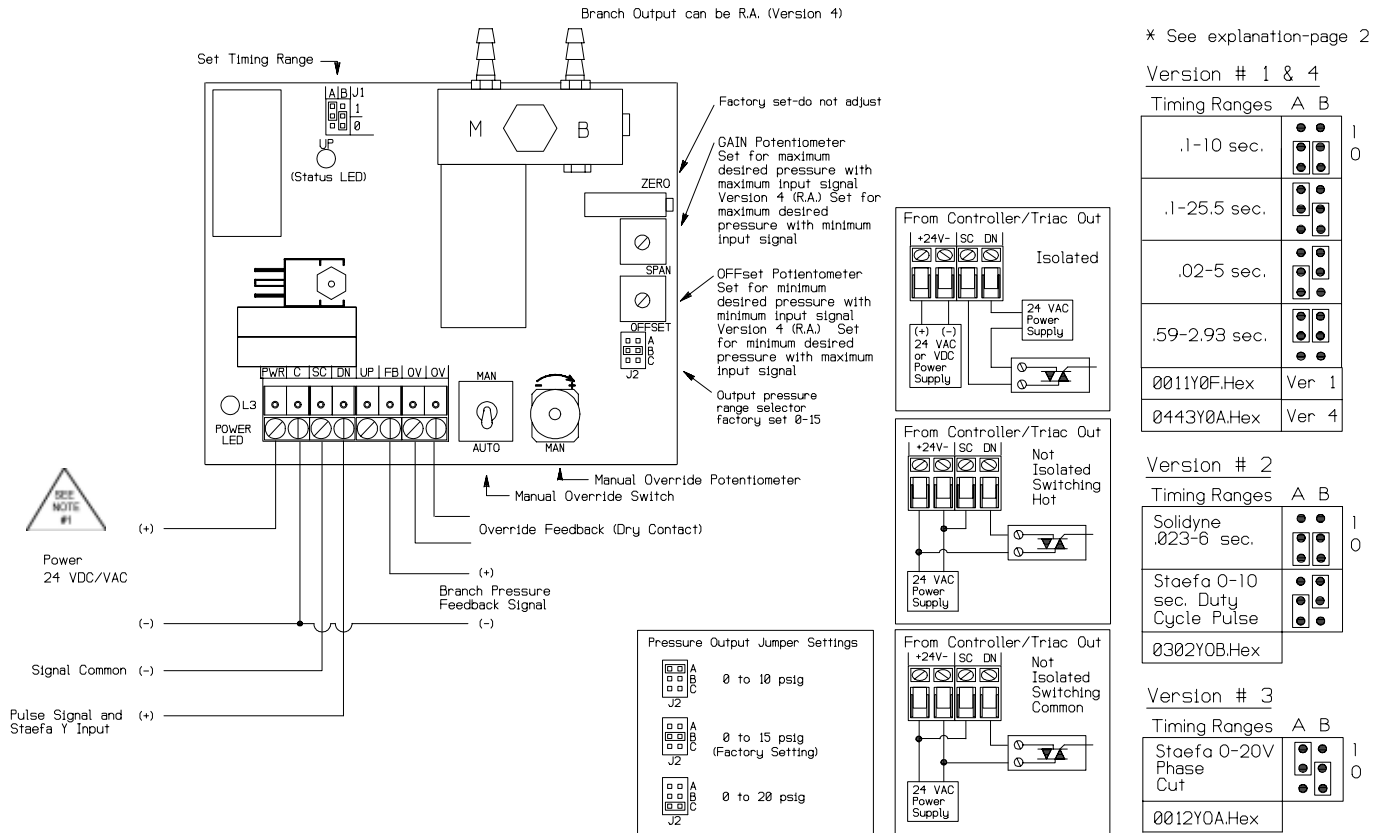


Pulse Width Modulated Input to Pneumatic Output with Bleed Orifice



INSTALLATION

READ THESE INSTRUCTIONS BEFORE YOU BEGIN INSTALLATION.

Ground yourself before touching board. Some components are static sensitive.

MOUNTING:

Circuit board may be mounted in any position. If circuit board slides out of snap track, a nonconductive "stop" may be required. Use only fingers to remove board from snap track. Slide out of snap track or push against side of snap track and lift that side of the circuit board to remove. Do not flex board or use tools.

POWER CONNECTIONS -THIS PRODUCT ACCEPTS 24 VOLTS AC OR DC POWER

BE SURE TO FOLLOW ALL LOCAL AND ELECTRICAL CODES. REFER TO WIRING DIAGRAM FOR CONNECTION INFORMATION.

- 1) If required by BAS or controller specification, the 24 VAC neutral can be earth grounded at the transformer. Analog input, digital input, and analog output circuits should not be earth grounded at two points. Any field device connected to this transformer must use the same common. If you are not sure of other field device configuration, use separate transformers for isolation.
- 2) If the 24 volt AC power is shared with devices that have coils such as relays, solenoids, or other inductors, each coil must have an MOV, AC Transorb, or other spike snubbing device across each of the shared coils. Without these snubbers, coils produce very large voltage spikes when de-energizing that can cause malfunction or destruction of electronic circuits.
- 3) If the 24 volt DC power is shared with devices that have coils such as relays, solenoids, or other inductors, each coil must have an MOV, DC Transorb, or diode placed across the coil or inductor. The cathode, or banded side of the DC Transorb or diode, connects to the positive side of the power supply.
- 4) You should measure the actual voltage output of the secondary. If the output is not fully loaded you may read a higher voltage than the circuit board can handle.

The gauge port will accept a miniature 1/8" FNPT back-ported pressure gauge to allow direct reading of branch line pressure. The gauge should be sealed by teflon sealing tape, and should be just snug. A backup wrench should be used to hold the manifold.

Warranty does not include malfunction due to clogged valve. Main air port is filtered with the supplied 80-100 micron integral-in-barb filter. Periodically check the filter for contamination and flow reduction, and clean with a brush or replace if needed (Part # PN004).

The surface between the manifold and pressure transducer is a pressure seal. Do NOT stress the circuit board or allow the manifold to move. Hold the manifold in one hand while installing pneumatic tubing onto the barbed fittings and use care when removing tubing to avoid damaging fittings or moving manifold.

The bleed orifice can be unscrewed with a 1/4" hex nut driver for cleaning or inspection. Do not lose the sealing gasket or insert anything into the precision orifice. Clean by swabbing with a degreaser and blowing clean air through the orifice from the opposite direction. The color of the hex nut indicates orifice size : brass = .007".

This unit requires at least two cubic inches (minimum) of branch air line capacity (approx. 15 feet of 1/4" O.D. polyethylene tubing) to operate without oscillation. Main air must be minimum of 2 psig above highest desired branch output pressure.

The input signal will not cause "wrap around" or start over if the upper range limit is exceeded.

CHECKOUT

SIGNAL INPUTS: Version #1. See jumper positions, page 1. Connect the pulse input positive (+) to the down (DN) terminal, and common to the signal common (SC) terminal. **Version #2:** Solidyne PWM signal and 0 -10 second Duty Cycle Pulse of Barber Colman™, Robertshaw™ or Staefa™. No pulse within 10 seconds = minimum output. Pulse equal or exceeding 10 seconds = maximum output. **Version #3.** For Staefa Smart II™ 0-20 Volt Phase Cut, 0-100% input connect Y to DN terminal, and common to SC (-) terminal. Trigger level above approx. 5% and below 95% of phase cut waveform (i.e. 5-95% min./max. or 5% lower and upper detection deadband).

The EPW is factory calibrated at 0 psig minimum and 15 psig maximum output. This output can be recalibrated to match the pressure range of the actuator using the GAIN and OFFset potentiometer as follows: (Note: The ZERO potentiometer is factory set. Do not adjust.)

1. **Setting the input timing range:** With power removed, place jumpers in the configuration that most closely matches the timing range from the controller.
2. **Setting the output pressure range:** Apply power. Choose a pressure range on the EFP that matches or is just above maximum range of device being controlled. Example: 8-13 psi choose B (15 psi setting).
3. **Setting the maximum pressure:** With all pneumatic and power connections made, place the Manual override switch in the "MAN" position. Turn the override pot full clockwise. Adjust the "SPAN" pot until the desired maximum output is achieved.
4. **Setting the offset:** Confirm no pulse has been sent, or remove power to reset output to minimum. Place the Manual override switch in the "AUTO" position. Turn the "OFFSET" pot until the desired minimum pressure is achieved.
5. Calibration can also be made by sending the appropriate timing pulse and adjusting the "OFFSET" and "SPAN" pots to the desired pressure output.

Without power, the power and the status LED will not be illuminated. Apply power and the "STATUS" LED will blink slowly (twice per second), and the EPW will be at the lowest signal input state, or 0 psig. Apply minimum and maximum input signals and measure the response. **Version #1:** The "STATUS" LED will flash quickly when the EPW is receiving an input pulse, at the rate of the minimum resolution of the selected pulse range, (i.e. 0.1 to 25.5 second range, the LED will flash 0.1 second on, 0.1 second off). Exception: 0.59 to 2.93s range - LED remains constant. **Version #2 & 3:** 0.023-6 seconds - 1 flash, then pause. 0-10 second Duty Cycle - 3 flashes, then pause. Staefa Phase Cut - 2 flashes, then pause. The input signal will NOT cause "wrap around" or start over if the upper range limit is exceeded. **Version #4:** Same as Version #1 except output is reverse acting.

The pneumatic output changes when the input pulse has been completed. Pressure output between the minimum and maximum values will be linear, therefore software algorithms should be easy to derive. The feedback signal range on all selections is 0 to 5 VDC and is proportional to the output pressure range (Factory calibrated 0-15 psig).

The EPW is a constant bleed interface and utilizes a precision orifice to maintain a measured flow of air across the valve.

Manual override: Switch the AUTO/MAN toggle switch to the MAN position. Turn the shaft on the MAN pot to increase or decrease the pneumatic output. Return AUTO/MAN switch to AUTO position when finished.

Override Terminals (OV): When manual override switch is in manual position, contact between terminals is closed. When manual override switch is in auto position, contact between terminals is open.

Power Supply Voltage:	24 VDC or 24 VAC (+/- 10%) at EPW terminals
Supply Current:	150mA maximum
Feedback Signal Output:	Factory Calibrated 0-5 VDC = selected span
Accuracy:	2% @room temperature, 3% full scale temperature

Air Supply:	Maximum 25 psig, minimum 20 main air supply factory calibrated at 0-15 psig output
Air Flow @ 20 psig main/15 psig out, Supply valve	750 scim, Exhaust Rate: 41 scim constant bleed