

# CONOFLOW ELECTRO- PNEUMATIC TRANSDUCERS GT\_8 Series Milliampere



Conoflow's Electro-pneumatic Transducers accept a variety of electrical input signals and convert them to proportional output signals of 3-15, 3-27 or 6-30 PSIG (21-103, 21-186 or 41-207 kPa).

The GT\_8 Series Transducers incorporate low impedance circuitry and a range selector jumper switch which can be positioned to accept 4-20 or 10-50 mA DC current inputs. The selector feature permits stocking only one unit that can be used in various locations throughout the plant. For easy field adjustment these units are equipped with an external zero setting and a built-in potentiometer on the circuit board for span adjustment. Optional input signal of 0-20 mA is available on the GT\_8 Series.

These transducers are available in either high or low capacity configurations (Maximum Air Delivery Rate). The high capacity models incorporate a booster relay which eliminates the need for additional boosters or relays when operating air actuated valves. The low capacity versions use a fixed orifice and are utilized for

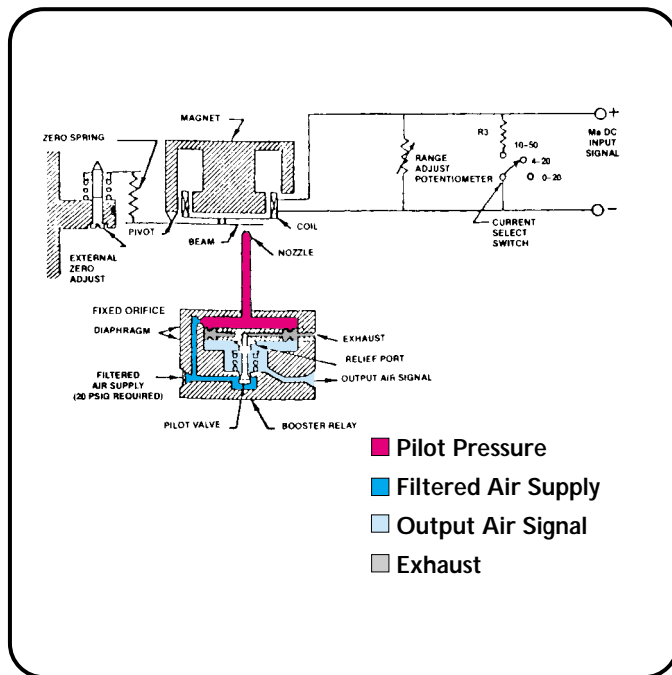
input signals to pneumatic positioners. NEMA 3R housing requirements are optional.

The GT\_8 Series Transducer, when purchased with an EMI-RFI Adaptor (6386522), conforms to SAMA PMC-33.1-1978 for Classes 1 and 2, Bands A, B and C with less than 0.25% error.

The GT\_8 Series Transducers are approved intrinsically safe by Factory Mutual, Canadian Standard Association, and CENELEC. For explosionproof models, refer to Pages 114-117.

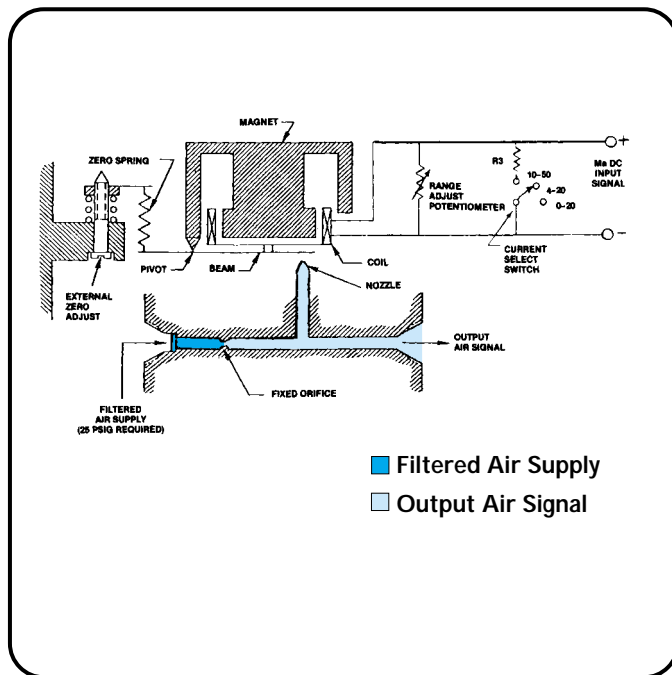
## DIMENSIONAL DATA - ADVERTISING DRAWINGS:

GT Series - High Capacity: A28-7  
GT Series - Low Capacity: A28-9  
GT Series - 2" Pipe Mounting Bracket



High Capacity: Series GT28, GT48 and GT68

Intrinsically safe models are not field reversible but can be purchased in the direct or reverse acting mode. Refer to Control Engineering Data for proper identification.



Low Capacity: Series GT18, GT38 and GT58

## PRINCIPLE OF OPERATION

The Conoflow GT\_8 Series Transducers are force balance units which accept a 4-20 or 10-50 mA DC input signal and convert it to a proportional 3-15, 3-27, or 6-30 PSIG (21-103, 21-186, or 41-207 kPa) output signal.

## OPERATION - HIGH CAPACITY MODELS

In the direct acting mode, an increase in the input signal causes the coil to move away from the magnet which moves the balance beam toward the nozzle. This reduces the flow through the nozzle increasing the back pressure in the top chamber of the booster. The increased pressure in the booster causes the diaphragm assembly to move downward, opening the pilot valve and increasing the output pressure. The output pressure will continue to increase until it is equal to the nozzle back pressure and the forces on the diaphragm assembly are balanced.

A decrease in the input signal allows the coil to move toward the magnet which moves the balance beam away from the nozzle. This allows the flow through the nozzle to increase which reduces the back pressure in the top of the booster. Since the output pressure is greater than the nozzle back pressure, there is a net upward force on the diaphragm assembly which causes it to move upward allowing the pilot valve to close and the relief port to open. The excess output pressure is vented to atmosphere through the relief port until equilibrium is established.

In the reverse acting mode, an increase in the input signal causes the coil to move toward the magnet instead of away from it since the direction of the current through the coil is reversed. An increasing signal, therefore, causes a proportionally decreasing output.

## OPERATION - LOW CAPACITY MODELS

In the direct acting mode, an increase in the input signal causes the coil to move away from the magnet which moves the balance beam toward the nozzle. This reduces the flow through the nozzle increasing the output pressure.

A decrease in the input signal allows the coil to move toward the magnet which moves the balance beam away from the nozzle. This allows the flow through the nozzle to increase reducing the output pressure.

In the reverse acting mode, an increase in the input signal causes the coil to move toward the magnet instead of away from it since the direction of the current through the coil is reversed. An increasing signal, therefore, causes a proportionally decreasing output.

## SPECIFICATIONS

| OPERATING CHARACTERISTICS              | GT18 (3)   | GT28                      | GT38 (3)                    | GT48                       | GT58 (3)                    | GT68                       |
|--|--|---------------------------|-----------------------------|----------------------------|-----------------------------|----------------------------|
| Input Range                            | 4-20 mA DC<br>10-50 mA DC                                      |                           |                             |                            |                             |                            |
| Nominal Input Impedance                | 145 ohms<br>60 ohms  |                           |                             |                            |                             |                            |
| Output Signal                          | 3-15 PSI<br>(21-103 kPa)                                       |                           | 3-27 PSI<br>(21-186 kPa)    |                            | 6-30 PSI<br>(41-207 kPa)    |                            |
| Required Regulated Air Supply Pressure | 25 PSI<br>(172 kPa)  |                           | 35 PSI<br>(241 kPa)         |                            |                             |                            |
| Air Consumption                        | 0.2 SCFM (0.006 m³/min)  |                           | 0.3 SCFM (0.009 m³/min)     |                            |                             |                            |
| Air Delivery Rate (Max.)               | 0.15 SCFM<br>(0.004 m³/min)                                    | 5 SCFM<br>(0.142 m³/min)  | 0.15 SCFM<br>(0.004 m³/min) | 5 SCFM<br>(0.142 m³/min)   | 0.15 SCFM<br>(0.004 m³/min) | 5 SCFM<br>(0.142 m³/min)   |
| Exhaust Rate (Max.)                    | 0.17 SCFM<br>(0.005 m³/min)                                    | 1.7 SCFM<br>(0.05 m³/min) | 0.2 SCFM<br>(0.006 m³/min)  | 2.3 SCFM<br>(0.065 m³/min) | 0.2 SCFM<br>(0.006 m³/min)  | 2.3 SCFM<br>(0.065 m³/min) |
| Linearity                              | ± 1%   |                           |                             |                            |                             |                            |
| Temperature Effect                     | 0.2%FS/10°F (-12°C) change for a 2°F/minute rate of change (2) |                           |                             |                            |                             |                            |
| Ambient Temperature Range              | 0° to +150°F (-18° to +66°C)                                   |                           |                             |                            |                             |                            |
| Approx. Shipping Weight                | 7 lbs. (0.77 Kg)   |                           |                             |                            |                             |                            |

### NOTES:

1. A Conoflow Model GFH60 Airpak Filter-Regulator or equal is recommended.
2. 0.1%FS/10°F (-12°C) for 30°F(17°C) change in 15 minutes for models without booster relay.
3. These models DO NOT have booster relay and should be used in low volume applications.
4. 1-5 or 0-20 mA DC input signals are available, refer to price list CP1002 for adder.
5. Minimum piping requirements are 3/8" tubing or 1/4" pipe.
6. All ranges are available as intrinsically safe versions. These models have been Factory Mutual, Canadian Standards Association and CENELEC approved intrinsically safe when interfaced with applicable barriers as outlined below. Consult the factory if approval with other barriers is required.
7. For Factory Mutual (Intrinsically Safe Models, the Ambient Temperature Range is 0°F to 140°F (-18°C to +60°C).

## FACTORY MUTUAL (FM)

| BARRIER  | CLASS       | DIVISION | GROUP                |
|--|-------------|----------|----------------------|
| <b>BAILEY CONTROLS</b><br>NO. 76601AAAV1   | I, II & III | 1 & 2*   | B, C, D, E, F & G    |
| <b>LEEDS &amp; NORTHRUPS</b><br>P/N 316569 & 316747  | I, II & III | 1 & 2*   | B, C, D, E, F & G    |
| <b>FOXBORO INTERFACE MODULE</b><br>NO'S 2AO-V21-FGB, 2AO-VA1-FGB<br>2AO-V31-FGB, 2AT-SBU-FGB<br>3A2-D31 CS-E/FGB-A<br>3A2-D21 CS-E/FGB-A | I, II & III | 1 & 2*   | B, C, D, E, F & G    |
| <b>HONEYWELL</b><br>NO'S 38545-0000-0110-111-F5D5<br>38545-0000-0110-112-F5D5<br>38545-0000-0110-113-F5D5                                | I, II & III | 1 & 2*   | B, C, D, E, F & G    |
| <b>STAHL</b><br>NO'S 8901/31-280/165/80<br>8901/33-293/000/79  | I, II & III | 1 & 2*   | C & D<br>A, B, C & D |
| <b>TAYLOR INSTRUMENT COMPANY</b><br>NO'S 1130FF21000, 1130FF22000<br>1135FF21000, 1135FF22000  | I, II & III | 1 & 2*   | C, D, E, F & G       |
| <b>MTL - MODEL 728</b>   | I, II & III | 1 & 2*   | B & D                |

In Division 2 locations, the hazardous gas or dust is present only under accident conditions and a barrier may not be required depending on the application. The GT\_8 Series units can be approved for Division 2 locations as long as an approved barrier listed is used. In a Division 2 location where a barrier is not being used the maximum voltage must be less than 33 volts and the maximum current must be less than 175 milliamps.

## CANADIAN STANDARDS ASSOCIATIONS (CSA)

|  |                    |                          |  |
|--|--------------------|--------------------------|--|
| <b>HONEYWELL</b><br>NO'S 3845-0000-0110-111-F5D5<br>3845-0000-0110-112-F5D5<br>3845-0000-0110-113-F5D5 | I<br>II<br>I<br>II | ---<br>---<br>---<br>--- | C & D<br>F & G<br>A, B, C & D<br>F & G |
| <b>FOXBORO INTERFACE MODULE</b><br>NO. E4B-P   | I<br>II            | ---<br>---               | A, B, C & D<br>F & G                   |
| <b>BAILEY CONTROLS</b><br>NO. 766 00AAAX1  | I<br>II            | ---<br>---               | C & D<br>F & G                         |

## CENELEC

The GT28 (only) is CENELEC approved intrinsically safe per EEx ia II C Certificate INIEX 84.101.046.U.

## CONTROL ENGINEERING DATA

Control Engineering Data is intended to provide a single source from which one can determine, in detail, the full scope of the product line. Operating principles and dimensional data are found in the instruction manual. Control Engineering Data also provides a means of communicating, by way of a code number, which is fully descriptive of the product selection.

**NOTE: 1. Catalog numbers as received must contain eleven (11) characters.**

|                               |  |                                |  |
|-------------------------------|--|--------------------------------|--|
| 1-3<br>Models                 | GT1 = Low Capacity (Note 1), 3-15 PSI (21-103 kPa) Output<br>GT2 = High Capacity, 3-15 PSI (21-103 kPa) Output<br>GT3 = Low Capacity (Note 1), 3-27 PSI (21-186 kPa) Output<br>GT4 = High Capacity, 3-27 PSI (21-186 kPa) Output<br>GT5 = Low Capacity (Note 1), 6-30 PSI (41-207 kPa) Output<br>GT6 = High Capacity, 6-30 PSI (41-207 kPa) Output<br>GT7 = Low Capacity (Notes 1 and 2), Special Output<br>GT8 = High Capacity, Special Output<br><b>NOTE: 1. These models DO NOT have booster relay and should be employed in low volume applications.<br/>2. Customer to specify output span required (Consult Factory)</b>   | 7<br>Housing<br>Options        | A = Light Weight Sheet Metal Cover<br>R = NEMA 3R Housing (See Note 1)<br>X = Standard - Unless Option Code is Specified<br><b>NOTES: 1. Can be used with Intrinsically Safe Models, refer to position 9.<br/>2. If option A or R is not specified, the standard cover will be supplied.</b>   |
|                               |  | 8<br>Mounting<br>Options       | A = 2" U-Clamp for Pipe Mounting (See Notes 1 and 2)<br>X = Standard - Unless Option Code is Specified<br><b>NOTES: 1. This option cannot be used when option "A" in position 7 is specified.<br/>2. For dimensional data, refer to Advertising Drawing A28-22.</b>  |
| 4<br>Electrical<br>Selections | 5 = 1-5 mA VDC Voltage Input<br>8 = 0-20, 4-20 and 10-50 mA DC Milliampere Input - Low Impedance Coil<br>9 = Special Input - Customer to specify input required (Consult Factory)  |                                |  |
| 5<br>Electrical<br>Inputs     | Input Milliampere - DC<br>A = 0-20 mA DC -130 Ohms<br>B = 1-5 mA DC -2330 Ohms; GT_5 Series only (Note 1)<br>E = 4-20 mA DC - 145 Ohms<br>F = 10-50 mA DC - 60 Ohms<br>Y = Special Input (Consult Factory)<br><b>NOTES:<br/>1. Refer to price list CP1002 for adder<br/>2. Codes A, E, G and Y are for use with GT_8 Series<br/>3. Code B used with GT_5 Series.</b>   | 9<br>Operation<br>Modes        | A = Factory Mutual Approved - Intrinsically Safe - Direct Acting Output (Note 1)<br>B = Factory Mutual Approved - Intrinsically Safe - Reverse Acting Output (Note 1)<br>C = Canadian Standards Association Approved - Intrinsically Safe - Direct Acting Output (Note 1)<br>D = Canadian Standards Association Approved - Intrinsically Safe-Reverse Acting Output (Note 1)<br>E = CENELEC Approved - Intrinsically Safe - Direct Acting (Notes 1 and 3)<br>F = CENELEC Approved - Intrinsically Safe - Reverse Acting (Notes 1 and 3)<br>R = Reverse Acting Output [15-3, 27-3 or 30-6 PSI (103-21, 186-21, or 207-41 kPa)] (Note 2)<br>X = Standard - Unless Option Code is Specified<br><b>NOTES: 1. Refer to approval listing for applicable Barriers, Class, Divisions and Groups.<br/>2. Used for Standard Models, not FM, CSA or CENELEC Approved Models<br/>3. For GT28 Series Only</b> |
| 6<br>Accessories              | A = GFH60XTKEG1C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/Gauge (Note 1)<br>B = GFH60XTKEG1F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/Gauge (Note 2)<br>C = GFX04 Filter Only - No Regulation Desired<br>D = No Filter - Regulator Desired<br>E = GFH60XTKEX1C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/oGauge (Note 1)<br>F = GFH60XTKEX1F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/oGauge (Note 2)<br>G = GFH60XTKEX2C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/oGauge (Note 1)<br>H = GFH60XTKEX2F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/oGauge (Note 2)<br>J = GFH60XTKEG2C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/Gauge (Note 1)<br>K = GFH60XTKEG2F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/Gauge (Note 2)<br>L = GFH60XTKEX3C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/oGauge (Note 1)<br>M = GFH60XTKEX3F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/oGauge (Note 2)<br>N = GFH60XTKEG3C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/Gauge (Note 1)<br>P = GFH60XTKEG3F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/Gauge (Note 2)<br><b>NOTES:<br/>1. For use with 3-15 PSI (21-103 kPa) Output (12 PSI (83 kPa) Spans)<br/>2. For use with 3-27 PSI (21-186 kPa) and 6-30 PSI (41-207 kPa) Output 24 PSI (166 kPa) Spans</b> | 10<br>Future<br>Options        | X = Standard - Unless Option Code is Specified   |
|                               |  | 11<br>Operation<br>Modes       | A = Low Capacity Air Delivery Rate [2.5 SCFM (0.071 m³/min)]<br>X = Standard - Unless Option Code is Specified.  |
|                               |  | 12<br>Special Range<br>(input) | <b>1. When option "Y" in position 5 is used, factory will apply four digits.</b>   |

