Features

- Explosion-proof NEMA 4X, IP65, Type 4 enclosure for outdoor and indoor installations.
- Optional tapped exhaust port vents exhaust gas.
- Canadian Registration Numbers (CRN) certification for all territories and provinces.
- Does not contain copper-based metals.
- Compact size for use in restricted areas.
- Internal electronic feedback maintains precise output pressure control.
- Piezoelectric actuator disk provides stability regardless of vibration or position.
- RFI/EMI protection eliminates susceptibility to electromagnetic interference.
- Optional version approved for use with Natural Gas or Industrial Methane as a supply media.
- Encapsulated critical components designed to make unit moisture resistant in tough environments.
- Canadian Registration Numbers (CRN) certification for all territories and provinces.
- All TXI7850 products are ROHS compliant.

Operating Principles

The Model TXI7850 Transducer is an electronically controlled pressure sensitive device that converts a current signal to a pneumatic output. This device is composed of the Primary Converting Section and the Relay Section. The Piezoelectric ceramic disk in the Primary Section functions as a flapper. The flapper and the nozzle work together to control the signal pressure in the Relay Section. The signal pressure acts on a diaphragm assembly that controls the pressure in the output chamber.

The output pressure is sensed by the lower control diaphragm to maintain the output pressure. The output pressure is also sensed by the feedback control circuit, which compares the output pressure and input signal (setpoint) to maintain constant output pressure.

The Damping Adjustment on the PC Board allows tuning the transducer for optimum response and stability. Large downstream volumes generally require more damping to achieve output pressure stability.
## Specifications

<table>
<thead>
<tr>
<th>Maximum Air Consumption</th>
<th>psig (BAR)</th>
<th>SCFH (m³/HR)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 [0.2]</td>
<td>1 [0.03]</td>
</tr>
<tr>
<td></td>
<td>9 [0.6]</td>
<td>1.3* [0.04]</td>
</tr>
<tr>
<td></td>
<td>15 [1.0]</td>
<td>1.9* [0.05]</td>
</tr>
<tr>
<td></td>
<td>30 [2.0]</td>
<td>2.5* [0.07]</td>
</tr>
</tbody>
</table>

### Flow Rate

( SCFM)

<table>
<thead>
<tr>
<th>25 psig, [1.7 BAR], (170 kPa) supply &amp; 9 psig, [0.6 BAR], (60 kPa) Output</th>
<th>25 psig, [1.7 BAR], (170 kPa) supply &amp; 9 psig, [0.6 BAR], (60 kPa) Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 psig, [1.7 BAR], (170 kPa) supply &amp; 9 psig, [0.6 BAR], (60 kPa) Output</td>
<td>25 psig, [1.7 BAR], (170 kPa) supply &amp; 9 psig, [0.6 BAR], (60 kPa) Output</td>
</tr>
</tbody>
</table>

### Temperature Range

<table>
<thead>
<tr>
<th>Operating</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40°F to + 160°F, (-40°C to + 71.2°C)</td>
<td>-40°F to + 180°F, (-40°C to + 82.2°C)</td>
</tr>
</tbody>
</table>

### Span/Zero Adjustments

Screwdriver adjustments located under cover

## OUTPUT RANGE

<table>
<thead>
<tr>
<th>psig (BAR)</th>
<th>3-15 [0.2-1.0]</th>
<th>3-27 [0.2-1.8]</th>
<th>6-30 [0.4-2.0]</th>
</tr>
</thead>
<tbody>
<tr>
<td>(kPa)</td>
<td>(20-100)</td>
<td>(20-180)</td>
<td>(40-200)</td>
</tr>
</tbody>
</table>

### Input Range

20-120 [1.5-8.0] (150-800)

### Supply Pressure

1, 2

### Minimum Span

5 [0.35] (35)

10 [0.7] (70)

10 [0.7] (70)

### Frequency Response

-3 db @ 5 Hz per ISA S26.4.3.1 load configuration A.

### Required Operating Voltages

8.2 VDC @ 20 mA (4-20 mA signal)

### Accuracy (ISA S51.1)

0.25% Full Scale Guaranteed

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 @ 0.75 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 'm/level, 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
- Orifice: Aluminum and Sapphire
- Trim: Stainless Steel and Zinc Plated Steel
- Elastomers: Nitrile
- Finish: Epoxy Powder Coating

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

2 Unit with "N" option 125 psig, [8.5 BAR], (850 kPa) for air or Group IIA Gases.

*With Natural Gas Media*
### Model TXI7850 Moisture Resistant Electro-Pneumatic Transducer

#### Extended Range Specifications

<table>
<thead>
<tr>
<th>psig [BAR] (kPa)</th>
<th>0 [0] (0)</th>
<th>15 [1.0] (100)</th>
<th>30 [2.0] (200)</th>
<th>60 [4.0] (400)</th>
<th>120 [8.0] (800)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Air Consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-30 psig SCFH</td>
<td>1</td>
<td>1.3*</td>
<td>2.8</td>
<td>4.2</td>
<td>5.4*</td>
</tr>
<tr>
<td>(0.03 m³/HR)</td>
<td>(0.04 m³/HR)</td>
<td>(0.08 m³/HR)</td>
<td>(0.10 m³/HR)</td>
<td>(0.12 m³/HR)</td>
<td>(0.15 m³/HR)</td>
</tr>
<tr>
<td>0-60 psig SCFH</td>
<td>1.6</td>
<td>4.7</td>
<td>7.8</td>
<td>13.3</td>
<td></td>
</tr>
<tr>
<td>(0.4 m³/HR)</td>
<td>(.13 m³/HR)</td>
<td>(.22 m³/HR)</td>
<td>(.37 m³/HR)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-120 psig SCFH</td>
<td>0.5</td>
<td>3.8</td>
<td>7.6</td>
<td>15.1</td>
<td></td>
</tr>
<tr>
<td>(0.01 m³/HR)</td>
<td>(.11 m³/HR)</td>
<td>(.21 m³/HR)</td>
<td>(.42 m³/HR)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Flow Rate (SCFM) | 11.0 (18.7 m³/HR) @ 150 psig, [10 BAR], (1000 kPa) supply & mid-scale output

Temperature Range | Operating Storage
| -40°F to + 160°F, (-40°C to + 71.2°C) | -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 | 8.2 VDC @ 20 mA (4-20 mA signal)

Signal Impedance | Three Wire Voltage Input | 10 Kilohms

### OUTPUT RANGE

<table>
<thead>
<tr>
<th>psig [BAR] (kPa)</th>
<th>0-30 [0-2.0] (0-200)</th>
<th>0-60 [0-4.0] (0-400)</th>
<th>0-120 [0-8.0] (0-800)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-150, [2.4-10], (240-1000)</td>
<td>65-150, [4.6-10], (460-1000)</td>
<td>125-150, [8.8-10], (880-1000)</td>
<td></td>
</tr>
<tr>
<td>Minimum Span</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.5</td>
<td>25</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>[0.85]</td>
<td>[1.5]</td>
<td>[3.0]</td>
<td></td>
</tr>
<tr>
<td>(85)</td>
<td>(150)</td>
<td>(300)</td>
<td></td>
</tr>
</tbody>
</table>

Frequency Response | -3 db @ 2 Hz per ISA S26.4.3.1 load configuration A.

Accuracy (ISA S51.1) | 0.25% Full Scale Guaranteed
| 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 /m class 3 Band ABC (20-1000 mHz) per SAMA PMC 33.1 1978 and less than 0.5% of span @ 10 /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
| Orifice ..................... Nickel Plated Brass & Sapphire
| Trim ........................ Stainless Steel & Zinc Plated Steel
| Elastomers ............................. Nitrile
| Finish ............................ Epoxy Powder Coating

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

2 Unit with “N” option 125 psig, [8.5 BAR], (850 kPa) for air or Group IIA Gases

*With Natural Gas Media
Hazardous Area Classifications

<table>
<thead>
<tr>
<th>Factory Mutual (FM) Approvals</th>
<th>Explosion-Proof</th>
<th>Intrinsically Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group D gases, including Natural Gas as supply pressure media</strong></td>
<td>Class I, Division 1, Groups C and D; Class II, Division 1, Groups E, F and G; Class I, Division 2, Groups A, B, C and D; Max. Ambient 65°C; Temperature Code T5; NEMA 4X Enclosure.</td>
<td>Class I, Division 1, Groups B, C and D; Class II, Division 1, Groups E, F and G; Class III, Division 1, Fibers; Class I, Division 2, Groups A, B, C and D; Max. Ambient 65°C; Temperature Code T5; NEMA 4X Enclosure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Texi7850</th>
<th>Texi7850</th>
</tr>
</thead>
<tbody>
<tr>
<td>** entity Parameters</td>
<td>Vmax1 = 30 VDC</td>
<td>3 C1 = Capacitance</td>
</tr>
<tr>
<td>Imax2 = 200 mA</td>
<td>Li4 = 0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Canadian Standards Association (CSA) Approvals</th>
<th>Explosion-Proof</th>
<th>Intrinsically Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group D gases, including Natural Gas as supply pressure media</strong></td>
<td>Class I, Division 1, Groups C and D; Class II, Division 1, Groups E, F and G; Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups E, F and G.</td>
<td>Class I, Division 1, Groups B, C and D; Class II, Division 1, Groups E, F and G; Class III, Division 1, Fibers; Class I, Division 2, Groups A, B, C and D; Max. Ambient 65°C; Temperature Code T5; NEMA 4X Enclosure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Explosive Atmospheres Directive (ATEX) Approvals</th>
<th>Explosion-Proof</th>
<th>Intrinsically Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group IIA gases, including Natural Gas as supply pressure media</strong></td>
<td>Class I, Division 1, Groups C and D; Class II, Division 1, Groups E, F and G; Class I, Division 2, Groups A, B, C and D.</td>
<td>Class I, Division 1, Groups B, C and D; Class II, Division 1, Groups E, F and G; Class III, Division 1, Fibers; Class I, Division 2, Groups A, B, C and D; Max. Ambient 65°C; Temperature Code T5; NEMA 4X Enclosure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IECEx Approvals</th>
<th>Explosion-Proof</th>
<th>Intrinsically Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transducer Parameters</strong></td>
<td>Umax1 = 28 V</td>
<td>3 P1 = 0.7 W</td>
</tr>
<tr>
<td>Imax2 = 100 mA</td>
<td>Li5 = 0</td>
<td>4 L1 = Inductance</td>
</tr>
</tbody>
</table>

**TEXI7850**
Ex II B T4 Ga
Ex ia D20 T90°C Da; Ta=-40°C to +80°C
IECEx SIR 11.0074X IP65 Enclosure

**Transducer Parameters**
Umax1 = 28 V
Imax2 = 100 mA
P1 = 0.7 W
Li5 = 0
L1 = Inductance
C1 = Capacitance
Model TXI7850 Moisture Resistant Electro-Pneumatic Transducer

Mounting Kit

Model TXI7850 Transducer Kits & Accessories

Mounting Bracket Kits ...... 19021-1: TCXI7850, TFXI7850 (sold separately)
19021-2: TEXIT850 (sold separately)

Catalog Information

Catalog Number      T X I 7 8 5
Underwriting Group
Canadian Standard  .................. C
ATEX .............................. E
Factory Mutual ........................ F

Temperature Range
-40°F to +160°F.

Input
4-20 mA.

Output
3-15 psig ............................. 01
3-27 psig ............................. 02
6-30 psig ............................. 03
0-30 psig ............................. 04
0-60 psig ............................. 05
0-120 psig ........................... 06
[0.2-1.0 BAR] ....................... 11
[0.2-1.8 BAR] ....................... 12
[0.4-2.0 BAR] ....................... 13
[0.2 BAR] ........................... 14
[0.4 BAR] ........................... 15
[0.8 BAR] ........................... 16
(20-100 kPa) ....................... 21
(20-180 kPa) ....................... 22
(40-200 kPa) ....................... 23
(0-200 kPa) ......................... 24
(0-400 kPa) ......................... 25
(0-800 kPa) ......................... 26

Options
Tapped Exhaust. ........................
Natural Gas media approval, Group D gases 4 ........................
(Includes Nipple; TCXI, TEXITI, TEXITI only) 1, 2
BSPT Thread 3 ...........................
20 ft cable length 4 ................. 2
50 ft cable length 4 ................. 5
100 ft cable length 4 ............... 0

1 Not approved for Intrinsically Safe.
2 Tapped Exhaust option required.
3 Available for ATEX only. NOT available with “N” Option.
4 10 ft cable standard. Longer lengths available. Contact factory for details and availability.

Installation

For installation instructions, refer to the Fairchild Model TXI7850 Explosion-proof Electro-pneumatic Transducer Installation Instructions, II-5TXI7850.

For operation and maintenance instructions, refer to the Fairchild Model TXI7850/7851 Explosion-proof Electro-pneumatic Transducer Operation and Maintenance Instructions, OM-5TXI7850.