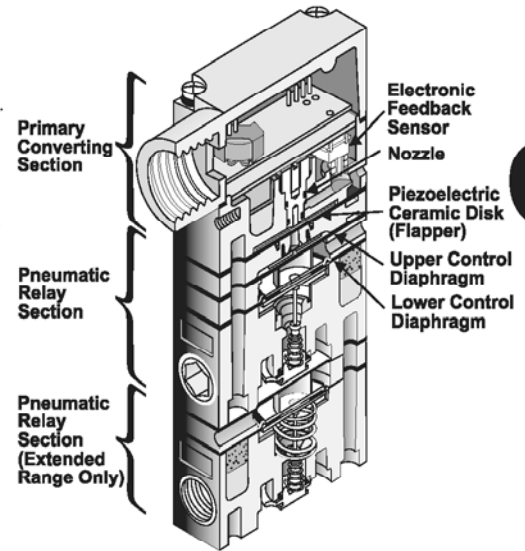




## Features

- The T7800 Series Transducers provide maximum versatility for precision applications.
- Field Reversible Feature provides output that is inversely proportional to input signal.
- RF/EMI Protection eliminates susceptibility to electromagnetic and radio interference.
- Internal Electronic Feedback and solid state controlled Piezoelectric Actuator provide precise control of output pressure regardless of vibration or position.
- Damping Adjustment for optimum tuning response.
- Split range operation lets a common signal source control two or more functions.
- Compact size for use in restricted spaces.
- Two temperature range versions available.
- Various mounting configurations allow installation flexibility for most applications.
- NEMA 4X, Type 4 Enclosure and IP65 rated for indoor and outdoor installations.
- Canadian Registration Numbers (CRN) certification for all territories and provinces.



**B**

Model T7800

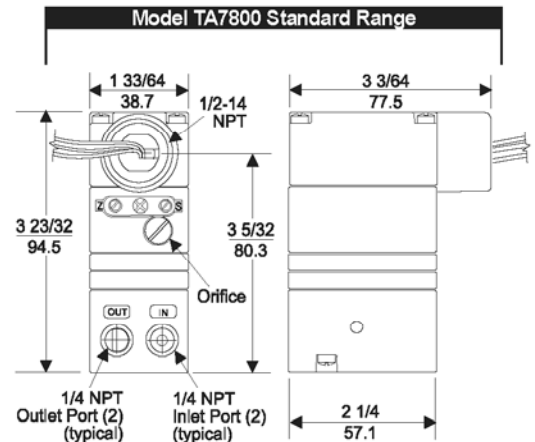
## Operating Principles

### STANDARD RANGE

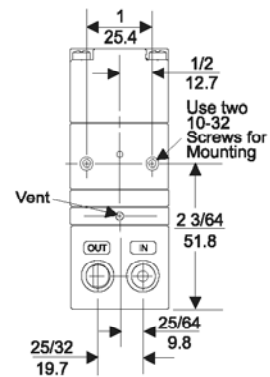
The Model T7800 Series converts a DC input signal to a linear proportional pneumatic output. It includes the Primary Converting Section and the pneumatic Relay Section. The Piezoelectric Ceramic Actuator, in the Primary Converting Section, functions as a Flapper. The Flapper and Nozzle work together to control the signal pressure. The signal pressure that sets the output pressure acts on the Upper Control Diaphragm in the Pneumatic Relay Section. The Lower Control Diaphragm in the Pneumatic Relay Section senses the output pressure.

### EXTENDED RANGE

In the Extended Range units, an additional Relay Section amplifies the output pressure.



Note: Unused IN and OUT Ports are plugged (typical)



INSTRUMENTS • CONTROLS • VALVES

CLICK TO VISIT OUR WEBSITE

**ARCO**  
Engineering, Inc.  
SINCE 1954  
www.arcoengineering.com

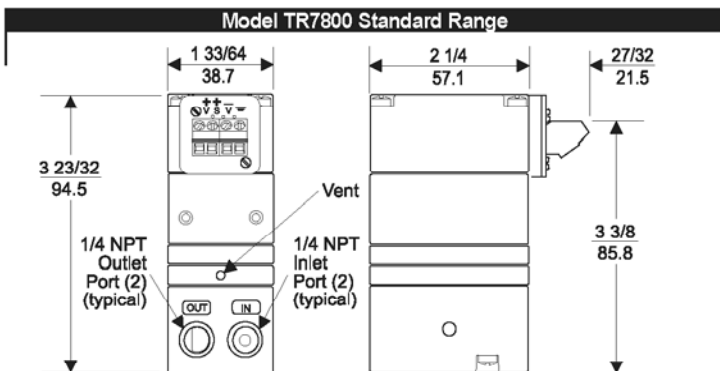
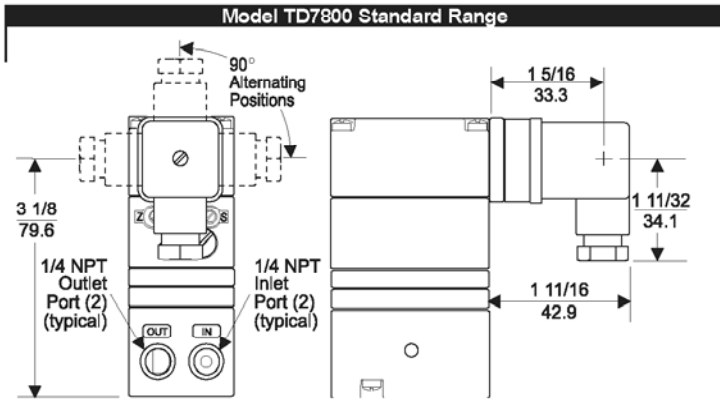
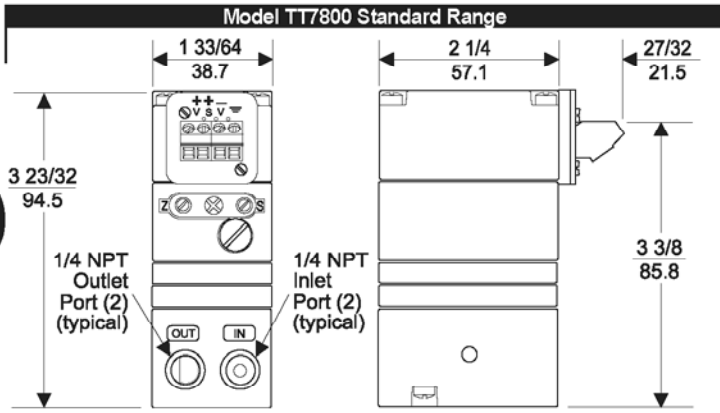
3317 Gilmore Industrial Blvd.  
Louisville, KY 40213

Ph: (502) 966-3134  
Fx: (502) 966-3135

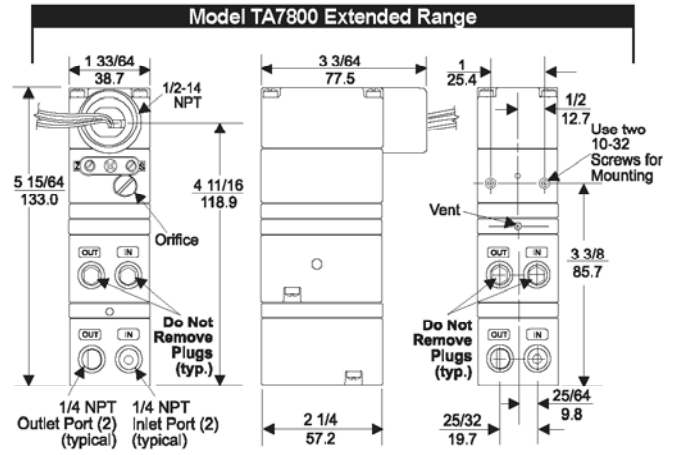
# Model T7800 Electro-Pneumatic I/P, E/P Transducer

**B**

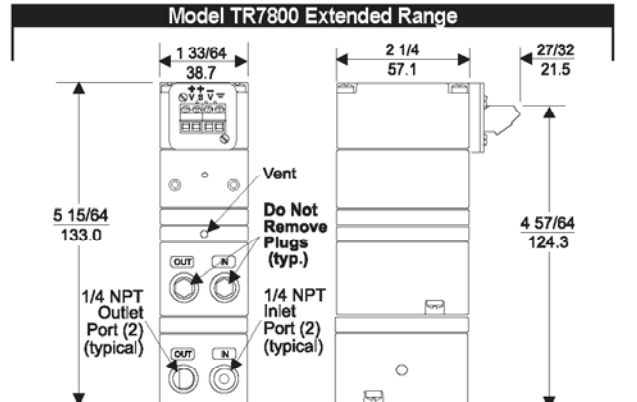
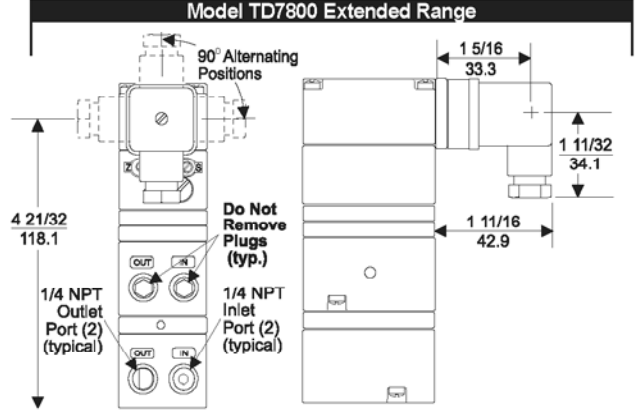
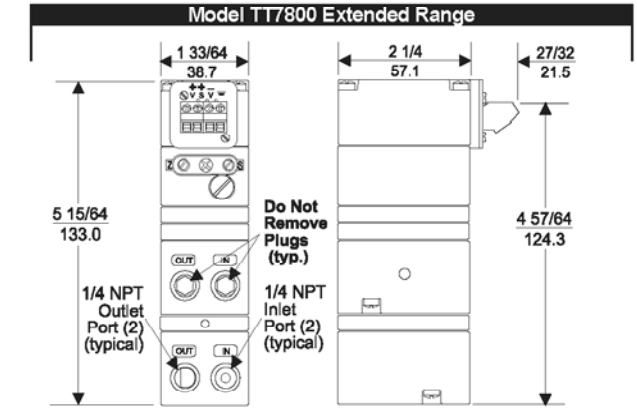
**Model T7800**



Model TR7800 for use with TR Manifold Rack Kit. TR7800 unit same as TT7800 except terminal block is located on rear.



Note: Unused IN and OUT Ports are plugged (typical)



Model TR7800 for use with TR Manifold Rack Kit. TR7800 unit same as TT7800 except terminal block is located on rear.

# Model T7800 Electro-Pneumatic I/P, E/P Transducer

| Standard Range Specifications |                      | SET POINT   |                                 |                                 |  |
|-------------------------------|----------------------|---|---------------------------------|---------------------------------|--|
|                               |                      | 3<br>[0.2]<br>(20)  | 9<br>[0.6]<br>(60)              | 15<br>[1.0]<br>(100)            | 30<br>[2.0]<br>(200)   |
| Maximum Air Consumption       | All Ranges<br>SCFH   | 3.5<br>(.10 m <sup>3</sup> /HR)   | 7.0<br>(.20 m <sup>3</sup> /HR) | 9.5<br>(.27 m <sup>3</sup> /HR) | 13.5<br>(.38 m <sup>3</sup> /HR)   |
| Flow Rate<br>(SCFM)           |                      | 2.5 (4.25 m <sup>3</sup> /HR) @<br>25 psig, [1.7 BAR],<br>(170 kPa) supply &<br>9 psig, [0.6 BAR],<br>(60 kPa) Output |                                 | OR                              | 9.0 (15.3 m <sup>3</sup> /HR) @<br>120 psig, [8.0 BAR],<br>(800 kPa) supply &<br>9 psig, [0.6 BAR],<br>(60 kPa) Output |
| Temperature Range             | Operating<br>Storage | -40°F to + 160°F (-40°C to + 71.2°C)<br>-40°F to + 180°F (-40°C to + 82.2°C)  |                                 |                                 |  |
| Span/Zero Adjustments         |                      | Screwdriver adjustments located on front of unit  |                                 |                                 |  |
| Required Operating Voltages   |                      | Two Wire Current Input 7.2 VDC @ 20 mA (4-20 mA signal)   |                                 |                                 |  |
| Supply Voltages               |                      | Three Wire Voltage Input 7.2-30 VDC, less than 3 mA   |                                 |                                 |  |
| Signal Impedance              |                      | Three Wire Voltage Input 10 Kiloohms  |                                 |                                 |  |

|                              |  | OUTPUT RANGE  |                                  |                                  |
|------------------------------|--|---|----------------------------------|----------------------------------|
|                              |  | 3-15<br>[0.2-1.0]<br>(20-100)   | 3-27<br>[0.2-1.8]<br>(20-180)    | 6-30<br>[0.4-2.0]<br>(40-200)    |
| Input Range                  |  | 4-20 mA DC, 0-10 VDC, 1-9 VDC   |                                  |                                  |
| Supply Pressure <sup>1</sup> |  | 20-120<br>[1.5-8.0]<br>(150-800)  | 32-120<br>[2.2-8.0]<br>(220-800) | 35-120<br>[2.4-8.0]<br>(240-800) |
| Minimum Span                 |  | 5<br>[0.35]<br>(35)   | 10<br>[0.7]<br>(70)              | 10<br>[0.7]<br>(70)              |
| Frequency Response           |  | -3 db @ 5 Hz per ISA S26.4.3.1 load configuration A.  |                                  |                                  |
| Accuracy (ISA S51.1)         |  | 0.25% Full Scale Guaranteed<br>0.15% Full Scale Typical   |                                  |                                  |
| Hysteresis (ISA S51.1)       |  | 0.1% Full Scale   |                                  |                                  |
| Deadband                     |  | 0.02% Full Scale  |                                  |                                  |
| Repeatability (ISA S51.1)    |  | 0.1% Full Scale   |                                  |                                  |
| Position Effect              |  | No Measurable Effect  |                                  |                                  |
| Vibration Effect             |  | Less than +1% of Span under the following conditions: 5-15 Hz @ 0.8 inches constant displacement 15-500 Hz @ 10 Gs.   |                                  |                                  |
| Reverse Polarity Protection  |  | No damage occurs from reversal of normal supply current (4-20 mA) or from misapplication of up to 60 mA.  |                                  |                                  |
| RFI/EMI Effect               |  | Less than 0.5% of span @ 30 <sup>1</sup> /m class 3 Band ABC (20-1000 mHz) per SAMA PMC 33.1 1978 and less than 0.5% of Span @ 10 <sup>1</sup> /m level, to 2 GHz Band per EN 61000-4-3:1998 +A1 EMC Directive 89/336/EEC European Norms EN 61326 |                                  |                                  |
| Supply Pressure Effect       |  | No Measurable Effect  |                                  |                                  |
| Temperature Effect           |  | [+0.5% +0.04% / °F Temperature Change] of Span typical  |                                  |                                  |
| Materials of Construction    |  | Body and Housing . . . . . Chromate Treated Aluminum<br>Orifice . . . . . Nickel Plated Brass & Sapphire<br>Trim . . . . . Stainless Steel, Brass & Zinc Plated Steel<br>Elastomers . . . . . Nitrile<br>Finish . . . . . Epoxy Powder Coating    |                                  |                                  |

B

**Model  
T7800**

<sup>1</sup> Supply Pressure must be no less than 5 psig, [0.35 BAR], (35 kPa), above maximum output

# Model T7800 Electro-Pneumatic I/P, E/P Transducer

## Extended Range Specifications

|                             |                      | SET POINT  |                                 |                                  |                                  |                                  |  |
|-----------------------------|----------------------|--|---------------------------------|----------------------------------|----------------------------------|----------------------------------|--|
|                             |                      | 0<br>[0]<br>(0)  | 15<br>[1.0]<br>(100)            | 30<br>[2.0]<br>(200)             | 60<br>[4.0]<br>(400)             | 120<br>[8.0]<br>(800)            |  |
|                             |                      | psig<br>[BAR]<br>(kPa)   |                                 |                                  |                                  |                                  |  |
| Maximum Air Consumption     | 0-30 psig<br>SCFH    | 3.1<br>(.09 m <sup>3</sup> /HR)  | 7.8<br>(.22 m <sup>3</sup> /HR) | 11.8<br>(.33 m <sup>3</sup> /HR) |                                  |                                  |  |
|                             | 0-60 psig<br>SCFH    | 1.6<br>(0.4 m <sup>3</sup> /HR)  | 4.7<br>(.13 m <sup>3</sup> /HR) | 7.8<br>(.22 m <sup>3</sup> /HR)  | 13.3<br>(.37 m <sup>3</sup> /HR) |                                  |  |
|                             | 0-120 psig<br>SCFH   | 0.5<br>(.01 m <sup>3</sup> /HR)  |                                 | 3.8<br>(.11 m <sup>3</sup> /HR)  | 7.6<br>(.21 m <sup>3</sup> /HR)  | 15.1<br>(.42 m <sup>3</sup> /HR) |  |
| Flow Rate (SCFM)            |                      | 11.0 (18.7 m <sup>3</sup> /HR) @ 150 psig, [10 BAR], (1000 kPa) supply & midscale output |                                 |                                  |                                  |                                  |  |
| Temperature Range           | Operating<br>Storage | -40°F to + 160°F, (-40°C to + 71.2°C)<br>-40°F to + 180°F, (-40°C to + 82.2°C)           |                                 |                                  |                                  |                                  |  |
| Span/Zero Adjustments       |                      | Screwdriver adjustments located on front of unit   |                                 |                                  |                                  |                                  |  |
| Required Operating Voltages |                      | Two Wire Current Input 7.2 VDC @ 20 mA (4-20 mA signal)                                  |                                 |                                  |                                  |                                  |  |
| Supply Voltages             |                      | Three Wire Voltage Input 7.2 - 30 VDC, less than 3 mA                                    |                                 |                                  |                                  |                                  |  |
| Signal Impedance            |                      | Three Wire Voltage Input 10 Kilohms  |                                 |                                  |                                  |                                  |  |

|                              |  | OUTPUT RANGE   |                                  |                                  |
|------------------------------|--|--|----------------------------------|----------------------------------|
|                              |  | 0-30<br>[0-2.0]<br>(0-200)   | 0-60<br>[0-4.0]<br>(0-400)       | 0-120<br>[0-8.0]<br>(0-800)      |
|                              |  | psig<br>[BAR]<br>(kPa)   |                                  |                                  |
| Input Range                  |  | 4-20 mA DC, 0-10 VDC, 1-9 VDC  |                                  |                                  |
| Supply Pressure <sup>1</sup> |  | 35-150<br>[2.4-10]<br>(240-1000)   | 65-150<br>[4.6-10]<br>(460-1000) | 125-150<br>[8.8-10]<br>(880-100) |
| Minimum Span                 |  | 12.5<br>[0.85]<br>(85)   | 25<br>[1.5]<br>(150)             | 50<br>[3.0]<br>(300)             |
| Frequency Response           |  | -3 db @ 2 Hz per ISA S26.4.3.1 load configuration A.   |                                  |                                  |
| Accuracy (ISA S51.1)         |  | 0.25% Full Scale Guaranteed<br>0.15% Full Scale Typical  |                                  |                                  |
| Hysteresis (ISA S51.1)       |  | 0.25% Full Scale   |                                  |                                  |
| Deadband                     |  | 0.02% Full Scale   |                                  |                                  |
| Repeatability (ISA S51.1)    |  | 0.1% Full Scale  |                                  |                                  |
| Position Effect              |  | 0.125% @ 90° & 0.25% @ 180°  |                                  |                                  |
| Vibration Effect             |  | Less than +1% of Span under the following conditions: 5-15 Hz @ 0.8 inches constant displacement 15-500 Hz @ 10 Gs.  |                                  |                                  |
| Reverse Polarity Protection  |  | No damage occurs from reversal of normal supply current (4-20 mA) or from misapplication of up to 60 mA.   |                                  |                                  |
| RFI/EMI Effect               |  | Less than 0.5% of span @ 30 $\mu$ m class 3 Band ABC (20-1000 mHz) per SAMA PMC 33.1 1978 and less than 0.5% of Span @ 10 $\mu$ m level, to 2 GHz Band per EN 61000-4-3:1998 +A1 EMC Directive 89/336/EEC European Norms EN 61326            |                                  |                                  |
| Supply Pressure Effect       |  | < 0.1 psig change for 10 psig supply change  |                                  |                                  |
| Temperature Effect           |  | [+0.5% +0.06% / °F Temperature Change] of Span typical   |                                  |                                  |
| Materials of Construction    |  | Body and Housing. . . . . Chromate Treated Aluminum<br>Orifice . . . . . Nickel Plated Brass & Sapphire<br>Trim . . . . . Stainless Steel, Brass & Zinc Plated Steel<br>Elastomers . . . . . Nitrile<br>Finish. . . . . Epoxy Powder Coating |                                  |                                  |

<sup>1</sup> Supply Pressure must be no less than 5 psig, [0.35 BAR], (35 kPa), above maximum output

**B**

Model  
T7800

## Hazardous Area Specifications

|  | Intrinsically Safe (4-20 mA Only)  | Division 2 |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|--|--|------------|---|------------------------------------|---------------------------------------|--|---------------------------------------|---|--|---|---------------------------------------|-------------------------------|----------------------------|------------------------------|--|--|----------------------------------|-------------------------------|--|------------------------------|---|--|
| <p><b>Factory Mutual (FM) Approvals</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Entity Parameters</th> </tr> <tr> <td style="padding: 2px;">Vmax<sup>1</sup>= 30 VDC</td> <td style="padding: 2px;">Ci<sup>3</sup> = 0</td> </tr> <tr> <td style="padding: 2px;">Imax<sup>2</sup>= 200 mA</td> <td style="padding: 2px;">Li<sup>4</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"><sup>1</sup>Vmax = Max. Voltage</td> <td style="padding: 2px;"><sup>3</sup>Ci = Capacitance</td> </tr> <tr> <td style="padding: 2px;"><sup>2</sup>Imax = Max. Current</td> <td style="padding: 2px;"><sup>4</sup>Li = Inductance</td> </tr> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Non-Incendive Field Wiring Parameters</th> </tr> <tr> <td style="padding: 2px;">Vmax<sup>1</sup>= 30 VDC</td> <td style="padding: 2px;">Ci<sup>3</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">Li<sup>4</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"><sup>1</sup>Vmax = Max. Voltage</td> <td style="padding: 2px;"><sup>3</sup>Ci = Capacitance</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"><sup>4</sup>Li = Inductance</td> </tr> </table> | Entity Parameters  |            | Vmax <sup>1</sup> = 30 VDC              | Ci <sup>3</sup> = 0                | Imax <sup>2</sup> = 200 mA            | Li <sup>4</sup> = 0                                    | <sup>1</sup> Vmax = Max. Voltage      | <sup>3</sup> Ci = Capacitance                                   | <sup>2</sup> Imax = Max. Current   | <sup>4</sup> Li = Inductance  | Non-Incendive Field Wiring Parameters |                               | Vmax <sup>1</sup> = 30 VDC | Ci <sup>3</sup> = 0          |  | Li <sup>4</sup> = 0  | <sup>1</sup> Vmax = Max. Voltage | <sup>3</sup> Ci = Capacitance |  | <sup>4</sup> Li = Inductance | <p><b>TDFI7800, TAFI7800</b><br/>Class I, Division 1, Groups C and D;<br/>Class II, Division 1, Groups E, F and G;<br/>Class III, Division 1, Fibers;<br/>NEMA 4X Enclosure;<br/>Temperature Code T5 (-40 °C to +66 °C)<br/>T6 (-40 °C to +40 °C)</p> | <p><b>TDFI7800, TAFI7800, TDFN7800, TAFN7800</b><br/>Class I, Division 2, Groups A, B, C and D;<br/>Suitable for<br/>Class II, Division 2, Groups F and G;<br/>Class III, Division 2; NEMA 4X Enclosure;<br/>Non Incendive: 4-20 mA, voltage input units; Temperature Code T5 (-40 °C to +66 °C)<br/>T6 (-40 °C to +40 °C)</p> |
| Entity Parameters  |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Vmax <sup>1</sup> = 30 VDC   | Ci <sup>3</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Imax <sup>2</sup> = 200 mA   | Li <sup>4</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>1</sup> Vmax = Max. Voltage   | <sup>3</sup> Ci = Capacitance  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>2</sup> Imax = Max. Current   | <sup>4</sup> Li = Inductance   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Non-Incendive Field Wiring Parameters  |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Vmax <sup>1</sup> = 30 VDC   | Ci <sup>3</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | Li <sup>4</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>1</sup> Vmax = Max. Voltage   | <sup>3</sup> Ci = Capacitance  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | <sup>4</sup> Li = Inductance   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <p><b>Canadian Standards Association (CSA) Approvals</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Approvals are valid when connected through a Shunt Zener Diode Safety Barrier meeting the following parametric requirements:</th> </tr> <tr> <td style="padding: 2px;">System Type 1: Single Channel Polarized</td> <td style="padding: 2px;">Rated: 4-20 mA / Max. 300 Ohm Min.</td> </tr> <tr> <td style="padding: 2px;">System Type 2: Dual Channel Polarized</td> <td style="padding: 2px;">Rated 28.5V Max. 300 Ohm Min. and 10V Max. 50 Ohm Min.</td> </tr> <tr> <td style="padding: 2px;">System Type 3: Dual Channel Polarized</td> <td style="padding: 2px;">Rated: 28.5V Max. 300 Ohm Min. and 28V Diode return per channel</td> </tr> </table>   | Approvals are valid when connected through a Shunt Zener Diode Safety Barrier meeting the following parametric requirements: |            | System Type 1: Single Channel Polarized | Rated: 4-20 mA / Max. 300 Ohm Min. | System Type 2: Dual Channel Polarized | Rated 28.5V Max. 300 Ohm Min. and 10V Max. 50 Ohm Min. | System Type 3: Dual Channel Polarized | Rated: 28.5V Max. 300 Ohm Min. and 28V Diode return per channel | <p><b>TTFI7800, TRFI7800</b><br/>Class I, Division 1, Groups C and D;<br/>Temperature Code T5 (-40 °C to 66 °C)<br/>T6 (-40 °C to 40 °C)</p> | <p><b>TTFI7800, TRFI7800, TTFN7800, TRFN7800</b><br/>Class I, Division 2, Groups A, B, C and D;<br/>Non Incendive: 4-20 mA, voltage input units; Temperature Code T5 (-40 °C to +66 °C)<br/>T6 (-40 °C to +40 °C)</p> |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Approvals are valid when connected through a Shunt Zener Diode Safety Barrier meeting the following parametric requirements:   |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| System Type 1: Single Channel Polarized  | Rated: 4-20 mA / Max. 300 Ohm Min.   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| System Type 2: Dual Channel Polarized  | Rated 28.5V Max. 300 Ohm Min. and 10V Max. 50 Ohm Min.   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| System Type 3: Dual Channel Polarized  | Rated: 28.5V Max. 300 Ohm Min. and 28V Diode return per channel  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <p><b>ATEX Approvals</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Transducer Parameters</th> </tr> <tr> <td style="padding: 2px;">Umax<sup>1</sup>= 28 V</td> <td style="padding: 2px;">Pi<sup>3</sup> = 0.7 W</td> </tr> <tr> <td style="padding: 2px;">Imax<sup>2</sup>= 100 mA</td> <td style="padding: 2px;">Ci<sup>4</sup> = 12 nF</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">Li<sup>5</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"><sup>1</sup>Umax = Max. Voltage</td> <td style="padding: 2px;"><sup>3</sup>Pi = Max. Power</td> </tr> <tr> <td style="padding: 2px;"><sup>2</sup>Imax = Max. Current</td> <td style="padding: 2px;"><sup>4</sup>Ci = Capacitance</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"><sup>5</sup>Li = Inductance</td> </tr> </table>   | Transducer Parameters  |            | Umax <sup>1</sup> = 28 V                | Pi <sup>3</sup> = 0.7 W            | Imax <sup>2</sup> = 100 mA            | Ci <sup>4</sup> = 12 nF                                |                                       | Li <sup>5</sup> = 0   | <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power  | <sup>2</sup> Imax = Max. Current      | <sup>4</sup> Ci = Capacitance |                            | <sup>5</sup> Li = Inductance | <p><b>TDCI7800, TACI7800</b><br/>Class I, Division 1, Groups C and D;<br/>Class II, Division 1, Groups E, F and G;<br/>Type 4 Enclosure;<br/>Rated 4-20 mA, 30 VDC maximum;<br/>Temperature Code T6 (Ta -40 °C to +40 °C).<br/>T4A (Ta -40 °C to +66 °C)</p> | <p><b>TDCI7800, TTCI7800, TRCI7800</b><br/>Class I, Division 2, Groups A, B, C and D;<br/>Rated 4-20 mA, 30 VDC maximum;<br/>Temperature Code T6 (Ta +66 °C).</p>                            |                                  |                               |  |                              |   |  |
| Transducer Parameters  |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Umax <sup>1</sup> = 28 V   | Pi <sup>3</sup> = 0.7 W  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Imax <sup>2</sup> = 100 mA   | Ci <sup>4</sup> = 12 nF  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | Li <sup>5</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>2</sup> Imax = Max. Current   | <sup>4</sup> Ci = Capacitance  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | <sup>5</sup> Li = Inductance   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <p><b>IECEx Approvals</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Transducer Parameters</th> </tr> <tr> <td style="padding: 2px;">Ui<sup>1</sup>= 28 V</td> <td style="padding: 2px;">Pi<sup>3</sup> = 0.7 W</td> </tr> <tr> <td style="padding: 2px;">Imax<sup>2</sup>= 100 mA</td> <td style="padding: 2px;">Ci<sup>4</sup> = 12 nF</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">Li<sup>5</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"><sup>1</sup>Umax = Max. Voltage</td> <td style="padding: 2px;"><sup>3</sup>Pi = Max. Power</td> </tr> <tr> <td style="padding: 2px;"><sup>2</sup>Imax = Max. Current</td> <td style="padding: 2px;"><sup>4</sup>Ci = Capacitance</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"><sup>5</sup>Li = Inductance</td> </tr> </table>  | Transducer Parameters  |            | Ui <sup>1</sup> = 28 V                  | Pi <sup>3</sup> = 0.7 W            | Imax <sup>2</sup> = 100 mA            | Ci <sup>4</sup> = 12 nF                                |                                       | Li <sup>5</sup> = 0   | <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power  | <sup>2</sup> Imax = Max. Current      | <sup>4</sup> Ci = Capacitance |                            | <sup>5</sup> Li = Inductance | <p><b>TACI7800</b><br/>Class I, Division 1, Groups C and D;<br/>Rated 4-20 mA, 30VDC maximum;<br/>Temperature Code T6 (Ta -40 °C to +40 °C).<br/>T4A (Ta -40 °C to +66 °C)</p>   | <p>Class I, Division 2, Groups A, B, C and D;<br/>Class II, Division 2, Groups E, F and G;<br/>Type 4 Enclosure;<br/>Rated 4-20 mA, 30 VDC maximum;<br/>Temperature Code T6 (Ta +66 °C).</p> |                                  |                               |  |                              |   |  |
| Transducer Parameters  |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Ui <sup>1</sup> = 28 V   | Pi <sup>3</sup> = 0.7 W  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Imax <sup>2</sup> = 100 mA   | Ci <sup>4</sup> = 12 nF  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | Li <sup>5</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>2</sup> Imax = Max. Current   | <sup>4</sup> Ci = Capacitance  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | <sup>5</sup> Li = Inductance   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <p><b>ATEX Approvals</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Transducer Parameters</th> </tr> <tr> <td style="padding: 2px;">Umax<sup>1</sup>= 28 V</td> <td style="padding: 2px;">Pi<sup>3</sup> = 0.7 W</td> </tr> <tr> <td style="padding: 2px;">Imax<sup>2</sup>= 100 mA</td> <td style="padding: 2px;">Ci<sup>4</sup> = 12 nF</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">Li<sup>5</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"><sup>1</sup>Umax = Max. Voltage</td> <td style="padding: 2px;"><sup>3</sup>Pi = Max. Power</td> </tr> <tr> <td style="padding: 2px;"><sup>2</sup>Imax = Max. Current</td> <td style="padding: 2px;"><sup>4</sup>Ci = Capacitance</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"><sup>5</sup>Li = Inductance</td> </tr> </table>   | Transducer Parameters  |            | Umax <sup>1</sup> = 28 V                | Pi <sup>3</sup> = 0.7 W            | Imax <sup>2</sup> = 100 mA            | Ci <sup>4</sup> = 12 nF                                |                                       | Li <sup>5</sup> = 0   | <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power  | <sup>2</sup> Imax = Max. Current      | <sup>4</sup> Ci = Capacitance |                            | <sup>5</sup> Li = Inductance | <p><b>TAEI7800, TDEI7800</b><br/>EEx ia IIB, T4, Tamb = -40°C to 72°C<br/>⊕ II 1G (T4),<br/>IP65 Enclosure</p>   | <p><b>TAEI7800, TDEI7800</b><br/>EEx ia IIB, T4, Tamb = -40°C to 72°C<br/>⊕ II 1G (T4)</p>   |                                  |                               |  |                              |   |  |
| Transducer Parameters  |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Umax <sup>1</sup> = 28 V   | Pi <sup>3</sup> = 0.7 W  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Imax <sup>2</sup> = 100 mA   | Ci <sup>4</sup> = 12 nF  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | Li <sup>5</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>2</sup> Imax = Max. Current   | <sup>4</sup> Ci = Capacitance  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | <sup>5</sup> Li = Inductance   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <p><b>ATEX Approvals</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Transducer Parameters</th> </tr> <tr> <td style="padding: 2px;">Umax<sup>1</sup>= 28 V</td> <td style="padding: 2px;">Pi<sup>3</sup> = 0.7 W</td> </tr> <tr> <td style="padding: 2px;">Imax<sup>2</sup>= 100 mA</td> <td style="padding: 2px;">Ci<sup>4</sup> = 12 nF</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">Li<sup>5</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"><sup>1</sup>Umax = Max. Voltage</td> <td style="padding: 2px;"><sup>3</sup>Pi = Max. Power</td> </tr> <tr> <td style="padding: 2px;"><sup>2</sup>Imax = Max. Current</td> <td style="padding: 2px;"><sup>4</sup>Ci = Capacitance</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"><sup>5</sup>Li = Inductance</td> </tr> </table>   | Transducer Parameters  |            | Umax <sup>1</sup> = 28 V                | Pi <sup>3</sup> = 0.7 W            | Imax <sup>2</sup> = 100 mA            | Ci <sup>4</sup> = 12 nF                                |                                       | Li <sup>5</sup> = 0   | <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power  | <sup>2</sup> Imax = Max. Current      | <sup>4</sup> Ci = Capacitance |                            | <sup>5</sup> Li = Inductance | <p><b>TTEI7800, TREI7800</b><br/>EEx ia IIB, T4, Tamb = -40°C to 72°C<br/>⊕ II 1G (T4)</p>   | <p><b>TTEI7800, TREI7800</b><br/>EEx ia IIB, T4, Tamb = -40°C to 72°C<br/>⊕ II 1G (T4)</p>   |                                  |                               |  |                              |   |  |
| Transducer Parameters  |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Umax <sup>1</sup> = 28 V   | Pi <sup>3</sup> = 0.7 W  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Imax <sup>2</sup> = 100 mA   | Ci <sup>4</sup> = 12 nF  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | Li <sup>5</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>2</sup> Imax = Max. Current   | <sup>4</sup> Ci = Capacitance  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | <sup>5</sup> Li = Inductance   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <p><b>ATEX Approvals</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left; padding: 2px;">Transducer Parameters</th> </tr> <tr> <td style="padding: 2px;">Ui<sup>1</sup>= 28 V</td> <td style="padding: 2px;">Pi<sup>3</sup> = 0.7 W</td> </tr> <tr> <td style="padding: 2px;">Imax<sup>2</sup>= 100 mA</td> <td style="padding: 2px;">Ci<sup>4</sup> = 12 nF</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;">Li<sup>5</sup> = 0</td> </tr> <tr> <td style="padding: 2px;"><sup>1</sup>Umax = Max. Voltage</td> <td style="padding: 2px;"><sup>3</sup>Pi = Max. Power</td> </tr> <tr> <td style="padding: 2px;"><sup>2</sup>Imax = Max. Current</td> <td style="padding: 2px;"><sup>4</sup>Ci = Capacitance</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"><sup>5</sup>Li = Inductance</td> </tr> </table>   | Transducer Parameters  |            | Ui <sup>1</sup> = 28 V                  | Pi <sup>3</sup> = 0.7 W            | Imax <sup>2</sup> = 100 mA            | Ci <sup>4</sup> = 12 nF                                |                                       | Li <sup>5</sup> = 0   | <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power  | <sup>2</sup> Imax = Max. Current      | <sup>4</sup> Ci = Capacitance |                            | <sup>5</sup> Li = Inductance | <p><b>TAEI7800, TDEI7800</b><br/>EEx ib IIB, T4, Gb Ta = -40°C to +64°C<br/>Ex ib IIB T135°C Db Ta = -40°C to +55°C<br/>IECEx SIR 08.0130<br/>IP65 Enclosure</p>   | <p><b>TAEI7800, TDEI7800</b><br/>EEx ib IIB, T4, Gb Ta = -40°C to +64°C<br/>Ex ib IIB T135°C Db Ta = -40°C to +55°C<br/>IECEx SIR 08.0130</p>  |                                  |                               |  |                              |   |  |
| Transducer Parameters  |  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Ui <sup>1</sup> = 28 V   | Pi <sup>3</sup> = 0.7 W  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| Imax <sup>2</sup> = 100 mA   | Ci <sup>4</sup> = 12 nF  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | Li <sup>5</sup> = 0  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>1</sup> Umax = Max. Voltage   | <sup>3</sup> Pi = Max. Power   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
| <sup>2</sup> Imax = Max. Current   | <sup>4</sup> Ci = Capacitance  |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |
|  | <sup>5</sup> Li = Inductance   |            |   |                                    |                                       |  |                                       |   |  |   |                                       |                               |                            |                              |  |  |                                  |                               |  |                              |   |  |

B

**Model T7800**

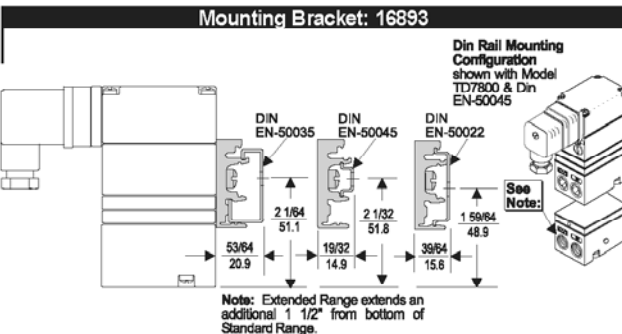
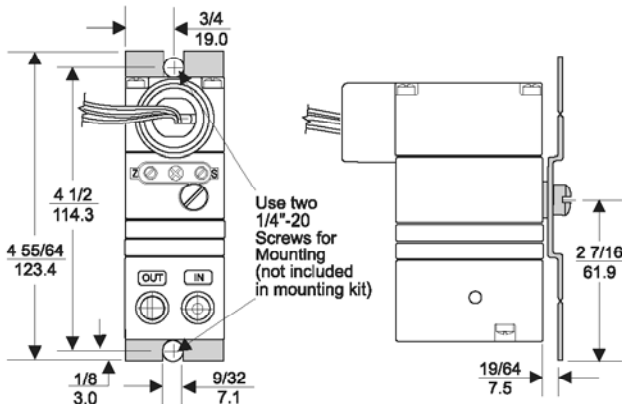
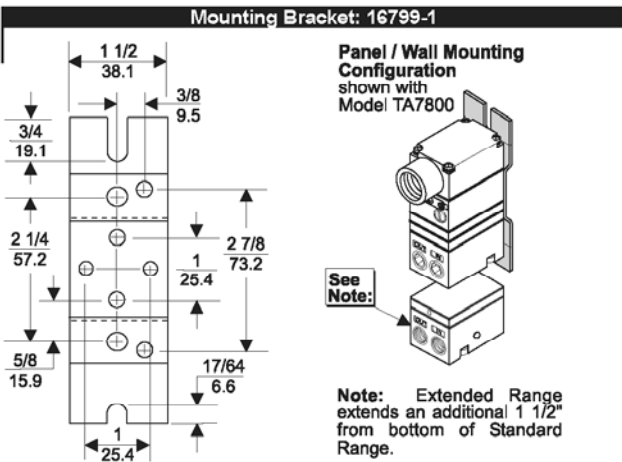


# Model T7800 Electro-Pneumatic I/P, E/P Transducer

## Mounting Kits

**B**

**Model T7800**



## Model T7800 Transducer Kits & Accessories

Mounting Bracket Kits ..... 16799-1 (included with unit)  
 16893 (included with unit)  
 19254-1 (sold separately)

## Catalog Information

**Catalog Number** T    **780**

### Electrical Connections

1/2 NPT Conduit .....  
 Fitting with Pigtail .....  
 DIN43650 Connection .....  
 Rack Mount .....  
 Terminal Block .....

A  
D  
R  
T

### Underwriting Group

Canadian Standards .....  
 ATEX .....  
 Factory Mutual .....  
 None (leave blank) .....

C  
E  
F

### Approval Class

Intrinsically Safe<sup>1</sup> .....  
 Non-Incendive (Division 2)<sup>2</sup> .....  
 None (leave blank) .....

I  
N

### Temperature Range

-40°F to +160°F .....

0

### Input

4-20 mA .....  
 1-5 VDC<sup>6</sup> .....  
 0-5 VDC<sup>6</sup> .....  
 1-9 VDC .....  
 0-10 VDC .....

4  
5  
7  
9  
0

### Output

3-15 psig<sup>3</sup> .....  
 3-27 psig<sup>3</sup> .....  
 6-30 psig<sup>3</sup> .....  
 0-30 psig<sup>4</sup> .....  
 0-60 psig<sup>4</sup> .....  
 0-120 psig<sup>4</sup> .....

01  
02  
03  
04  
05  
06  
11  
12  
13  
14  
15  
16  
21  
22  
23  
24  
25  
26

[0.2-1.0 BAR]<sup>3</sup> .....  
 [0.2-1.8 BAR]<sup>3</sup> .....  
 [0.4-2.0 BAR]<sup>3</sup> .....  
 [0-2.0 BAR]<sup>4</sup> .....  
 [0-4.0 BAR]<sup>4</sup> .....  
 [0-8.0 BAR]<sup>4</sup> .....  
 (20-100 kPa)<sup>3</sup> .....  
 (20-180 kPa)<sup>3</sup> .....  
 (40-200 kPa)<sup>3</sup> .....  
 (0-200 kPa)<sup>4</sup> .....  
 (0-400 kPa)<sup>4</sup> .....  
 (0-800 kPa)<sup>4</sup> .....

### Options

BSPT Thread<sup>5</sup> .....

U

<sup>1</sup> Intrinsically Safe Approval includes Non-Incendive (Division 2), available on 4-20 mA units only.

<sup>2</sup> Non-Incendive (Division 2) approval on FM voltage input units only

<sup>3</sup> Standard Range

<sup>4</sup> Extended Range

<sup>5</sup> Available on all units EXCEPT Factory Mutual and Canadian Standards Underwriting Group units.

<sup>6</sup> Limited Availability

## Installation

For installation instructions, refer to the *Fairchild T7800 Standard Range Electro-Pneumatic Transducer Installation, Operation and Maintenance Instructions*, IS-50T7800S and IS-50T7800E.

Optional manifolds are available to mount 3, 5, 10 or 15 transducers. An optional rack kit is available to mount 10 transducers in a standard 19" rack. For more information, see the *Fairchild Manifold and Rack Kit*, CS-4000MRKT.