Electro To Pneumatic Converter

Features

- Four input ranges, link selectable
- Analogue feedback on branch pressure
- Manual override
- Not position sensitive

Specification

Input signal:	0-5Vdc @ infinite
	0-10Vdc @ infinite
	0-15Vdc @ infinite
	0-20mA @ 250
Feedback signal	0-5Vdc = range selected
Output pressure	
Link selectable:	0-10psig, 0-15psig & 0-20psig
Accuracy	1% Full scale at room temp.
Power supply:	
24Vdc (-5/+10%) 180mA max.	
24Vac (±10%) 180mA max.	
Pneumatic capacity:	
Manifold	20psig
Branch	15psig
Filter	80-100 micron
	(fitted in the Manifold air port barb)
Air supply	25psig max. 18psig min.
Pressure connections	Brass barbs for 6.25mm tubing
Electrical	Terminals for 0.5-2.5mm² cable
Connections	Rising cage
Ambient:	
Temperature	0 to 50°C
RH	5 to 95% non-condensing
Dimensions	105 X 90 X 90mm
Country of origin	USA

Product Codes

IO-EPC-G

Converts an analogue control signal to a pneumatic output, with a gauge

Technical Overview

The IO-EPC-G is used to convert an analogue control signal to a proportional pneumatic output. The module automatically modulates the control valve to regulate branch line pressure to the selected setpoint, as determined by the input signal. Link selection of input ranges, voltage output feedback signals are fitted as standard. The IO-EPC-G is a constant bleed controller with the branch exhaust response time determined by the orifice size and pressure differentials.

Installation

1. The IO-EPC-G should only be installed by a competent, suitably trained technician. And ensure that all power is disconnected before carrying out any work on the IO-EPC-G.

2. Maximum cable is 2.5mm², care must be taken not to over tighten terminals.

3. When mounting the IO-EPC-G care should be taken not to stress the PCB when fitting to the DIN rail. If it is necessary remove the module from the DIN rail, be sure to use a flat bladed screwdriver to release the DIN clips.

4. The IO-EPC-G is designed to operate from a 24Vac/dc supply (so that power can be drawn from a 24Vac transformer used for other purposes if a 24Vdc supply is not available). In either case one side of the supply is common to the signal ground from the BEMS controller.

5. If the 24Vac or dc supply shares the same supply with other devices, such as relay coils, solenoids etc., each such coil must have a MOV or similar spike snubbing device fitted, or have a diode placed across the coil. The cathode of the diode must connect to the positive side of the supply.

6. The gauge port will accept a miniature 1/8" NPT backported pressure gauge to allow direct reading of branch line pressure. The gauge is sealed by a washer in the bottom of the gauge port, and should only be hand tightened until just snug.

7. Warranty does not include malfunction due to a clogged valve filter. You should periodically check the filter for contamination and flow reduction.

Installation (continued)

8. The surface between the manifold and pressure transducer is a pressure seal. Minimise stress between the circuit board and the manifold by holding the manifold in one hand while installing pneumatic tubing onto the fittings, and use care when removing tubing to avoid damaging fittings or moving the manifold.

9. The bleed orifice can be unscrewed with a 1/4" hex nut driver for cleaning or inspection. Taking care not to lose the sealing gasket or inserting anything into the précision orifice. Clean by swabbing with a degreaser and blowing clean air through the orifice from the opposite direction. The colour of the hex nut indicated the size of the orifice: brass = 0.007"; silver = 0.01"; copper = 0.005".

Commissioning

1. Select one of the four input/output signal combinations by moving the jumper shunt as shown in the table on page 3.

2. Verify the manual override switch is in the AUTO position. In AUTO, the MANUAL override pot is inactive and the analogue input signal is supplying the setpoint. When in the MANUAL position, the MANUAL override pot is supplying the setpoint and the analogue input signal is locked out.

3. Supply power and the LED power indicator will light, but only measurement will verify proper voltage. Apply minimum and maximum input signals and measure response. Response between the minimum and maximum values will be linear. The feedback signal range on all selections is 0-5Vdc and is proportional to the output pressure range. The output and feedback signal will continue to vary proportionally if the input signal is increased beyond its upper limit (if there is enough main air available). However, do not exceed the listed maximum input signal voltage by more than 25%.

4. To use the manual override, place the AUTO/MAN switch in the MAN position. The potentiometer is now operable, and by turning the knob you may increase or decrease the pneumatic output.

Commissioning (continued)

The IO-EPC-G is a constant bleed controller and utilise a precision orifice to maintain a measured flow of air across the valve. For proper operation, combined exhaust air flow (EPC orifice loss and branch system loss) must be between 14 and 73 scrim. The branch exhaust response time is determined by the combined exhaust air flow as well as pressure differentials.

The 0-5Vdc feedback signal indicates the resultant branch line pressure, and varies linearly with branch pressure.

If power is lost to the IO-EPC-G it will continue to bleed through the orifice, at a rate of 41scrim ±%, until the branch pressure falls to zero.

The unit requires at least 2 cubic inches (minimum) of branch air line capacity to operate without oscillation.

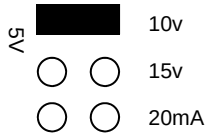
Field calibration voids the warranty.

Ensure that no water or condensation is in the air supply, this will cause the module to fail.

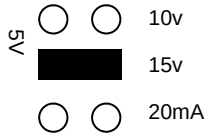
Jumper Settings

Input signal jumper J1:

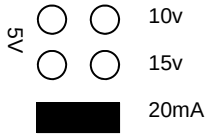
0-10Vdc:



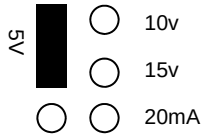
0-15Vdc:



0-20mA:



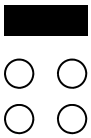
0-5Vdc:



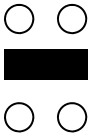
Jumper Settings (continued)

Output signal jumper J2:

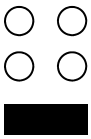
0-10psi:



0-15psi:



0-20psi:



Connections