

GT210 SERIES Miniature I/P-E/P Transducers

Conoflow's Electropneumatic Transducers accept a variety of electrical input signals and convert them to proportional pneumatic output signals. The miniature transducer is available with two different circuit boards. One board accepts current inputs of 4-20/10-50 mA DC and the other accepts inputs of 0-5/ 1-9 VDC. Each board utilizes a range selector jumper switch which can be positioned to accept a 4-20 or 10-50 mA DC input or a 0-5 or 1-9 VDC input, respectively. Connection of electrical source is made through a 1/2" NPSM conduit connection in two different manners. One unit is offered with a metal cover having a removable top access cover for direct connection to the internal terminal block. The second option is made through connection to 2 leads which are 20" long (#18 GA. wire - 20" long/positive red - negative black). All operation adjustments (zero and span adjustments) are accessible from the front of the transducer. These units are available with output signals of 3-15, 3-27, or 6-30 PSIG (21-103, 21-186, or 41-207 kPa). Special output signals are available, consult the factory. The unit can be mounted in any position and output signals are field reversible. Supply pressures up to 100 Psi can be used. Optional gauge ports are included for monitoring the output signal.

Intrinsically Safe approvals are listed for both incendive and non-incendive barriers.

Typical applications for these units include controllers, relays, HVAC systems, energy management systems, valve actuators and control room applications.

Principle of Operation

The Conoflow GT210 Series Transducers are force balance units which accept 4-20 mA DC, 10-50 mA DC, 0-5 VDC or 1-9 VDC inputs and convert them to a proportional 3-15, 3-27, or 6-30 PSIG (21-103, 21-186, or 41-207 kPa) output signal. In the direct acting mode, an increase in the electrical input signal drives the coil out of the magnet, which moves the flexure assembly towards the nozzle in the pilot body. This reduces the flow through the nozzle increasing the back pressure on top of the diaphragm assembly. The increased pressure drives the diaphragm assembly downward, opening the relay 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 electrical input signal allows the coil to move toward the magnet, which moves the flexure assembly away from the nozzle. This allows the flow to vent through the top of the pilot body. 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 relay valve to close.

As the diaphragm assembly moves upward, it lifts off the top of the relay valve. This movement, in turn, opens the relief port and permits outlet pressure to vent from the exhaust ports in the diaphragm spacer. The excess output pressure is vented to atmosphere through the exhaust ports until equilibrium is established.

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



GT210 SERIES

Operating Characteristics

GT210 Series	GT2108ED GT2108FD	GT4108ED GT4108FD	GT6108ED GT6108FD	GT2102HD GT2102JD	GT4102HD GT4102JD	GT6102HD GT6102JD
Input Range (4)	4-20 mA DC 10-50 mA DC			0-5 VDC 1-9 VDC		
Nominal Input Impedance	225 ohms 91 ohms			385 ohms 535 ohms		
Output Signal	3-15 PSI (21-103 kPa)	3-27 PSI (21-186 kPa)	6-30 PSI (41-207 kPa)	3-15 PSI (21-103 kPa)	3-27 PSI (21-186 kPa)	6-30 PSI (41-207 kPa)
Position Effect	3 PSIG Output - Output decreases by 0.65 PSIG at 45° tilt. - Output decreases by 2.03 PSIG at 90° tilt. 15 PSIG Output - Output decreases by 0.78 PSIG at 45° tilt. - Output decreases by 2.54 PSIG at 90° tilt.					
Supply Pressure Effect	0.08 PSIG decrease for every 10 PSIG increase in supply pressure					
Maximum Supply Pressure	100 PSIG					
Required Regulated Air Supply Pressure	20 PSI (138 kPa)	35 PSI (241 kPa)		20 PSI (138 kPa)	35 PSI (241 kPa)	
Air Consumption	Approximately 0.1 SCFM (0.003 m3/min)					
Air Delivery Rate (Max.)	4 SCFM (0.1113 m3/min)					
Exhaust Rate (Max.)	1.5 SCFM (0.042 m3/min)					
Linearity	± 0.75% of Span					
Ambient Temperature Range	0° to +130°F (-17° to +55°C)					
Approx. Shipping Weight	1.7 lbs. (0.77 Kg)					

NOTES:

1. Refer to Control Engineering Data for catalog number make-up.
2. An ITT Conoflow Model FR95 Airpak®, Filter-Regulator or equal is recommended.
3. Minimum piping requirements are 3/8" tubing or 1/4" pipe.
4. Intrinsically Safe Approvals:
 - A. The GT210, GT410 and GT610 Series Transducers have been Factory Mutual approved intrinsically safe for Class I, Division 1 and non-incendive for Class I, Division 2, applicable groups when interfaced with one of the barriers listed below.

NON HAZARODUS LOCATION	HAZARODUS LOCATION CLASS 1, DIVISION 1 & 2 APPLICABLE GROUPS (SEE TABLE #2)	<p>TABLE 1 ELECTROPNEUMATIC TRANSDUCERS MODLES GT210, GT21R, GT410, GT610, GT61R, GT81D AND GT81R ARE INTRINSICALLY SAFE FOR CLASS 1, DIVISION 1 AND NONINCENVOIE FOR CLASS 1, DIVISION 2, APLACABLE GROUPS WHEN INERFACED WITH:</p> <p>TABLE 2</p> <table border="0"> <thead> <tr> <th>BARRIER</th> <th>GROUPS</th> </tr> </thead> <tbody> <tr> <td>ABB INC. NO. 768610AAAV1</td> <td>C & D</td> </tr> <tr> <td>INVENSYS SYSTEMS INC. INTERACE MODULE NO'S 2AD-V21-FGB, 2A0-VA1-FGB, 2A0-V31-FB 3A2-D31 CS-E/FB-A, 3A2-D21 CS-E/FGB-A</td> <td>C & D</td> </tr> <tr> <td>PEPPERL + FUCHS GmbH KHP-104/Ex-2A (SINGLE AND DUAL CHANNEL) 1072 1022 1032</td> <td>C & D</td> </tr> <tr> <td>STAHL BARRIERS 8901/31-280-100-70 8901/33-293-000-79</td> <td>C & D</td> </tr> </tbody> </table>	BARRIER	GROUPS	ABB INC. NO. 768610AAAV1	C & D	INVENSYS SYSTEMS INC. INTERACE MODULE NO'S 2AD-V21-FGB, 2A0-VA1-FGB, 2A0-V31-FB 3A2-D31 CS-E/FB-A, 3A2-D21 CS-E/FGB-A	C & D	PEPPERL + FUCHS GmbH KHP-104/Ex-2A (SINGLE AND DUAL CHANNEL) 1072 1022 1032	C & D	STAHL BARRIERS 8901/31-280-100-70 8901/33-293-000-79	C & D
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INTRINSIC SAFETY BARRIER SEE TABLE #2	ELECTROPEUMATIC TRANSDUCER SEE TABLE #1											
MAXIMUM SAFE VOLTAGE IS 250 VAC												

NOTES:

1. ALL REVISIONS MUST BE APPROVED BY FM GLOBAL
2. CABLE PARAETERS TO BE SPECIFIED BY BARRIER MANUFACTURER
3. INSTALL IN ACCORDANCE WITH NATIONAL ELECTRIC CODE
ANSI / ISA RP12.6

GT210 SERIES

PRODUCT CONFIGURATION CODING

Product configuration coding is intended to provide a single source from which one can determine, in detail, the full scope of the product line. In addition to materials of construction, diaphragm selection and filtering capabilities, it also provides all necessary data, regarding adjustment options and range selections. 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 eight (8) characters.

Ordering Sequence — Select desired option for each category

TEXT POSITION 1 through 5	OPTION CODE	DEFINITION OF CHARACTER
	GT210	3-15 PSI (21-103 kPa) Output
	GT410	3-27 PSI (21-103 kPa) Output
	GT610	6-30 PSI (21-103 kPa) Output
	GT810	Special Output (Note 1)
	GT21R	15-3 PSI (21-103 kPa) Output
	GT41R	27-3 PSI (21-103 kPa) Output
	GT61R	30-6 PSI (21-103 kPa) Output
	GT81R	Special Output (Reverse Acting) (Note 1)
		NOTE 1. Customer to specify output span required (Consult Factory)
ELECTRICAL CHARACTERISTICS		
6	2	0-5 and 1-9 VDC Voltage Input
	8	4-20 and 10-50 mA DC Milliampere Input
	9	Special Input - Customer to specify input required (Consult Factory)
		NOTE: 1. See position 7 for input range coding
ELECTRICAL INPUTS		
7	E	4-20 mA DC
	F	10-50 mA DC
	H	0-5 VDC
	J	1-9 VDC
	Y	Special Input (Consult Factory)
ACCESSORIES		
8	D	No Filter-Regulator or Filter Desired (Consult Factory) for a suitable filter or filter regulator when required)
MOUNTING ACCESSORIES		
9	A	2" U-Clamp for Pipe Mounting
	X	Standard - Unless Option Code is Specified
OPERATION MODES		
10	A	Factory Mutual Approved - Intrinsically Safe
	X	Standard - Unless Option Code is Specified
HOUSINGS		
11	X	Standard - Unless Option Code is Specified (Note 1)
	M	Metal Cover having no Top Access Cover (Note 2)
		NOTES:
		1. This cover is used when electrical connection is made directly to the internal terminal block.
		2. This cover is used when electrical connection is made to 2-Leads 20" Long - #18GA. Wire/1 Positive (Red) - 1 Negative (Black)
		3. For dimensional data, refer to drawing:
		A28-45 = Metal Cover with Top Access Cover
		A28-46 = Metal Cover with 20" Leads
SPECIAL RANGE (Input)		
12		1. When option "Y" in position 7 is used, the factory will apply four digit code defining the product selection.