

5. For applications using conduit, remove the cable gland nut on the bottom of the unit. Thread a standard 1/2-inch NPT female threaded coupler onto the body of the cable gland. Connect the opposite end of the coupler to the conduit.

6. Set DIP switches to desired settings.

- **DIP Switch 1**: Scale  
  - ON = Pascal (m/s)  
  - OFF = In. WC (ft/min)

- **DIP Switch 2**: Mode  
  - ON = Velocity  
  - OFF = Pressure

- **DIP Switch 3**: Direction*  
  - ON = Unidirectional  
  - OFF = Bidirectional

- **DIP Switch 4**: Response  
  - ON = Slow  
  - OFF = Fast

- **DIP Switch 5**: Output  
  - ON = 4-20 mA  
  - OFF = Voltage

- **DIP Switch 6**: Volt Scale  
  - ON = 0-5 Vdc  
  - OFF = 0-10 Vdc

- **DIP Switch 7**: Unused

- **DIP Switch 8**: Unused

*Velocity mode is unidirectional regardless of DIP switch setting.

7. Set rotary switch to desired range setting. Align the arrow (not the slot) on the rotary switch to the desired full-scale range. LCD models momentarily indicate the selected range.

**Rotary Switch Settings**

**Range (I) Model, Field Selectable**  
- **WC / ft/min or Pa / m/s**  

<table>
<thead>
<tr>
<th>Mode</th>
<th>Pressure</th>
<th>Velocity</th>
<th>Volt Scale</th>
<th>Unused</th>
<th>Unused</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>0 to 0.1 in. WC</td>
<td>0 to 25 Pa</td>
<td>Fast</td>
<td>0 to 50 V</td>
<td>0 to 10 m/s</td>
</tr>
<tr>
<td>OFF</td>
<td>0 to 2.5 in. WC</td>
<td>0 to 500 Pa</td>
<td>Slow</td>
<td>0 to 1000 V</td>
<td>0 to 20 m/s</td>
</tr>
</tbody>
</table>

**Range (II) Model, Field Selectable**  
- **WC / ft/min or Pa / m/s**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Pressure</th>
<th>Velocity</th>
<th>Volt Scale</th>
<th>Unused</th>
<th>Unused</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>0 to 0.1 in. WC</td>
<td>0 to 25 Pa</td>
<td>Fast</td>
<td>0 to 50 V</td>
<td>0 to 10 m/s</td>
</tr>
<tr>
<td>OFF</td>
<td>0 to 2.5 in. WC</td>
<td>0 to 500 Pa</td>
<td>Slow</td>
<td>0 to 1000 V</td>
<td>0 to 20 m/s</td>
</tr>
</tbody>
</table>

8. Connect the transmitter to the control system and power supply as indicated below. Optional: Connect the ZER0 terminals to the digital output (contact closure) of the control system.

- **2-wire, 4-20 mA Current Loop Output**

- **3-wire, 0-5 V / 10 V Voltage Output**

9. Wait five seconds, then press and hold the ZERO pushbutton for two seconds or provide contact closure on the AUX ZERO terminal. This will reset the output and display to zero pressure. For best accuracy, press the ZERO button while both ports are open to atmospheric pressure. To protect the unit from accidental zero, this feature is enabled only when the detected pressure is within about 0.1 in. WC (25 Pa) of factory calibration.

10. Connect desired external tubing to the EP.