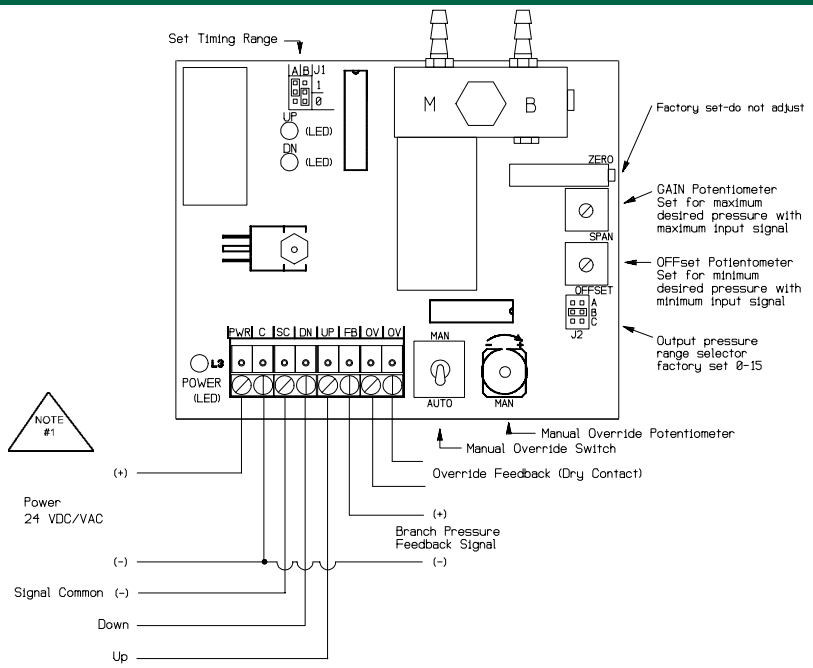
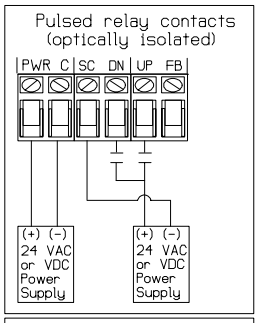
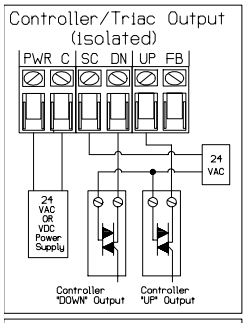
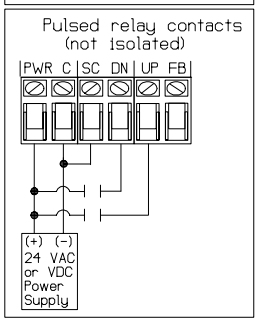
EFP

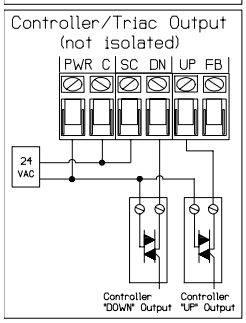
Floating Point to Modulated Pressure Output, Closed Loop Control, with Bleed Orifice











Ramping Times		
Version #1	Version #2	A B
45 Seconds	30 Seconds	1 / 0
60 Seconds	3 Minutes	
90 Seconds	6 Minutes	
120 Seconds	8 Minutes	
0186Y1A.Hex	0206Y0B.Hex	

UP LED	DOWN LED	INDICATION
On	Off	Ramping Up
Off	On	Ramping Down
Fast Blink	Off	Maximum Output
Off	Fast Blink	Minimum Output
Slow Blink	Slow Blink	Output Holding

READ THESE INSTRUCTIONS BEFORE YOU BEGIN INSTALLATION

Ground yourself to discharge static electricity before touching any electronic equipment, as some components are static sensitive. The interface can 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 up against side of snap track and lift that side of the circuit board to remove. Do not flex board. Use no 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.

SEE NOTE #1

1) **It is highly suggested that the 24 VAC neutral of all transformers be earthed 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.**
2) **If 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 24 volt DC power is shared with devices that have coils such as relays, solenoids, or triac wiring other inductors, each coil must have an MOV, DC Transorb, or a diode placed across the coil or inductor. The cathode or banded side of the diode (or DC Transorb) connects to the positive side of the power supply. *Do not power without main air supply provided.***
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.

GREYSTONE ACCURACY BY DESIGN

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The gauge should be sealed with teflon sealing tape. A backup wrench should be used to hold the manifold. ADJUSTMENT OF INSTALLED GAUGES. If installation requires adjustment of the gauge for proper reading of the face, turn the gauge no more than 1/2 turn in either direction. O rings in the bottom of the gauge port will allow this without leakage.

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.

This unit requires at least two cubic inches of branch air line capacity to operate without valve oscillation, and main air must be minimum of 2 psi above highest desired branch output pressure.

FIELD CALIBRATION

The EFP pressure output is factory calibrated at 0 psi minimum and 15 psig (20 psig is maximum). This output can be re-calibrated to match the pressure range of the actuator with the GAIN and OFF(set) potentiometers.. *Note:* The ZERO potentiometer is factory calibrated. Do not adjust.

1. Make sure the up/down signal inputs are disconnected. This will eliminate interruption by unexpected control signals.
2. Setting the minimum pressure. Place the AUTO/MAN switch to the AUTO position. Drive the EFP to the minimum position by removing the 24V power connection for 3 seconds, then reconnect. The DOWN LED will blink, indicating the output is now at minimum. Adjust the OFFSET pot to the desired pressure output, or until the actuator just starts to move. The range of the OFFSET pot is 0 to 10 psi.
3. Setting the maximum pressure. Now place the AUTO/MAN switch to the MAN position. Turn the MANUAL pot full clockwise. Turn the GAIN pot for the maximum desired output pressure, or until the actuator just stops. The range of the GAIN pot is 10.5 to 20.0 psi. Note: Be sure the MAIN air pressure is greater than the desired maximum branch output pressure.
4. Repeat. Because the OFF(set) and GAIN pots are slightly interactive, steps 2 and 3 must be repeated until the desired minimum and maximum pressures are repeatable. Since the DOWN LED is already blinking and the manual pot is set full clockwise, it is only required that you move the AUTO/MAN switch back and forth from MAN to AUTO when repeating steps 2 and 3. Calibration is usually accomplished in less than 3 iterations.

Connect the normally open (NO) terminals of two separate relays, or the normally open terminals of a tri-state relay to the “DN” and “UP” inputs. Connect the common terminal of the relay(s) to terminal SC (signal common) on the EFP. A signal to both up and down inputs for 3 seconds will cause branch line pressure to drop to 0 psi (see wiring diagrams on page 1)

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

The branch exhaust response time is determined by the combined exhaust air flow as well as pressure differentials. If power to the EFP is lost, it will continue to bleed through the orifice until branch pressure is 0 psig.

Manual override: Move the AUTO/MAN toggle switch to the MAN position. Turn the shaft on the MAN pot to vary 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:
Supply Voltage: 24 VAC (+/-10%) or 24 VDC (+/10%/-5%) measured at EFP terminals
Supply Current: 180 mA max. (4.3 VA)
Digital Input: 9-24 VAC/VDC signal trigger level@750 ohms nominal impedance
Feedback Signal Output: Factory calibrated 0-5 VDC = 0-15 psig
Air Supply: 28 psig maximum, 22 psig minimum
0-20 psig output pressure range
Air flow @ 20 psig main/15 psig out, Supply valve: 750 scim.
Exhaust rate: EFP2 and EFP2FS - 750 scim.
Exhaust rate: EFP - 14 scim.
Accuracy: 1% full scale at room temperature.
2% full scale across operating temperature range.

Rates of Change (**Version 1**)
45 seconds
60 seconds
90 seconds
120 seconds
Rates of Change (**Version 2**)
30 seconds
3 minutes
6 minutes
8 minutes

Other rates of change can be ordered.

GREYSTONE
ACCURACY BY DESIGN
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