

CONOFLOW MOTORIZED TRANSDUCERS GT_6 Series Motorized



The Motorized Transducer accepts an electrical signal of 115-volt AC or 24-volt DC and provides a 3-15, 3-27 or 6-30 PSIG (21-103, 21-186 or 41-207 kPa) output. Other outputs are available. The electrical input is a time duration signal. The 115-volt AC units are available in 12 or 18 second durations and the 24-volt DC models are available in durations of 10 or 20 seconds.

When energized, the motor rotates at a constant speed in the direction selected to increase or decrease the pneumatic output. Standard time required for full span output is either 10, 12, 18 or 20 seconds depending on the motor utilized. If energized for a fraction of its full span time, the output will change by a fractional amount. When de-energized, the motor remains in its last position with a constant output pressure. These units incorporate limit switches which de-energize the motor when the preset upper and lower limits are reached.

CONTROLLER PULSE WIDTH

The M/P Transducer was originally designed with 1970's controller technology in mind that resulted in extremely slow pulses by today's standards. These slow pulses

require reversing pulses to the M/P Transducer motor at the end of each forward pulse to limit the forward travel of the motor. Today's controllers provide a "short" pulse which will then result in the transducer output moving in the direction opposite that of the applied signal. To assure that you are purchasing the correct M/P Transducer, refer to Position 4 of the Control Engineering Data Section when making your selection.

For remote indication of output, the Conoflow Model GPT82 Pressure to Current Transducer can be utilized. A typical application would be remote positioning of a control valve or damper, eliminating the need of running expensive tubing to a distant location.

The GT_6 Motorized Transducers are available in either a high or low capacity (maximum air delivery rate) arrangement. NEMA 3R housing requirements are optional.

DIMENSIONAL DATA - ADVERTISING DRAWINGS:

GT Series - High Capacity: A28-7

GT Series - Low Capacity: A28-9

GT Series - 2" Pipe Mount Bracket: A28-22

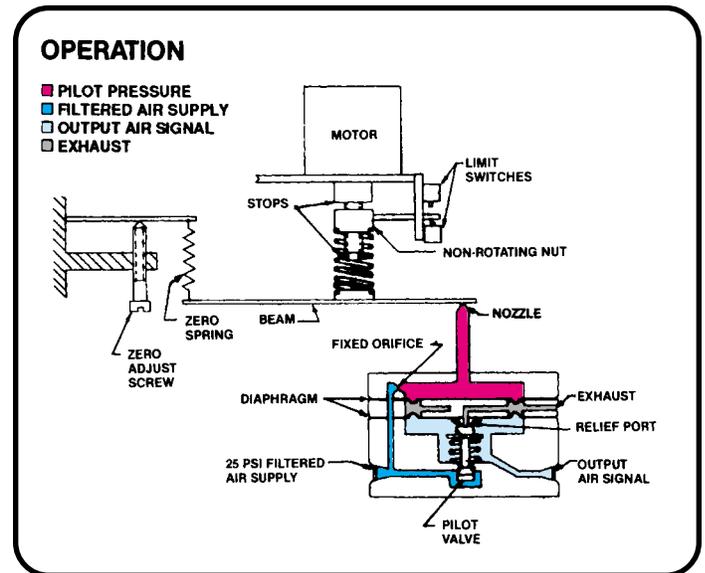
PRINCIPLE OF OPERATION

The DC motorized transducer has 24 VDC applied to the "+24" terminal and ground applied to the "G" terminal to power the PC board. To increase the output pressure, the "FWD" terminal is pulled to ground, and the motor rotates in a counterclockwise direction. As the motor rotates, a non-rotating nut compresses a range spring. The compression of the range spring moves a balance beam toward a nozzle. This reduces the flow through the nozzle, increasing the back pressure in the top chamber of a booster. The increased pressure in the booster causes the diaphragm 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.

To decrease the output pressure, the "REV" terminal is pulled to ground, and the motor rotates clockwise. As the motor rotates, the non-rotating nut decreases the compression of the range spring. Decreasing the compression of the range spring 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.

The theory of operation for the AC motorized transducer is the same as for the DC motorized transducer, however, the application of power to the PC board is somewhat different. In the case of the AC motorized transducer, the neutral leg of the 115 VAC is connected to terminal "2". To increase the output pressure, the hot leg of the 115 VAC is applied to terminal "4", and conversely, to decrease the output pressure, the hot leg of the 115 VAC is connected to terminal "5".

The two limit switches mounted to the motor bracket are installed to protect the device in case a malfunction of the controller attempts to drive the transducer beyond its specified range. The switches are factory set to interrupt the motor current if the output exceeds the upper or lower limits by approximately 0.5 PSI



The above schematic represents high capacity units GT26, GT46 and GT66. Consult the factory for low capacity operation.

(3.45 kPa). The switches should not be tripped during normal operation, and therefore should not be set precisely at the upper and lower range values. Note that if one of the switches is tripped due to a malfunction, it will be necessary to drive the output in the opposite direction by approximately 10% of the output span to reset the switch. Until the switch is reset, the motor will operate in only one direction.

SPECIFICATIONS

OPERATING CHARACTERISTICS	GT26	GT46	GT66	GT26	GT46	GT66
Time for Full Span Output	12 Seconds or 18 Seconds			10 Seconds or 20 Seconds		
Applied Voltage	115 Volts AC			24 Volts DC		
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)
Required Regulated Air Supply Pressure (1)	25 PSI (172 kPa)	35 PSI (241 kPa)		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)		0.2 SCFM (0.006 m ³ /min)	0.3 SCFM (0.009 m ³ /min)	
Air Delivery Rate (Max.) (2)	5 SCFM (0.142 m ³ /min)					
Exhaust Rate (Max.)	0.17 SCFM (0.005 m ³ /min)	2.3 SCFM (0.065 m ³ /min)		0.17 SCFM (0.005 m ³ /min)	2.3 SCFM (0.065 m ³ /min)	
Ambient Temperature Range	0° to +150°F (-18° to +66°C)					
Approx. Shipping Weight	7 lbs. (178 Kg)					

NOTES:

1. A Conoflow Model GFH60 Airpak Filter-Regulator or equal is recommended.
2. Minimum piping requirements are 3/8" tubing or 1/4" pipe.

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 eight (11) characters.

1-3 Models	GT2 = High Capacity, 3-15 PSI (21-103 kPa) Output GT4 = High Capacity, 3-27 PSI (21-186 kPa) Output GT6 = High Capacity, 6-30 PSI (41-207 kPa) Output GT8 = High Capacity, (Note 1), Special Output NOTE: 1. Customer to specify output span required (Consult the factory).
4 Controller Pulse Widths	6 = Motorized - Controller Pulse Widths 125 ms or Greater 12 or 18 Second Time Span - 115 Volt AC 10 or 20 Second Time Span - 24 Volt DC 7 = Motorized - Controller Pulse Widths Less than 125 ms 12 or 18 Second Time Span - 115 Volt AC 10 or 20 Second Time Span - 24 Volt DC 9 = Special Input - Customer to specify input required (Consult factory) NOTE: 1. See position five (5) for input range coding.
5 Electrical Inputs	Input Motorized - 115 VAC or 24 VDC B = 24 VDC - 10 Second Time Span C = 24 VDC - 20 Second Time Span J = 115 VAC - 12 Second Time Span K = 115 VAC - 18 Second Time Span Y = Special Input (Consult factory)
6 Accessories	A = GFH60XTKEG1C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/ Gauge (Note 1) B = GFH60XTKEG1F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/ Gauge (Note 2) C = GFX04 Filter Only - No Regulation Desired D = No Filter - Regulator Desired E = GFH60XTKEX1C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/o Gauge (Note 1) F = GFH60XTKEX1F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/o Gauge (Note 2) G = GFH60XTKEX2C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/o Gauge (Note 1) H = GFH60XTKEX2F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/o Gauge (Note 2) J = GFH60XTKEG2C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/ Gauge (Note 1) K = GFH60XTKEG2F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/ Gauge (Note 2) L = GFH60XTKEX3C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/o Gauge (Note 1) M = GFH60XTKEX3F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/o Gauge (Note 2) N = GFH60XTKEG3C 0-25 PSI (0-172 kPa) Airpak-Filter Regulator w/ Gauge (Note 1) P = GFH60XTKEG3F 0-60 PSI (0-414 kPa) Airpak-Filter Regulator w/ Gauge (Note 2) NOTES: 1. For use with 3-15 PSI (21-103 kPa) Output [12 PSI(83 kPa) Spans] 2. For use with 3-27 PSI and 6-30 PSI (21-186 kPa and 41-207 kPa) Output [24 PSI (166 kPa)] Spans]
7 Housing Options	R = NEMA 3R Housing X = Standard - Unless Option Code is Specified. NOTE: 1. If option "A" or "R" is not specified, the standard cover will be supplied.
8 Mounting Options	A = 2" U-Clamp for Pipe Mounting X = Standard - Unless Option Code is Specified NOTE: 1. For dimensional data, refer to Advertising Drawing A28-22.
9 Operation Modes	R = Reverse Acting Output [15-3, 27-3 or 30-6 (103-21, 186-21 or 207-41 kPa)] X = Standard- Unless Option Code is Specified.
10 Accessories	A = Limit Switches
11 Operation Mode	A = Low Capacity Air Delivery Rate (2.5 SCFM)
12-15 Special Range (Input)	1. When option "Y" in position 5 is used, factory will apply four digits.