Features

- The T5420 Digital-Pneumatic Transducer is compatible with most digital systems using TTL and CMOS Logic.

- Fail safe High or Low will return the output to 3 psig for Direct Acting Mode or to 15 psig for Reverse Acting Mode if the power is lost, regardless of the logic selected.

- Field Reversible Feature provides output which is directly or inversely proportional to the input signal.

- Integrated Volume Booster Output meets input requirements of final control elements requiring a higher capability output signal, increased output pressure, and/or increased flows.

- Vibration resistance maintains set points, under adverse vibration conditions.

- Various Mounting Configurations allow installation flexibility for most applications.

- External Zero Adjustment provided for ease of calibration.

Operating Principles

The Model T5420 Transducer is a digital-pneumatic device that provides a pneumatic output signal controlled by 8 bit digital data instructions from a central control location. This device is made up of three sections, the Signal Conversion Section, Pneumatic Section and Booster Section.

The Signal Conversion Section (PC Board) accepts an 8 bit parallel wired digital signal. Full scale output is divided into 255 parts and the output level is based on the logic state (high or low) of the 8 bits. An enable line allows the unit to accept information from a parallel bus. The digital input signal is converted to an analog signal. The signal is then applied to a Coil which creates a magnetic force that moves a Flexure Arm.

The Pneumatic Section operates as a force balance system. A Sapphire Ball floats inside a Nozzle and controls the output pressure by exhausting air supplied through an Orifice.

The Booster Section amplifies the output pressure of the Pneumatic Section.
Model T5420 I/P, E/P Pneumatic Transducer

Mounting Kits

Mounting Kits

81800-334-8422

Catalog Information

Catalog Number T5420

Option

Negative Bias - 3 psig, [0.2 BAR], (20 kPa). .....................

High Option1 .......................... HI

Noise Suppression ............................. NS

Booster Ratio 2

1:1 (Standard) ......................... 1

1:2 .......................................... 2

1:3 .......................................... 3

1:4 .......................................... 4

1:5 .......................................... 5

1:6 .......................................... 6

Power

24 VDC - 3 Watts .................. 24

115 VDC - 3 Watts ........... 115

230 VDC - 3 Watts .......... 230

Output

psig ........................................ 0

[BAR]. ...................................... 1

(kPa) ....................................... 2

1 If higher flow (SCFM) is required for the standard 1:1 ratio, select HI Option.

2 Refer to Table 1. for Pressure Ranges.

Specifications

Supply Pressure1

20 + 2 psig, [1.5 + 0.15 BAR], (20 + 15 kPa)

Output Capacity (1:1 Ratio)

3-15 psig, [0.2-1.0 BAR], (20-100 kPa)

Air Consumption (SCFM)

0.16 (0.27 m³/HR) Maximum (Dead End) @ 20 psig, [1.5 BAR], (150 kPa) supply

Output Capacity for Booster (SCFM)

45 (76.5 m³/HR) @ 100 psig, [7.0 BAR], (700 kPa) with separate supply

Supply Pressure Effect

1% of Span for 2 psig, [0.15 BAR], (15 kPa) supply change

Voltage Requirement

115/230 VAC + 10% 50-60 Hz, 24 VDC + 10%

Input Data2

8 Bit Parallel, 1 Bit Enable (TTL or CMOS compatible)

Independent Linearity

+ 0.25% Full Scale (T5420 ONLY), within 0.3% Output Span (T5422-T5426 ONLY)

Resolution

0.4% of Span

Hysteresis & Repeatability

within 0.1% Full Scale (T5420 ONLY), within 0.1% Times Ratio of Output Span (5422-T5426 ONLY)

Sinking Current

5 VDC Logic 0.5 mA per Bit, 15 VDC Logic 1.5 mA per Bit

Ambient Temperature

32°F to + 150°F, (0°C to + 65.5°C)

Materials of Construction

Body and Housing ..................... Aluminum

Ball and Orifice ...................... Sapphire, Brass

Nozzle .............................. Stainless Steel

1 Standard unit is configured for common supply to transducer and booster.

2 Units require 20 psig, [1.5 BAR], (150 kPa) for transducer and a separate supply for booster. A common supply of up to 110 psig, [7.7 BAR], (770 kPa) can be used provided the prefix Z147 is added to the original order.

Model T5420 Transducer Kits & Accessories

Mounting Bracket Kits ............. 15268 (sold separately)

14596 (sold separately)

Installation

For Installation Instructions, see the Fairchild Model T5420 Digital Pneumatic Transducer Installation, Operation and Maintenance Instructions, IS-500T5420.

Output Pressure Ranges

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Standard Output</th>
<th>Negative Bias Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>psig [BAR] (kPa)</td>
<td>psig [BAR] (kPa)</td>
</tr>
<tr>
<td>1:1</td>
<td>3-15 [0.2-1.0] (20-100)</td>
<td>0-12 [0-0.8] (0-80)</td>
</tr>
<tr>
<td>1:2</td>
<td>6-30 [0.4-2.0] (40-200)</td>
<td>0-24 [0-1.5] (0-150)</td>
</tr>
<tr>
<td>1:3</td>
<td>9-45 [0.6-3.0] (60-300)</td>
<td>0-36 [0-2.5] (0-250)</td>
</tr>
<tr>
<td>1:4</td>
<td>12-60 [0.8-4.0] (80-400)</td>
<td>0-48 [0-3.0] (0-300)</td>
</tr>
<tr>
<td>1:5</td>
<td>15-75 [1.0-5.0] (100-500)</td>
<td>0-60 [0-4.0] (0-400)</td>
</tr>
<tr>
<td>1:6</td>
<td>18-90 [1.2-6.0] (120-600)</td>
<td>0-72 [0-5.0] (0-500)</td>
</tr>
</tbody>
</table>

1 Standard unit is configured for common supply to transducer and booster.

2 Units require 20 psig, [1.5 BAR], (150 kPa) for transducer and a separate supply for booster. A common supply of up to 110 psig, [7.7 BAR], (770 kPa) can be used provided the prefix Z147 is added to the original order.

1Supply Pressure must be no less than 10 psig, [0.7 BAR}, (70 kPa) above maximum booster output.

2 Data must be on line 0.5 microseconds before enable strobe and 0.5 microseconds during enable period to start output pressure change.