

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

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 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.

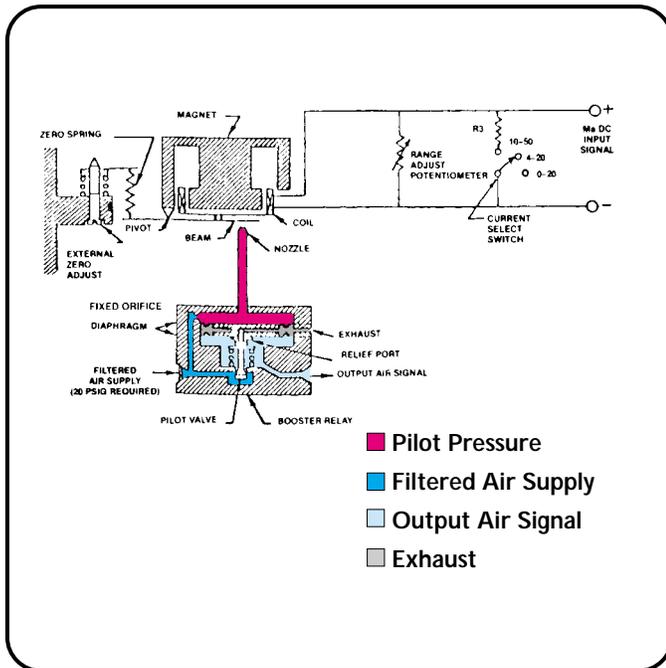
In the reverse acting mode, an increase in the input signal causes the coil to move toward the magnet instead of away from it since the direction of the current through the coil is reversed. An increasing signal, therefore, causes a proportionally decreasing output.

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.

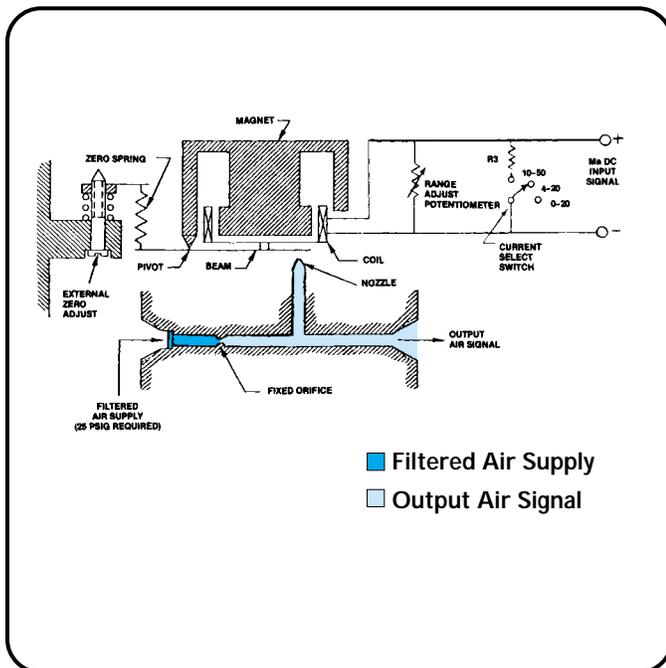
A decrease in the input signal allows the coil to move toward the magnet which moves the balance beam away from the nozzle. This allows the flow through the nozzle to increase reducing the output pressure.

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.



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

SPECIFICATIONS

OPERATING CHARACTERISTICS	GT18 (3)	GT28	GT38 (3)	GT48	GT58 (3)	GT68
Input Range	4-20 mA DC 10-50 mA DC					
Nominal Input Impedance	145 ohms 60 ohms					
Output Signal	3-15 PSI (21-103 kPa)		3-27 PSI (21-186 kPa)		6-30 PSI (41-207 kPa)	
Required Regulated Air Supply Pressure	25 PSI (172 kPa)		35 PSI (241 kPa)			
Air Consumption	0.2 SCFM (0.006 m ³ /min)		0.3 SCFM (0.009 m ³ /min)			
Air Delivery Rate (Max.)	0.15 SCFM (0.004 m ³ /min)	5 SCFM (0.142 m ³ /min)	0.15 SCFM (0.004 m ³ /min)	5 SCFM (0.142 m ³ /min)	0.15 SCFM (0.004 m ³ /min)	5 SCFM (0.142 m ³ /min)
Exhaust Rate (Max.)	0.17 SCFM (0.005 m ³ /min)	1.7 SCFM (0.05 m ³ /min)	0.2 SCFM (0.006 m ³ /min)	2.3 SCFM (0.065 m ³ /min)	0.2 SCFM (0.006 m ³ /min)	2.3 SCFM (0.065 m ³ /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
BAILEY CONTROLS NO. 76601AAAV1	I, II & III	1 & 2*	B, C, D, E, F & G
LEEDS & NORTHRUPS P/N 316569 & 316747	I, II & III	1 & 2*	B, C, D, E, F & G
FOXBORO INTERFACE MODULE NO'S 2AO-V21-FGB, 2AO-VA1-FGB 2AO-V31-FGB, 2AT-SBU-FGB 3A2-D31 CS-E/FGB-A 3A2-D21 CS-E/FGB-A	I, II & III	1 & 2*	B, C, D, E, F & G
HONEYWELL NO'S 38545-0000-0110-111-F5D5 38545-0000-0110-112-F5D5 38545-0000-0110-113-F5D5	I, II & III	1 & 2*	B, C, D, E, F & G
STAHL NO'S 8901/31-280/165/80 8901/33-293/000/79	I, II & III	1 & 2*	C & D A, B, C & D
TAYLOR INSTRUMENT COMPANY NO'S 1130FF21000, 1130FF22000 1135FF21000, 1135FF22000	I, II & III	1 & 2*	C, D, E, F & G
MTL - MODEL 728	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)

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

CENELEC

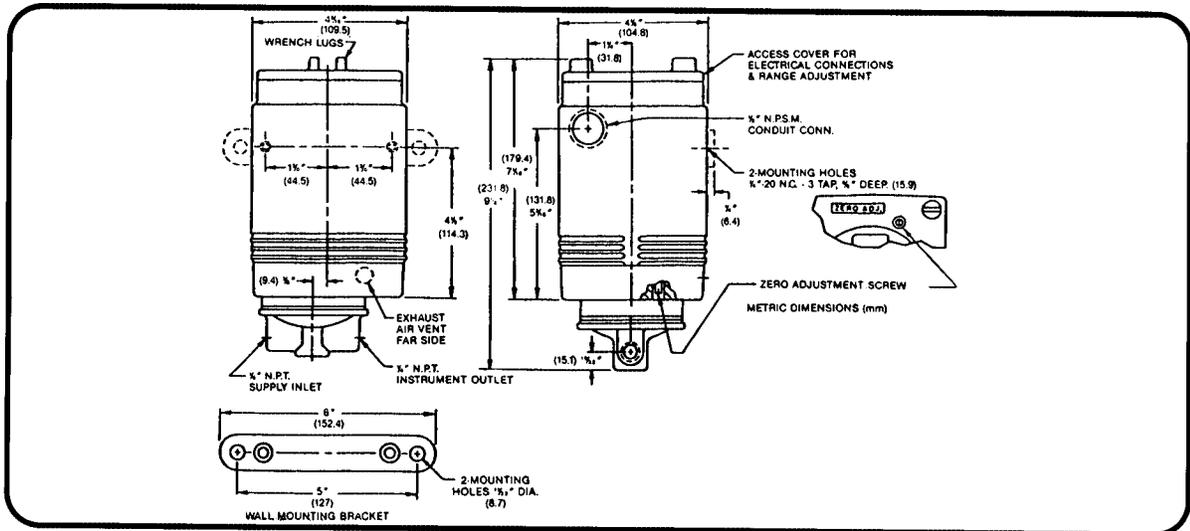
The GT28 (only) is CENELEC approved intrinsically safe per EEx ia II C Certificate INIEX 84.101.046.U.

CONTROL ENGINEERING DATA

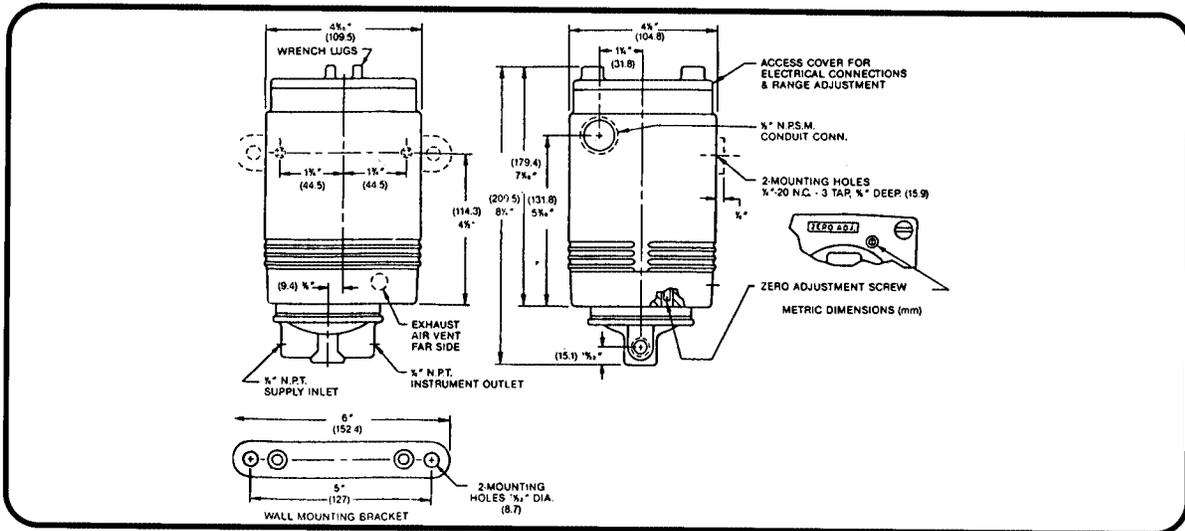
Control Engineering Data is intended to provide a single source from which one can determine, in detail, the full scope of the product line. Operating principles and dimensional data are found in the instruction manual. Control Engineering Data also provides a means of communicating, by way of a code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

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

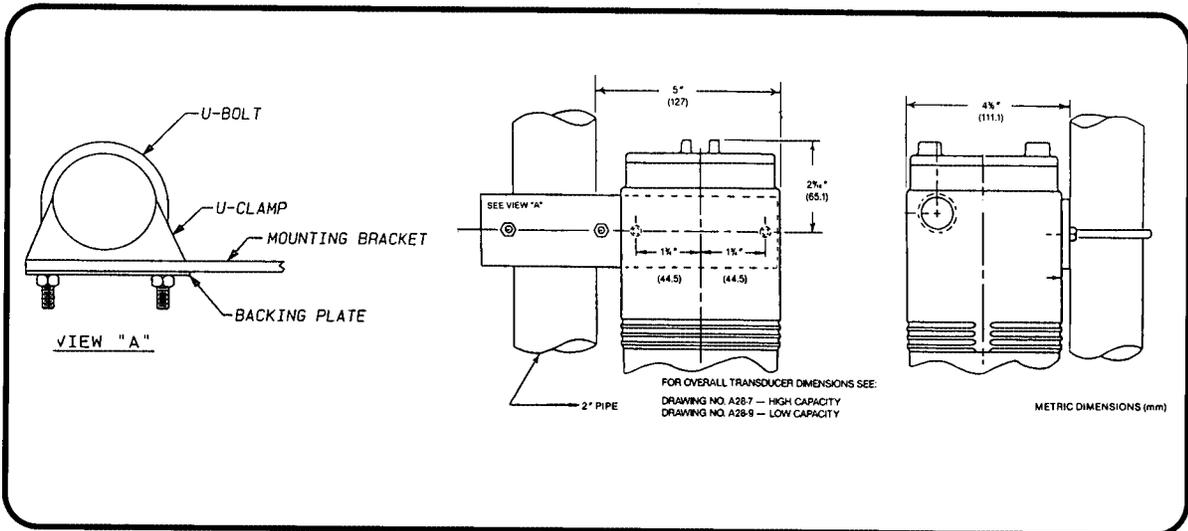
1-3 Models	<p>GT1 = Low Capacity (Note 1), 3-15 PSI (21-103 kPa) Output</p> <p>GT2 = High Capacity, 3-15 PSI (21-103 kPa) Output</p> <p>GT3 = Low Capacity (Note 1), 3-27 PSI (21-186 kPa) Output</p> <p>GT4 = High Capacity, 3-27 PSI (21-186 kPa) Output</p> <p>GT5 = Low Capacity (Note 1), 6-30 PSI (41-207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



HIGH CAPACITY - For Certified Dimensional Data, Refer to A28-7.



LOW CAPACITY - For Certified Dimensional Data, Refer to A28-9.



For Certified Dimensional Data, Refer to A28-22.